

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

Meeting the Carbon Budgets – 2013 Progress Report to Parliament

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

October 2013

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This document is available from our website at www.decc.gov.uk

ISBN: 9780108512704

Printed in the UK by The Stationery Office Limited on behalf of the Controller of Her Majesty's Stationery Office

ID P002590078 33365 10/13 19585

Printed on paper containing 75% recycled fibre content minimum

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Foreword by The Secretary of State



The Committee on Climate Change's (CCC's) annual report has become a key point in the Department's calendar, and is a vital reality check on how well we are delivering against the legal requirement to reduce greenhouse gas emissions.

I welcome this year's report. It sends a clear message. While the Government has made good progress to date, we still need to deliver the step change that the CCC has been consistently calling for – the move to a sustainable, low carbon economy which contributes to the global imperative to limit climate change.

The CCC judges that we are highly likely to have delivered our first statutory carbon budget. But there is no room for complacency. The CCC is right that we need a significant increase in the

rate of decarbonisation if we are to deliver against future carbon budgets.

With the Energy Bill going through Parliament, the Green Deal up and running and action in many other areas, we now have the most coherent energy and climate change policy of any Government in Europe. And because we seek to maximise the economic potential of our policy platform, we are contributing significantly to the Government's overarching priority to get the economy moving. Our vision of a low carbon future is supporting jobs and creating new investment in the economy, stimulating 'Green Growth' and helping to build a new sustainable future.

The Energy Bill, now before Parliament, will enable the biggest reforms to our electricity market since privatisation. By creating a new framework of long term contracts for low carbon electricity, and a mechanism for maintaining sufficient capacity to keep the lights on, we are bringing on an estimated £110 billion of new investment needed in our electricity infrastructure this decade. We are building on a strong base, and investment is happening already. Since 2010, more than £29 billion worth of investment has been recorded in large-scale renewable energy with the potential to support around 30,000 jobs. We are now in a position where, in the second quarter of 2013, 15% of UK electricity generation was from renewables, and there is scope for that figure to reach 30% by 2020.

2 Foreword by the Secretary of State

The Green Deal and Energy Company Obligation are now available. They offer an innovative, market-led approach designed to help households and businesses put in place energy efficiency measures that will save energy, cut their bills and reduce greenhouse gas emissions. It is early days yet for these new instruments, but the early signs are positive. Since the launch of the Green Deal, over 71,000 assessments have been carried out, and the number of people signing up to get work done is increasing. Some of the most vulnerable in society have been helped by the fact that nearly 195,000 free energy efficiency upgrades to homes have been undertaken under the Energy Company Obligation covering everything from cavity wall insulation to installing more efficient heating systems. This will help some of the most vulnerable in society with their energy bills.

Since its launch, the Renewable Heat Incentive has seen over 400 MW of renewable heat capacity installed and the Renewable Heat Premium Payment has supported over 17,000 renewable heat installations, providing homes with brand new, efficient renewable heating systems that give people a low carbon way of keeping their homes warm.

In other areas, vehicle emissions are continuing to fall, and the tailpipe emissions of the average new car sold in 2012 were 26.5% lower than the equivalent in 2000.

This all adds up to the start of what will need to become a fundamental change towards a low carbon economy. Our latest projections show that we are on course to achieve each of our first three carbon budgets, but we must not lose sight of the challenge that lies ahead. As we made clear in the Carbon Plan, we need a significant acceleration in some key technologies, such as renewable heat and ultra-low emission vehicles, if we are to meet the fourth carbon budget and stay on track for the target of an 80% emissions reduction by 2050.

The CCC's annual progress report helps to highlight what we have achieved, and the good progress we are making in many areas. But it also serves as a reminder of just how much we still need to do. This Government is committed to seeing through the transformation we have now begun.

EDWARD DAVEY MP

Background to the Response

The Government is fully committed to delivering on its obligations under the Climate Change Act 2008 (the Act), the world's first long-term legally binding national framework put in place 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% (from 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 set in May 2009 and will require greenhouse gas emissions to be reduced by at least 34% below the 1990 baseline by 2020. 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 Act established clear and regular accountability to Parliament. It established the independent Committee on Climate Change (CCC), which is required to report by 30 June 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 15 October in the same year.

The CCC published their fifth progress report (Meeting the Carbon Budgets – 2013 Progress Report to Parliament)¹ on 26 June 2013. The report analysed emissions over the course of 2012 and the impact of Government policies on these.

This publication sets out the Government's response to the CCC's fifth progress report. The Government set out its strategy for meeting the first four carbon budgets, on a trajectory to the 2050 target, in the December 2011 Carbon Plan².

This response sets out the Government's assessment of the progress made in each sector of the economy, and provides a detailed response to each of the 26 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 Meeting Carbon Budgets – 2013 Progress Report to Parliament | Committee on Climate Change

² The Carbon Plan – reducing greenhouse gas emissions – Publications – GOV.UK

Executive Summary

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

The Government's latest projections suggest the UK is on track to meet its first three legally binding carbon budgets provided that current planned policies are undertaken. This will mean that by 2020, greenhouse gas emissions in the UK will have fallen by at least 34% relative to 1990 baseline levels.

The Government remains fully committed to meeting the targets set out in the Climate Change Act. Our policies are expected to put us on the right trajectory to achieve these. We are reforming the electricity market; supporting continued take-up of energy efficiency measures through the Green Deal and Energy Company Obligation (ECO); building a market for renewable heat through the Renewable Heat Incentive (RHI); and continuing to push for the European Union (EU) to show more ambition by moving to a tighter 2020 emissions target, to name a few.

The Government's provisional data shows that in 2012, UK greenhouse gas emissions including the impact of trading within the EU Emissions Trading System (EU ETS)³ increased by 1.5% to 581.8 million tonnes of carbon dioxide equivalent (MtCO₂e) from 2011. UK greenhouse gas

emissions excluding the impact of trading within the EU ETS,⁴ increased by 3.5% to 568.2 MtCO₂e from 2011. However, this increase does not reflect a long term trend. It resulted primarily from short term market conditions driving gas prices higher relative to coal and an increase in residential gas use due to a colder than average winter.

The Government welcomes the CCC's finding that good progress has been made in many areas, particularly in the deployment of certain renewable technologies and in increasing the energy efficiency of our residential buildings. However, the Government disagrees that the UK is not on track to meet its third carbon budget. The CCC's analysis for meeting the third carbon budget is based on current policies and does not take into account future policies to which the Government has already committed. Based on the reference scenario assumptions from the 2013 Updated Energy and Emissions Projections the UK is on track to meet its first three legislated carbon budgets. The Government expects to reduce emissions to below the level required by the first three carbon budgets by 54, 79 and 42 MtCO₂e respectively on the reference scenario forecasts. These projections are based on the projected impact of already announced and funded policies.

However, the Government agrees that a substantial challenge remains. We need to increase the rate of decarbonisation, particularly if we are

³ Also referred to as the net UK carbon account

⁴ Also referred to as territorial emissions

to continue to deliver emissions reductions and meet the fourth carbon budget, covering 2023-27. We are therefore taking action in a number of areas across the economy.

Power

In 2011, greenhouse gas emissions from the UK power sector were estimated to be 144.9 MtCO₂e. Provisional estimates for 2012 show that CO₂ emissions in the power sector increased by 8% to 156.5 million tonnes of carbon dioxide (MtCO₂). The Government agrees with the CCC that Electricity Market Reform (EMR) is essential in supporting investment across the portfolio of low carbon technologies.

- The Government is reforming the electricity market to attract investment in low carbon electricity generation while maintaining security of supply and minimising consumer bills. The Government plans to launch the Contracts for Difference (CfD) scheme in 2014 and recently published the draft EMR Delivery plan, including draft strike prices for renewable technologies and more details on CfDs. The Government is currently consulting on the proposals to implement EMR.
- Nuclear power is a key part of our future low carbon energy mix, and will contribute to the UK's vision of providing safe, reliable, affordable and low carbon energy for the future. Industry has set out plans to build new nuclear power stations, the first of which is expected to come on line in the early 2020s.
- The Government is committed to the development of carbon capture and storage (CCS) to reduce the emissions associated with fossil fuels and energy intensive industries. We have introduced a comprehensive package of measures to bring forward the first projects, and develop a strong cost-competitive industry. We are currently negotiating contracts for Front-End Engineering and Design (FEED) studies with the two preferred bidders in our CCS competition. These studies will inform final investment decisions expected to take place in 2015.

- In November 2012, the Government extended the Levy Control Framework for low carbon electricity to 2020/21. The current framework provides developers with unprecedented foresight of future support levels. No other area of the public spending framework extends so far into the future.

Buildings

Greenhouse gas emissions from domestic and non-domestic buildings were estimated to account for 16% of total UK emissions in 2011 – 87.9 MtCO₂e. Provisional estimates show that CO₂ emissions in the buildings sector increased by 10% to 91 MtCO₂ in 2012.

The Government notes the CCC's concerns around delivery of the Green Deal and ECO as well as take-up of low carbon heat. That is why we are extending our policies and encouraging uptake of energy efficiency measures, while providing support to fuel poor households.

- The Green Deal is the Government's flagship programme to improve the energy efficiency of British homes and businesses. The Energy Company Obligation operates alongside the Green Deal to provide insulation and heating measures to vulnerable and low-income households, and insulation measures to low income communities. ECO also provides support for those living in harder to treat properties. Green Deal and ECO represent a radical transformation in the energy efficiency market. While the schemes are at the early stages of operation, they are already encouraging consumers to take action to keep their homes warm and bills down.
- The Government recently announced a significant overhaul of the framework for fuel poverty. At the heart of these changes is a decision to adopt a new definition of fuel poverty in England, reflecting the findings of the independent Hills Review. The framework informs a set of guiding principles for future policy design and delivery, allowing for a greater degree of prioritisation of support to those who are suffering the very worst fuel poverty.

- The RHI provides financial incentives to install renewable heating in place of fossil fuels. The Government is committed to extending the Renewable Heat Incentive to the residential sector and announced the Domestic RHI policy in July 2013. We are expecting to open the scheme for applications in spring 2014. We have confirmed a budget of up to £430 million for the RHI in 2015/16 and are working to address the non-financial barriers to take-up.
- The Government has established a Heat Network Delivery Unit within DECC, staffed by external experts from the sector, to promote the development of low carbon heat networks in urban areas. This will be done through the provision of £6 million of grants to assist project development and by spreading expertise and best practice. As set out in the March publication *The Future of Heating: Meeting the Challenge*, heat networks situated in appropriate areas with sufficient density of demand can reduce emissions, exploit a greater variety of low carbon heat sources, provide useful energy storage capacity, and reduce bills for consumers.

Industry

Greenhouse gas emissions from the industry sector (energy supply, industrial combustion and industrial processes) were 133 MtCO₂e in 2011. Provisional estimates show that CO₂ emissions from the industry sector increased by 1% between 2011 and 2012 to 115 MtCO₂.

The Government is committed to continuing to support emissions reductions in the industrial sector whilst ensuring that UK industry remains competitive. That is why we have published the Strategy for Energy Efficiency⁵ and announced a £250 million Energy Intensive Industries package to ensure that manufacturing is able to remain competitive during the shift to a low carbon economy.

The Government is also developing industrial energy efficiency and decarbonisation 2050 roadmaps to set out carbon reduction scenarios and action plans for the key heat-intensive

industry sectors. These roadmaps will enable the Government and industry to identify energy efficiency measures and new technologies for each sector.

Transport

Greenhouse gas emissions from surface transport fell by 1.2% between 2010 and 2011. Over the same period domestic aviation emissions fell by 4.5%. The Government already has a suite of policies to ensure emissions reductions in this area.

- The Government has committed over £500 million of additional capital investment to 2020 to continue supporting industry and consumers in the switch to the latest ULEVs technology. A stable framework of support for ULEVs has also been provided through the tax regime and a comprehensive strategy on how the Government will support ultra low emission vehicles has been published⁶.
- The Government announced in February, £37 million of government funding for plug-in vehicle charging infrastructure across the UK. This commitment will support the installation of the charging points in homes, on streets, in railway station car parks, the wider public sector estate as well as the installation of rapid chargers in strategic locations.

The Government agrees with the CCC's recommendation on biofuels. At EU level, the UK Government has consistently called for action to address indirect land use change (ILUC) that recognises the direct and indirect impacts of biofuels. ILUC negotiations continue in Europe and the Government is pushing for swift resolution.

The Government also agrees with the CCC's recommendation on monitoring and evaluation progress on the Local Sustainable Transport Fund (LSTF). Monitoring and evaluation plays an important role in the delivery of the LSTF and has been carefully considered from the outset. Department for Transport economists are working with projects which received more than

⁵ https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/65602/6927-energy-efficiency-strategy--the-energy-efficiency.pdf

⁶ <https://www.gov.uk/government/publications/driving-the-future-today-a-strategy-for-ultra-low-emission-vehicles-in-the-uk>

£5 million in funding to ensure their proposed methodologies are robust and meet Government objectives.

Agriculture and Land Use

Emissions from agriculture and land use increased by less than 1% between 2010 and 2011 to 47.8 MtCO₂e. Emissions from fertilisers and livestock dominate this sector which contributed 9% of total UK emissions in 2011. 2011 greenhouse gas emissions from agriculture and land use were nearly 30% lower than in 1990.

Nitrous oxide and methane are the prominent greenhouse gases in agriculture. Emissions from these greenhouse gases combined, and excluding land use, fell by 20% between 1990 and 2011.

Work continues to develop the agricultural greenhouse gas inventory to explicitly represent on-farm greenhouse gas mitigation practices, which are not captured at present. The new inventory is progressing well and will be implemented in 2015.

The Government welcomes the progress made over the past year including the engagement of feed advisers through the Feed Adviser Register. This is a positive step in the direction of advising farmers how to both save on their input costs and also reduce their greenhouse gas emissions.

The recently published UK Strategy for Agricultural Technologies is intended to stimulate the development of technologies that will support more resource efficient and profitable farming with lower environmental impact. There will be close linkages with the Sustainable Intensification Research Platform which will develop methodologies for determining the most efficient use of available natural resources.

Waste

Greenhouse gas emissions from waste fell by 3% between 2010 and 2011. The Government agrees with the CCC that we need to reduce the amount of biodegradable waste sent to landfill. We have implemented a number of policies to achieve this.

In reducing biodegradable waste, the Government's priority is to prevent it being produced in the first place. We have worked successfully with industry to reduce supply chain food and packaging waste by nearly 10% over the last three years, while household food waste is down by even more – 13% since 2006. As well as the continuation of the Courtauld agreement to reduce food and packaging waste in the retail and manufacturing sector, we have launched a further voluntary agreement which takes the same approach with the hospitality and food service sector.

The Government agrees with the CCC that we should support in principle the European Commission (EC) proposal for the further regulation of fluorinated greenhouse gases ("F gases"). However, there is no "one size fits all" solution to the regulation of F gases given the range of F gases, equipment and applications. Policy measures must therefore take into account the numerous types of products and equipment concerned and a wide range of factors that impact the feasibility and cost effectiveness of alternatives to F gases.

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

1.1 The provisional emissions estimates for 2012⁷, published earlier this year, on the performance of UK greenhouse gas emissions against UK emission reduction targets showed that:

- UK greenhouse gas emissions excluding the impact of trading within the EU ETS, increased by 3.5% to 568.2 MtCO₂e (from 549.2 MtCO₂e in 2011).
- UK greenhouse gas emissions including the impact of trading within the EU ETS, increased by 1.5% to 581.8 MtCO₂e in 2012 (from 573.2 MtCO₂e in 2011).

1.2 *Figure 1* shows the change in emissions over 2011 and 2012.

1.3 The increase in emissions between 2011 and 2012 does not reflect a long term trend. It resulted primarily from:

- lower use of gas and greater use of coal for electricity generation at power stations, due to short term market conditions driving gas prices higher relative to coal; and
- an increase in residential gas use, resulting from a colder than average winter. *Figure 2* shows that average daily temperatures during 2012 were 0.9°C lower than in 2011.

Figure 1: Emissions over 2011 and 2012

Scope	Baseline	Emissions (MtCO ₂ e)		Percentage change from 1990 baseline	
		2011	2012 (p)	2011	2012 (p)
UK greenhouse gas emissions excluding the impact of trading within the EU ETS	774.3	549.2	568.2	-29%	-27%
UK greenhouse gas emissions including the impact of trading within the EU ETS		573.2	581.8	-26%	-25%

Source: UK greenhouse gas emissions statistics, DECC
<https://www.gov.uk/government/organisations/department-of-energy-climate-change/series/uk-greenhouse-gas-emissions>
 Note: (p) = provisional

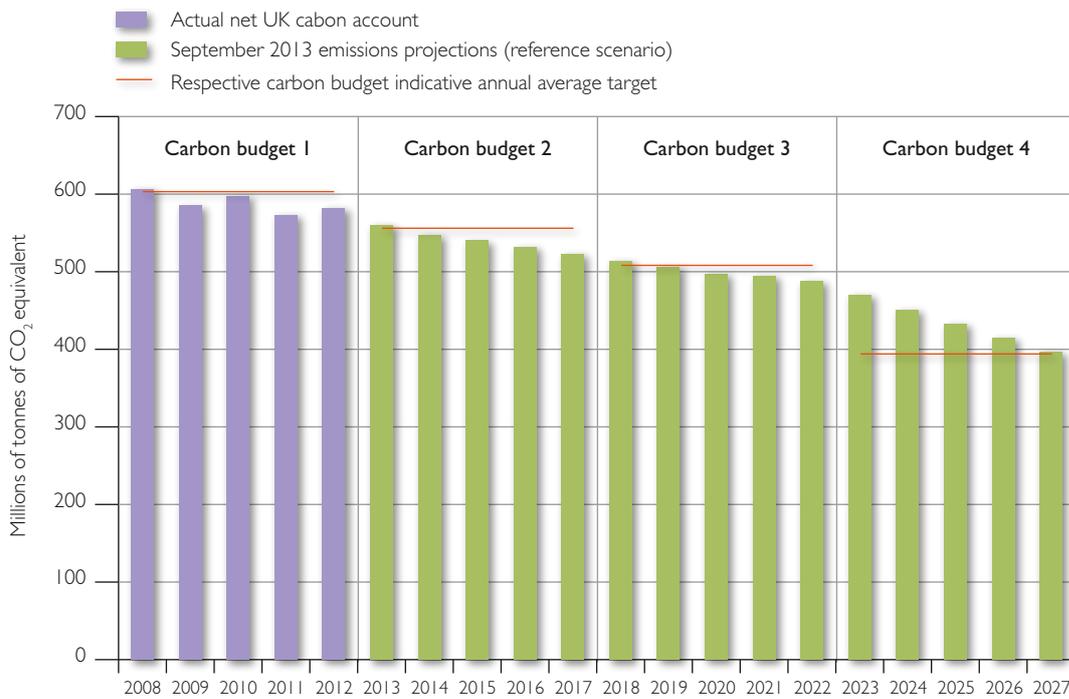
⁷ UK greenhouse gas emissions for 2012 are provisional and may be subject to change. More details on the provisional figures for 2012 can be found here: <https://www.gov.uk/government/organisations/department-of-energy-climate-change/series/uk-greenhouse-gas-emissions>

Figure 2: Average daily temperatures for 2010, 2011 and 2012 (degrees Celsius)

1981 to 2010	2010	2011	2012
9.9	9.0	10.7	9.8

Source: UK Energy Trends Weather Statistics (Table 7.1), DECC
<https://www.gov.uk/government/statistical-data-sets/december-2012-energy-trends-weather-data>

Figure 3: Progress against carbon budgets



Source: UK greenhouse gas emissions statistics and Updated Emissions Projections, DECC.

Pace of emissions reductions

1.4 The long term trend in the UK’s emissions continues on a downward trajectory (see figure 3).

1.5 Figure 1 shows that UK greenhouse gas emissions including the impact of trading within the EU ETS had decreased by 25% in 2012 relative to the carbon budgets baseline. The first carbon budget requires that the 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.

1.6 Figure 4 summarises the UK’s progress against 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.

1.7 The Government’s latest projections indicate that 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 level required by the first three carbon budgets by 54, 79 and 42 MtCO₂e respectively on the reference scenario forecasts (see figure 5).

1.8 The fourth carbon budget, which was set 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 change. This budget was set at 1,950 MtCO₂e, or around 50% below the baseline.

Figure 4: Progress against first carbon budget

Carbon Budget 1		Actual emissions including EU ETS MtCO ₂ e						Overall emissions below budget 2008-2012
Level of first carbon budget (total emissions, 2008-12)	Equivalent average emissions p.a.	2008	2009	2010	2011	2012 (p)	Cumulative emissions to date (2008-12)	
3,018	604	606	585	597	573	582	2,943	75

Source: UK greenhouse gas emissions statistics, DECC

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/211907/Progress_towards_targets_2012_provisional_figures.pdf

Note: These data are on the same basis as the NET UK Carbon Account projections in Figure 5.

1.9 Based on current planned policies there is an expected shortfall of 215 MtCO₂e over the fourth carbon budget, which reflects that detailed policy has not yet been set out so far into the future. In the Carbon Plan, the Government set out a number of scenarios for bridging the previous assumed shortfall (181 MtCO₂e). The revised estimation reflects a number of factors, including revised population projections, fossil fuel price projections, inventory corrections, and revisions to estimated savings from policies.

1.10 Under the Climate Change Act, emissions reductions by the UK's industrial and power sectors are determined by the UK's share of the EU emissions trading scheme cap. That protects the UK industrial and power sectors from exceeding EU requirements. However, if the EU ETS cap is insufficiently ambitious, disproportionate strain could be placed on sectors outside the EU ETS, such as transport. To overcome that problem, and to provide clearer signals for businesses and investors, the Government will review progress towards the EU

emissions goal in early 2014. If at that point our domestic commitments place us on a different trajectory from the one agreed by our partners in the EU under the ETS, we will revise up our budget as appropriate to align it with the actual EU trajectory.

1.11 In reaching this decision, the Government will take into account advice from the Committee on Climate Change and the views of the Devolved Administrations.

1.12 In line with the coalition agreement, the Government will continue to argue for an EU move to a 30% target for 2020, and for ambitious action in the 2020s.

1.13 The Government agrees that a substantial challenge remains. Since the last progress report, which covered emissions for 2011, the Government has introduced and implemented additional policy initiatives, and continues to develop this framework. The Government's long-term aim is to deliver: a greener, more

Figure 5: 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	2,925	2,607	2,223	2,093
Net UK Carbon Account	2,964	2,703	2,502	2,165
Projected performance against first four carbon budgets.	-54	-79	-42	215
Uncertainty range	-54 to -54	-114 to -49	-103 to 24	135 to 315

Source: Emissions projections derived from Updated Emissions Projections (published September 2013).

<https://www.gov.uk/government/organisations/department-of-energy-climate-change/series/energy-and-emissions-projections>

Note: The net UK carbon account relates to UK greenhouse gas (GHG) emissions including the impact of trading within the EU ETS and territorial emissions are UK GHG emissions excluding the impact of trading within the EU ETS.

The uncertainty range is a 95% confidence interval.

energy efficient economy with more and better insulated homes (through the Green Deal and ECO); decarbonisation of the electricity sector (through Electricity Market Reform) – boosting investor confidence in new low carbon energy infrastructure; increased renewable energy capacity; and greener more efficient transport. Together, these measures will enable the transition to a low carbon economy while maintaining energy security, and minimising costs to consumers.

Chapter 2: Power Sector Emissions

Emissions Trends

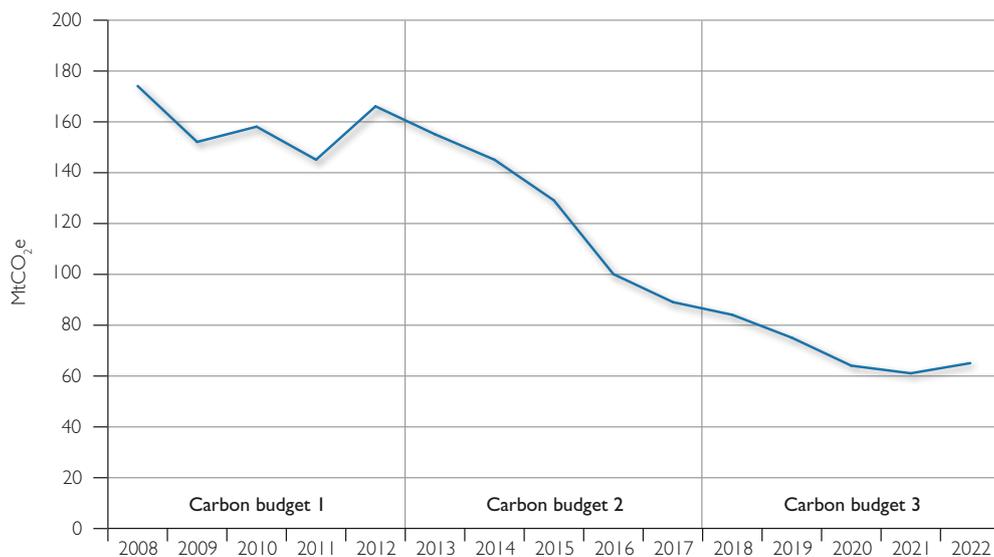
2.1 In 2011, greenhouse gas emissions from the UK power sector⁸ were estimated to be 144.9 MtCO₂e – 8% lower than in 2010 and 29% lower than in 1990. In 2011 the power sector was responsible for 26% of UK greenhouse gas emissions.

2.2 CO₂ emissions are the most prominent greenhouse gas for the power sector. In 2012 CO₂ emissions were provisionally estimated to have increased by 8%, to 156.5 MtCO₂e, returning to 2010 levels. This increase in demand was

driven by a change in the fuel mix used at power stations with a decrease in gas use for generation, alongside an increase in the use of coal. In 2012, CO₂ emissions from power stations accounted for just under a third of all CO₂ emissions.

2.3 Figure 6 shows the latest emissions projection trajectory for the power sector over the first three carbon budgets. By 2022 emissions from power stations are expected to decrease by 62% relative to 2008 levels.

Figure 6: Emissions projections for power stations for the first three carbon budgets



Source: Emissions projections derived from Updated Emissions Projections (published September 2013).
<https://www.gov.uk/government/organisations/department-of-energy-climate-change/series/energy-and-emissions-projections>.
 Note: This chart is for illustrative purposes only.

⁸ Covers power stations as defined in the Carbon Plan. Final greenhouse gas emissions for 2012 will be available in 2014.

Renewables

2.4 As recognised by the CCC, a record amount of capacity from low carbon technologies was added in 2012. Installed generation capacity reached 15,538 MW at the end of 2012, an increase of 27% during the year (see figure 7). The largest contributor towards the increase was 1,256 MW from onshore wind, with a further 1,157 MW from offshore wind; capacity from solar photovoltaics increased by 713 MW; and capacity from the variety of bioenergy technologies increased by a combined 134 MW.

2.5 Between 2011 and 2012, total electricity generation from renewables amounted to 41,258 GWh – an increase of 19%.

2.6 In June 2013, Government published the draft strike prices for renewables technologies, including offshore wind, up to 2018/19. They are being set at a level to achieve the Government’s objectives on renewables deployment and low carbon generation, enabling over 30% of Britain’s electricity to come from renewable energy sources by 2020. Alongside the draft strike

prices, Government published the limits on annual spending on low carbon generation as agreed in the Levy Control Framework (LCF) up to 2020/21, as well as potential 2020 deployment sensitivities for each renewable technology⁹.

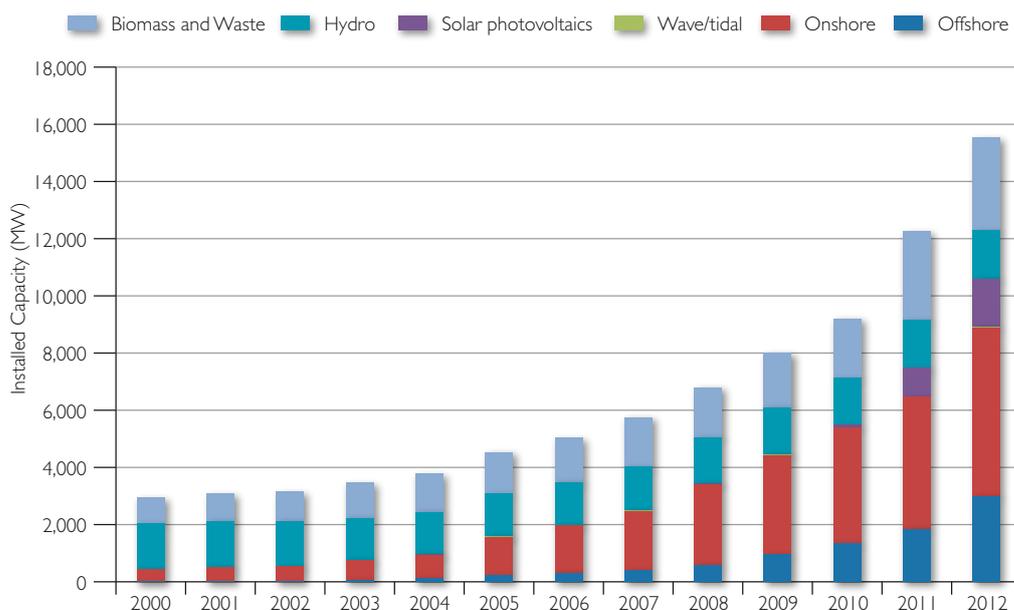
CCC Recommendations and Government Response

Recommendation 1

Set out in the Delivery Plan for the Electricity Market Reform (EMR) the quantity of capacity to be contracted during the period 2014/15 to 2018/19, and the intended prices for wind generation.

2.7 The draft EMR Delivery Plan was published for consultation in July. It set out proposed strike prices for projects commissioning up to 2018/19 and possible capacity ranges by technology (including those for wind generation) for 2020. These capacity ranges are not targets, and actual deployment will depend on how much take up there is by industry at these strike prices. The Government is mindful of the importance of providing an indication of build beyond 2018/19,

Figure 7: Cumulative renewable electricity installed capacity (MW), UK, 2000 to 2012



Source: DUKES 2013 Table 6.4
<https://www.gov.uk/government/publications/renewable-sources-of-energy-chapter-6-digest-of-united-kingdom-energy-statistics-dukes>

⁹ Potential 2020 deployment sensitivities are dependent on industry cost reductions over time and the figures are not Government forecasts.

particularly for projects with long lead times, such as offshore wind projects. However, making commitments so far into the future would also significantly impair the Government's ability to secure value for money by preventing us from reflecting on the experience of EMR's initial operation.

2.8 The Government noted this tension in Annex E¹⁰ to the EMR policy overview document last year, when we said that the annual update to be published in 2015 is likely to include the Contracts for Difference (CfD) strike prices for later years of this decade, as it would be difficult to set those strike prices accurately in the first delivery plan. We are considering how best to provide such certainty and will confirm our approach as part of the first Delivery Plan expected to be published in December 2013. The Government is currently consulting on the proposals to implement EMR.

Recommendation 2

Resolve detailed implementing issues for EMR relating to contract design and payment mechanism as the Energy Bill is finalised, ready to sign contracts in 2014.

2.9 The Government accepts the CCC's recommendation and has committed to the CfD regime launching in 2014. In July 2013, the Government also published draft strike prices for consultation (as referenced above) and published considerable further detail on the contract terms, the way that CfDs will be allocated by National Grid, and a response to our consultation earlier this year on the supplier obligation (the funding stream for meeting CfD costs).

2.10 DECC is working closely with stakeholders on the implementation of EMR. Collaborative development, a phase of EMR in which industry will work closely with DECC and delivery partners on developing the detailed design of EMR systems and processes for implementation, began in the summer and will continue into October 2013. In addition, on 10 October 2013 Government published for consultation detailed

proposals for implementing Electricity Market Reform, alongside key sections of draft secondary legislation to help illustrate the policy proposals. This consultation will give stakeholders an opportunity to comment on our detailed plans for implementation; and to allow the Lords to scrutinise the detail of EMR ahead of Report stage of the Energy Bill.

Recommendation 3

Clarify that the funding under the levy control framework will be calculated relative to the cost of building and running a new unabated gas-fired plant rather than the wholesale electricity price and increase funding if contract lengths are shorter than expected project lifetime.

2.11 The LCF is calculated relative to the wholesale electricity price because this is the measure used to report the effective amount of tax raised through consumer bills by the Office for National Statistics (ONS). The current LCF limits are sufficient to meet the Government's objectives when levy costs are calculated against the wholesale electricity price and contract lengths are 15 years, as demonstrated by the analysis underpinning the draft EMR Delivery Plan. In particular, this analysis shows that, given these approaches, more than 30% of electricity generation in 2020 can be renewable without exceeding the LCF limits. This analysis accounted for the effect of renewables deployment on the wholesale electricity price. As a result, the Government does not believe that there is a strong case for changing the way the LCF is calculated at present or for revising the existing LCF limits.

2.12 In future LCF periods, the effect of additional renewables deployment on the wholesale electricity price may become larger and more uncertain. If so, the current levy costs measure would be a less effective proxy of the net effect of levy-funded policies on consumer bills.

¹⁰ https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/65639/7081-electricity-market-reform-annex-e.pdf

Recommendation 4

Agree the contract for the first new nuclear project.

2.13 The Government remains firmly committed to its efforts to ensure that the conditions are right for investment in new nuclear power in the UK. The UK's new nuclear programme is advancing positively with projects currently being taken forward by NNB GenCo, NuGen and Horizon Nuclear Power. These projects would lead to around 16GW of new nuclear power in the UK.

2.14 The Government's negotiations on commercial terms and CfD strike price for the proposed new nuclear generating plant at Hinkley Point C in Somerset are ongoing. An agreement will be reached only if it is fair, affordable, offers value for money for consumers and is consistent with the Government's policy of no public subsidy for new nuclear.

Recommendation 5

Provide clarity on power sector development through the 2020s: legislate a target for carbon intensity of power generation in 2030; set out commercialisation strategies for carbon capture and storage (CCS) and offshore wind; extend the levy control framework to 2030.

2.15 The Government is already taking a number of actions to provide clarity on power sector development through the 2020s.

2.16 The Government has taken new powers in the Energy Bill that is currently before Parliament to allow the Secretary of State to set a **decarbonisation target range** for the electricity sector through secondary legislation. This power to set a decarbonisation target range can be exercised following advice from the Committee on Climate Change on the level of the 5th carbon budget that covers the corresponding period (2028-32) and when the Government has set this budget in law, which is due to take place in 2016.

2.17 This timing means that a decision on whether to set a target range will not be taken in isolation, but in the context of the decarbonisation

of the whole economy. This recognises the critical importance of the interaction between the electricity sector and other sectors of the economy in achieving carbon reductions.

2.18 On **CCS**, ensuring the success of our £1 billion CCS Competition is rightly the Government's priority. Without these first projects proving the technology at scale and reducing risk, the task of building a successful CCS industry is even more challenging.

2.19 However, we are also looking more widely at how we can help this young industry develop. We are strengthening the case for investment through our de-risking work and our wider EMR programme. We recognise the importance of nurturing an effective CCS supply chain and are investigating ways to foster such a chain from the prospective commercialisation programme.

2.20 We set our approach in last year's CCS Roadmap and have worked closely with industry on the CCS Cost Reduction Task force to identify the actions that are required to get costs down and commercialise CCS. We will shortly publish a response to the Cost Reduction Task Force and together with industry, are working to take forward the actions recommended in the report.

2.21 The Government agrees with the CCC that there is significant potential to further develop the **offshore wind** sector in the UK. Strong progress has already been made: the UK has more offshore wind deployed than the rest of the world combined. However, this is still a relatively new sector and development of a competitive supply chain has a vital role to play in reducing the cost of offshore wind, through increasing competition and reducing bottlenecks which may slow down deployment.

2.22 To address this challenge, the Government published the 'Offshore Wind Industrial Strategy' in August 2013. This sets out how industry and Government will work together to build a competitive and innovative UK supply chain that delivers and sustains jobs, exports and economic benefits for the UK, supporting offshore wind as a core and cost-effective part of the UK's long-term electricity mix.

2.23 The Government also agrees with the CCC that cost reduction is required, and that cost reduction is a key determinant relating to how much offshore wind will be built. The Government's long-term vision is for low carbon generation to compete fairly on cost, without financial support and delivering the best deal for the consumer.

2.24 In view of the importance of cost reduction, both to the future of the sector, and to the consumer, the Offshore Wind Cost Reduction Task Force ('the Task Force') was established to set out a path and action plan to reduce the costs of offshore wind to £100/MWh by 2020. It reported to DECC and Devolved Administration Ministers in June 2012 and concluded that £100/MWh by 2020 was challenging but achievable. The industry led Offshore Wind Programme Board is taking forward implementation of the recommendations made by the Task Force as well as looking to address other barriers to offshore wind deployment.

2.25 In 2012, the Government extended the LCF so that investors have seven years visibility rather than three (i.e. out to 2020/21). This enables investors in technologies with longer lead times to plan their investments. The UK is, therefore, one of the best countries in the world in terms of providing clear forward visibility of the financial backing for low carbon policies. The Government does not have any immediate plans to further extend the LCF beyond 2020/21, but recognises the need to provide investors with clarity over both the amount of funding available and the interaction between the LCF and Electricity Market Reform. Further detail on how the LCF will be allocated across the Renewables Obligation (RO) and CfDs under the Electricity Market Reform will be included in the final EMR Delivery Plan, due to be published towards the end of this year.

Recommendation 6

Ensure the two selected CCS projects move forward such that contracts can be signed by early 2015, enabling plant to become operational by 2018/19. Set out the timing of further projects and approaches to de-risking and CO₂ infrastructure development.

2.26 The Government is currently negotiating contracts for Front-End Engineering and Design (FEED) studies with the two preferred bidders in the CCS competition. These FEED studies are invaluable not just for providing further technical and cost certainty for the projects involved, but also for the detailed information they provide to wider industry and academics through our free dissemination programme.

2.27 The FEED studies will inform final investment decisions, expected to take place in 2015. Accurate build times will only be determined through the FEED process, and will depend on the individual project, but we expect projects to be operational between 2016-2020.

2.28 Timings of projects outside the Competition will be a commercial matter for the developer, however our modelling suggests up to 12GW could be deployed by 2030, and with industry ambition for even higher deployment¹¹. We are keen to see projects come forward outside the Competition and are already engaging with a number of developers to understand what conditions they need to bring forward their projects without capital support from Government.

2.29 With regard to de-risking and infrastructure development, our comprehensive Commercialisation Programme is designed to tackle these issues which we know are important for the development of a CCS industry. Demonstrating successful full-chain commercial scale projects will reduce many of the financial and commercial risks currently associated with the CCS chain. Our preferred portfolio of projects will demonstrate CCS on both coal and gas, as well as proving storage in depleted hydrocarbon fields

¹¹ https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/238867/Consultation_on_the_draft_Delivery_Plan__amended_.pdf

and saline aquifers. This comprehensive approach allows us to de-risk a far greater range of issues, in different geographic locations.

2.30 We are also taking further action, working with industry and the finance community through the CCS Commercial Development Group to facilitate accurate assessment and costing of risks.

2.31 In addition, the Commercialisation Programme projects will lay down the first CCS infrastructure in the UK, creating a network of transport infrastructure and proving offshore CO₂ stores that other projects can benefit from. Further details of infrastructure plans will be set out through the FEED process.

Recommendation 7

Set stretching sustainability standards for the use of biomass, and require that forest biomass comes from sustainably managed forests.

2.32 The Government agrees with the CCC's recommendation and is committed to ensuring that the biomass used for energy in the UK is sustainable.

2.33 On 22 August 2013, the Government published its decisions on the sustainability criteria that will apply to the use of solid biomass and biogas supported by the RO¹². The biomass sustainability criteria, which will be brought in on a reporting basis from April 2014, are set to be robust but achievable. The intention is to provide certainty to bioenergy investors regarding stretching standards that will need to be met and confidence to the public that biomass electricity and combined heat and power (CHP) will deliver real greenhouse gas emissions saving and not result in deforestation or environmental degradation.

2.34 The Government has decided to bring in tighter greenhouse gas lifecycle trajectories to require the biomass power industry to achieve larger savings than the current 60% emissions saving target compared to the EU fossil electricity

average in a series of steps over time. The trajectory tightens to a target of 200 g CO₂e per kWh (72% saving) in 2020 based on the annual average of the biomass consignments used, and reduces further to 180 g CO₂e per kWh target in 2025 (75% saving).

2.35 To ensure that wood-fuel comes from sustainably managed forest, the Government has also decided to bring in new sustainable forest management criteria based on the UK Timber Procurement Policy principles. The application of these principles draws on established sustainable forest certification schemes, such as the Forest Stewardship Council (FSC) and the Programme for the Endorsement of Forest Certification (PEFC) schemes that cover a range of social, environmental and economic issues, including sustainable harvesting and restocking rates.

2.36 The Government will also require that biomass power generators of 1 MWe capacity and above provide an independent audit of their sustainability report. From April 2015, it is intended that the criteria will become mandatory, that is generators of 1 MWe and above will be required to demonstrate they have met the biomass sustainability criteria to be eligible for RO support.

2.37 The Government has decided to apply a similar approach to the use of solid biomass and biogas for heat including applying the same sustainable forest management criteria to the Renewable Heat Incentive (RHI)¹³. However, reflecting that biomass heat offers higher energy efficiencies than electricity only and can already achieve well below a 200 g target, we have set a flat greenhouse gas target of 125 g CO₂e per kWh (thermal).

2.38 The Government intends to review the effectiveness of the UK's approach, taking account of benefits from our wider actions in areas such as global carbon accounting rules and stopping illegal logging, as part of the UK Bioenergy Strategy Review in 2017.

¹² DECC (2013) Government Response to *Biomass Sustainability Criteria* RO consultation <https://www.gov.uk/government/consultations/ensuring-biomass-affordability-and-value-for-money-under-the-renewables-obligation>

¹³ DECC (2013) Government Response to *'Providing Certainty, improving performance'* consultation https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/128679/Gov_response_to_non_domestic_July_2012_consultation_-_26_02_2013.pdf

Additional CCC findings

Low carbon technologies – Wind

The future pipeline remains strong, with sufficient projects awaiting construction or in planning to meet our indicators to 2020. Delivering these projects will require that... financial barriers are addressed (e.g. the Green Investment Bank mobilising project finance for offshore wind).

2.39 The Government acknowledges the importance of the availability of finance for the growth of the sector. The Green Investment Bank (GIB) has identified offshore wind as one of its priority sectors and has already provided equity investment into Rhyl Flats and debt investment into Walney. Additionally, the Department for Business, Innovation and Skills (BIS) acted as cornerstone investor in the Greencoat UK Wind initial public offering (IPO) earlier this year and GIB supported the execution of the transaction.

2.40 The Offshore Wind Cost Reduction Task Force made a number of recommendations¹⁴ relating to financing the sector, which are being addressed by the Offshore Wind Programme Board.

¹⁴ https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/66776/5584-offshore-wind-cost-reduction-task-force-report.pdf

Chapter 3: Buildings Emissions

Emissions Trends

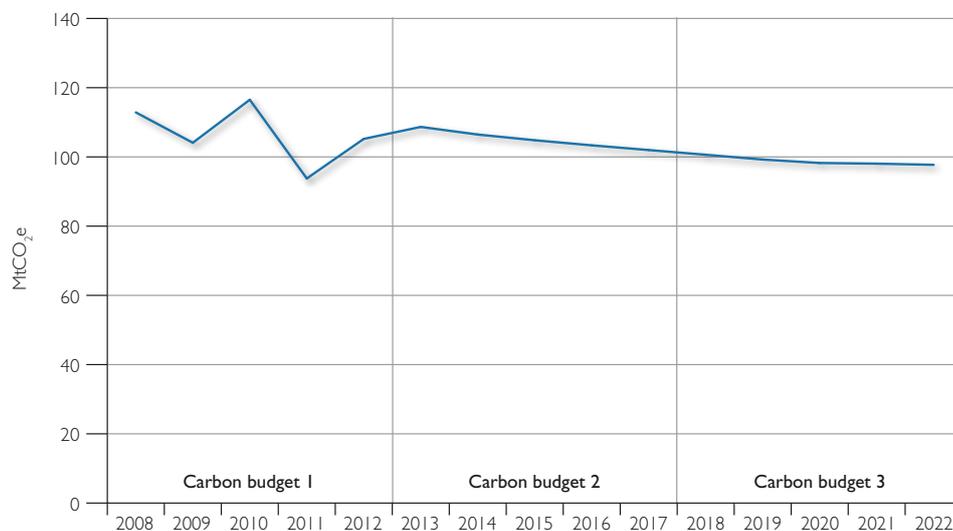
3.1 Greenhouse gas emissions from domestic and non-domestic buildings were estimated to account for 16% of total UK emissions in 2011 – 87.9 MtCO₂e. 2011 was a significantly warmer year than 2010, which consequently contributed to a fall of 20% in emissions from 2010, mainly from a reduction in space heating.

3.2 Carbon dioxide is the main greenhouse gas emitted in the buildings sector, with provisional 2012 CO₂ emissions estimated to be 91 MtCO₂e

– 10% higher than in 2011. This year-to-year change was again influenced by external temperatures with the average temperature in 2012 being 9.8°C compared to 10.7 in 2011 and 9.0 in 2010.

3.3 *Figure 8* shows the latest emissions projection trajectory for the buildings sector over the first three carbon budgets. Emissions from buildings are expected to reduce by 13% by 2022 relative to 2008 levels.

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

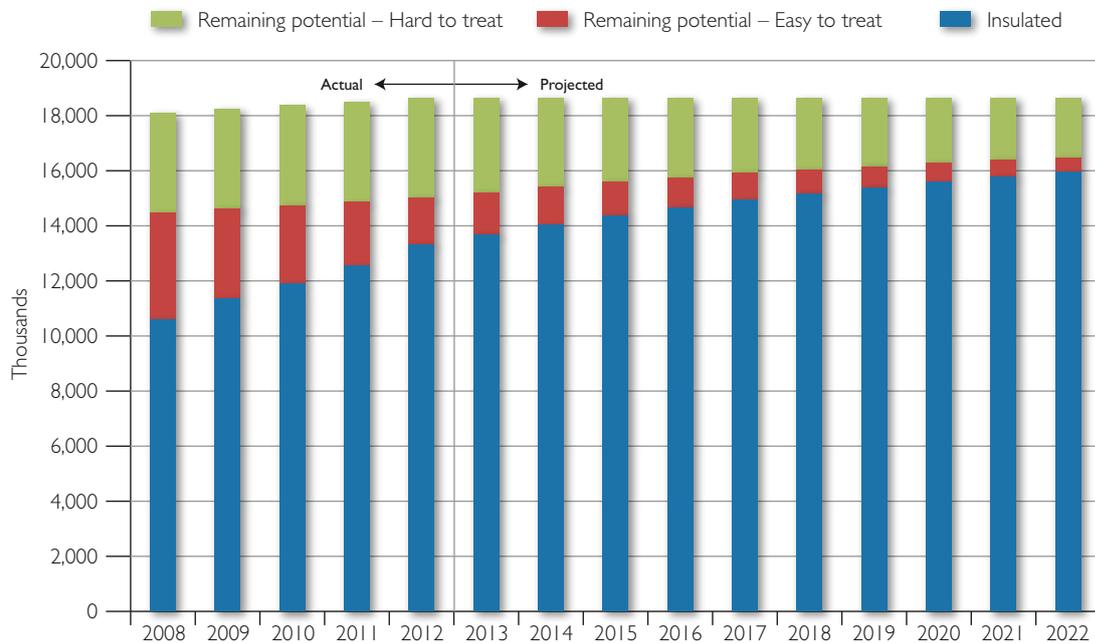


Source: Emissions projections derived from Updated Emissions Projections (published September 2013).

<https://www.gov.uk/government/organisations/department-of-energy-climate-change/series/energy-and-emissions-projections>.

Note: This chart is for illustrative purposes only. There is no direct estimate for buildings from the UEP. This estimate includes emissions from Residential, Public Services, Commercial Services and a proportion of emissions from Industrial combustion.

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



Source: Actual: Estimates of home insulation levels in Great Britain <https://www.gov.uk/government/organisations/department-of-energy-climate-change/series/estimates-of-home-insulation-levels-in-great-britain>
 Projections: Modelling for the Green Deal and ECO Final Impact Assessment, June 2012 – https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/42984/5533-final-stage-impact-assessment-for-the-green-deal-a.pdf
 Note: Projections relate to retrofit projects only. There is a high level of uncertainty associated with the uptake projections¹⁵. Estimates and projections of remaining potential include households with limited potential. These properties are not fully insulated and it is likely that they already have a relatively good thermal performance which means savings from having cavity wall insulation installed would be lower than for older properties.

3.4 As noted by the CCC, good progress has been made on cavity wall and loft insulation. At the end of 2012, the total number of properties with cavity wall insulation was 13.3 million and there were only approximately 750,000 easy to treat standard cavities left unfilled. Figure 9 shows historical and projected deployment of cavity wall insulation over the period of the first three carbon budgets.

3.5 Figure 10 shows historical and projected deployment of loft insulation over the same period. This has been equally strong with 16.1 million properties with a loft having loft insulation at the end of 2012. The Government estimates suggest that Green Deal and ECO could increase the number of cavity wall and loft (mainly top-up) insulations by 2.62 and 1.66 million respectively by 2022¹⁶. Only around 1% of properties with lofts have no loft insulation at all.

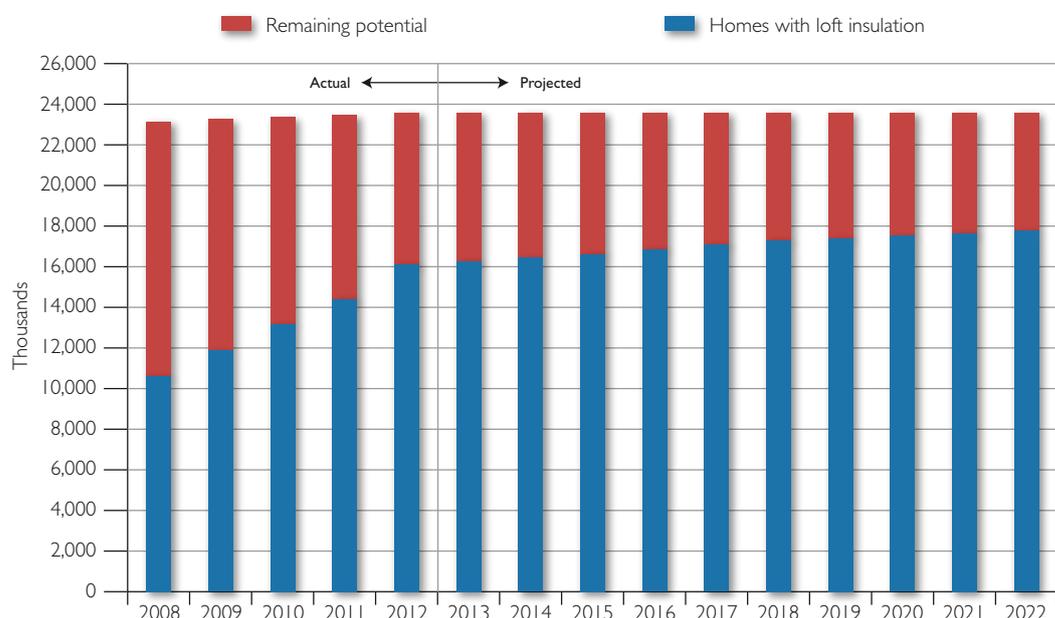
3.6 Figure 11 shows historical and projected deployment of solid wall insulation over the period of the first three carbon budgets. By the end of 2012, 204,000 properties had solid wall insulation. Government estimates suggest that the Green Deal and ECO could increase the number of solid wall insulations by 960,000 by end of 2022¹⁷.

¹⁵ For further information see the *Final Stage Impact Assessment for the Green Deal and Energy Company Obligation*.

¹⁶ Modelling for the Final Green Deal and ECO June 2012 Impact Assessment

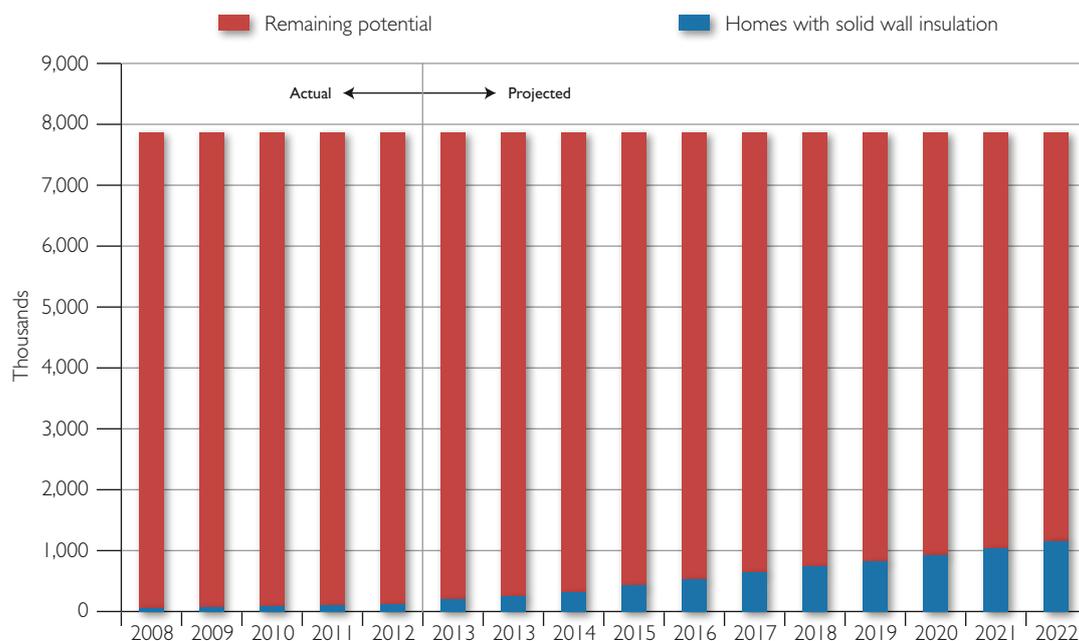
¹⁷ Modelling for the Final Green Deal and ECO June 2012 Impact Assessment

Figure 10: Historical and projected deployment of adequate loft insulation and remaining (mainly) top-up¹⁸ potential over the first three carbon budgets (cumulative)



Source: Actual: Estimates of home insulation levels in Great Britain <https://www.gov.uk/government/organisations/department-of-energy-climate-change/series/estimates-of-home-insulation-levels-in-great-britain>
 Projections: Modelling for the Green Deal and ECO Final Impact Assessment, June 2012 – https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/42984/5533-final-stage-impact-assessment-for-the-green-deal-a.pdf
 Note: Projections relate to retrofit projects only and captures professional loft insulation only. There is a high level of uncertainty associated with these uptake projections.

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



Source: Actual: Estimates of home insulation levels in Great Britain <https://www.gov.uk/government/organisations/department-of-energy-climate-change/series/estimates-of-home-insulation-levels-in-great-britain>
 Projections: Modelling for the Green Deal and ECO Final Impact Assessment, June 2012 – https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/42984/5533-final-stage-impact-assessment-for-the-green-deal-a.pdf
 Note: Projections relate to retrofit projects only. There is a high level of uncertainty associated with these uptake projections.

¹⁸ Only around 1% of properties with lofts have no form of insulation.

CCC Recommendations and Government response

Recommendation 8

Carry out an early review of the Green Deal and ECO and consider further incentives to encourage uptake of measures (especially lofts and cavity wall insulation).

3.7 The Government is committed to encouraging uptake of energy efficiency measures. Green Deal and ECO represent a radical transformation in the market for energy efficiency measures. Both schemes are at the early stages of operation, and are already encouraging consumers to take action to keep their homes warm and bills down. To stimulate demand, we have introduced the Cashback and Green Deal Communities Schemes. The Green Deal Communities is a fund which gives grants to Local Authorities who make a successful bid to incentivise area wide installation of energy efficiency improvements eligible under the Green Deal and using the Green Deal Supply Chain (Green Deal Assessors, Installers and Providers).

3.8 The Government is closely monitoring delivery of energy efficiency measures: Green Deal statistics are released on a monthly basis including numbers of Green Deal assessments, Green Deal plans taken out, and ECO measures installed. Our evaluation strategy covers both an assessment of the impacts of Green Deal and ECO and an assessment of the effectiveness of the delivery framework that has been put in place. The evidence gathered will enable us to help improve the delivery framework as it matures and monitor the impact of the programme over time. We have recently appointed a lead contractor to undertake the main research and evaluation work for Green Deal and ECO.

3.9 Through the ECO Order, we are now able to gather appropriate information on delivery from obligated parties on a regular basis, including information on costs, to enable us to review and analyse the delivery of the scheme in a way in which we haven't been able before. DECC is

also working closely with the obligated energy suppliers to understand their ECO delivery strategies.

3.10 This continuous monitoring process means that we are well-positioned to make adjustments where the evidence supports them. The Secretary of State will also produce an annual report on Green Deal progress and will do so in 2014. We do not believe a separate review is necessary. With regard to lofts and cavity wall insulation, as set out above, only around 1% of properties with lofts have no insulation at all and there were only approximately 750,000 standard cavities left unfilled at the end of 2012. The focus of the Green Deal is to encourage whole house retrofits. Insulating standard cavity walls and topping up lofts that already have some level of insulation provides best value if undertaken alongside other energy efficiency work.

Recommendation 9

Tighten building regulations in line with the previously announced schedule towards all new homes being zero carbon from 2016.

3.11 The Government remains committed to improving the energy efficiency of buildings. In this year's Budget document, we reaffirmed our commitment to all new homes being zero carbon from 2016. As steps towards this, we improved the energy efficiency standards in the Building Regulations in October 2010, and announced in July a further strengthening of these standards from April 2014¹⁹.

Recommendation 10

Ensure measures are in place to adequately support fuel poor electrically heated households, either within the Energy Company Obligation, or otherwise. Ensure that the Energy Company Obligation continues to the point where all fuel poor households have benefitted from it, and address very high rates of fuel poverty found in the devolved administrations.

3.12 The Government notes the CCC's recommendation that measures should be in place to provide support for electrically heated fuel

¹⁹ <http://www.publications.parliament.uk/pa/ld201314/ldhansrd/text/130730-wms0001.htm#13073027000022>

poor households, either within ECO or otherwise, and that ECO should continue to the point where all fuel poor households have benefitted from it.

3.13 The Government has now confirmed the decision to adopt a new indicator for the measurement of fuel poverty in response to the independent Hills Review of Fuel Poverty²⁰. Fuel Poverty: Framework for future action, published on 9 July 2013²¹, sets out the way in which the new indicator allows us to isolate the impact that particular dwelling characteristics have on the likelihood of a household being fuel poor. The analysis suggests that the use of a fuel other than gas is one of the factors most strongly associated with fuel poverty, including severe fuel poverty. We will be considering how best to target support in a way that will help the most severely fuel poor households as part of the forthcoming new Government Strategy for fuel poverty.

3.14 At present, electrically heated households, including those that are fuel poor, are eligible for support under ECO. We will use data collected under the scheme to see which measures are delivered in which households, in order to understand the reach of the scheme in off-grid areas. This evaluation data will inform the development of future phases of ECO. We will be consulting in early 2014 on plans for the future of ECO beyond the current obligation period, which comes to an end in March 2015.

3.15 In addition to ECO, we provide rebates (which are typically given by funding electricity costs) under the Warm Home Discount scheme to a large number of households meeting certain eligibility criteria (based on low income and vulnerability). The rebate is intentionally given in respect of electricity costs to ensure those off the gas grid can benefit. Overall, the scheme has a significant and positive effect on the distribution of energy costs. This coming winter, some two million households will get help under the Warm Home Discount, including well over a million of the poorest pensioners who will receive £135 towards the cost of their electricity. As part of

the recent Spending Review, the Government announced a spending target of £320 million for the Warm Home Discount in 2015/16, demonstrating our continued commitment to the scheme.

3.16 Fuel poverty is a devolved issue, and Scotland, Wales and Northern Ireland use their own definitions of fuel poverty. The Warm Homes and Energy Conservation Act 2000 provides the legislative framework for tackling fuel poverty in England and Wales. The Government has announced a set of proposals to amend the law as it applies in England²², but provisions relating to Wales remain unchanged. In Scotland there is a statutory commitment on the Scottish Government to eradicate fuel poverty, as far as practicable, by 2016. The Domestic Energy Efficiency Grants Regulations (Northern Ireland) 2009 provide the legislative framework for the range of measures targeted at fuel poor households. Though the July announcements and proposed new strategy discussed here relate to England only, ECO and the Warm Home Discount will continue to operate GB wide and national statistics will continue to report in the 10% definition for UK purposes.

Recommendation 11

Set ambitious minimum standards for energy efficiency in the residential and non-residential sector, as envisaged under the 2011 Energy Act. These standards should be announced now with a lead time so that landlords can optimise the timing of implementation, for example, as tenancy agreements come to an end.

3.17 The Energy Act 2011 contains provisions for a minimum standard for domestic and non-domestic private rented property in England and Wales from 2018. Our intention for these regulations has been described during the passage of the Energy Act 2011, and in a number of publicly available documents, including the Carbon Plan²³. The Government has committed to working with the sector in advance of these

²⁰ <https://www.gov.uk/government/consultations/fuel-poverty-changing-the-framework-for-measurement>

²¹ <https://www.gov.uk/government/publications/fuel-poverty-a-framework-for-future-action>

²² See paragraph 3.40 for further information

²³ Paragraph 2.39: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/47613/3702-the-carbon-plan-delivering-our-low-carbon-future.pdf

regulations to encourage uptake of energy efficiency measures and has also committed to use of the powers outlined in the Energy Act being conditional on there being no net or upfront costs to landlords.

3.18 In order to help the Government develop the detail for the proposed regulations, two advisory forums have been set up: one for the domestic private rented sector²⁴, and one for the non-domestic private rented sector²⁵. These groups comprise leading landlord, tenant, environmental and property professional organisations and have been meeting monthly since February 2013, providing expert feedback and views on how the regulations could apply. Having begun our preliminary engagement with key stakeholders, we plan to issue a public consultation document in early 2014. The consultation will discuss possible options in greater detail, and will give another opportunity for people to provide their views.

3.19 As stated in its Sustainable Housing Strategy (published on 21 June 2013), the Scottish Government has set up a working group to develop proposals for minimum energy efficiency standards in existing private sector housing, taking account of issues raised in the consultation which informed the strategy. Members of the working group are drawn from key stakeholders including local authorities, private sector landlords, consumer interests and environmental interests.

Recommendation 12

Make a comprehensive assessment of non-residential low-carbon policies to ensure they work effectively.

3.20 The Government recognises the importance of understanding how policies are operating, especially in the non-residential sector, where improving energy efficiency and reducing carbon emissions can support economic growth as well as tackle environmental goals.

3.21 In November 2012, the Government published the Energy Efficiency Strategy and this

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 the barriers to realising this. Already, we have a package of measures (including the non-domestic Green Deal, Renewable Heat Incentive (RHI), CRC Energy Efficiency Scheme, mandatory carbon reporting and Energy Performance Certificates) in the non-residential sector aimed at driving reductions in carbon emissions, with each policy providing a different solution depending on business need. Together, these policies increase awareness and encourage the take-up of measures to reduce emissions and energy consumption. We continue to look for opportunities to maximise the synergies between schemes.

3.22 On 11 July 2013, the Government published proposals for a new 'Energy Savings Opportunity Scheme' (ESOS). ESOS will cover all aspects of non-domestic energy efficiency including buildings, transport, and industrial processes. Under ESOS, all large enterprises in the UK will be required to undertake energy efficiency assessments by December 2015 and, thereafter, at least once every four years. Small and medium-sized enterprises (SMEs) will also be able to take part in the scheme should they wish, though their participation is not mandatory.

3.23 The Government is committed to ensuring that ESOS complements and builds on existing energy efficiency policy measures which require measurement of energy usage – such as the CRC Energy Efficiency Scheme, Climate Change Agreements (CCAs) and the EU ETS. The Government is also considering overlaps with other existing schemes such as Display Energy Certificates (DECs). DECs are being considered as an alternative ESOS compliance route for organisations whose energy use is solely from buildings (i.e. where transport or industrial process energy use is insignificant or non-existent).

3.24 The Recast of the Energy Performance of Buildings Directive came into force on 9 January 2013 to promote improvements to the

²⁴ <https://www.gov.uk/government/policy-advisory-groups/working-group-on-the-domestic-private-rented-sector-prs-regulations>

²⁵ <https://www.gov.uk/government/policy-advisory-groups/working-group-on-the-non-domestic-private-rented-sector-prs-regulations#contact-details>

energy performance of buildings by amending the provisions relating to energy performance certificates, display energy certificates and air conditioning inspection reports. In July 2013 the Government announced the latest changes to the Building Regulations, following a detailed review of the existing 2010 standards. These will raise standards as part of the move to 'zero carbon' standards for new non-domestic buildings, and will come into force from April 2014. There will also be a strengthening of standards for replacement heating, cooling and lighting installations in existing non-domestic buildings.

3.25 The Government recently simplified the CRC Energy Efficiency Scheme, CCAs and EU ETS following extensive consultation²⁶. The recent changes to the CRC Energy Efficiency Scheme and CCAs will need time to take effect before the full benefits are realised. The Government has committed to reviewing the CRC Energy Efficiency Scheme in 2016. CCA targets will also be reviewed in 2016. We also intend to conduct an initial review of the effectiveness of ESOS in 2016, following completion of the first round of assessments (which must be completed by December 2015).

3.26 In order to undertake these reviews, it is a priority to ensure that the impact of policies across the non-residential sector are monitored and evaluated.

3.27 We are developing an evaluation strategy for CRC Energy Efficiency Scheme and have recently commissioned a feasibility study to identify the optimal approach to evaluation. We expect to publish the outputs before the end of the year. The outputs of the evaluation will feed into the 2016 Review of the Scheme, as announced in the Chancellor's Autumn Statement 2012.

3.28 We are currently scoping an evaluation of the RHI (which covers the non-domestic and domestic schemes). This will be commissioned in autumn 2013.

3.29 We are mandating the roll-out of smart meters to all remaining non-domestic sites without half-hourly or advanced metering (over 2 million) between 2015 and 2020. Ahead of mass roll-out, some smart metering is already being installed by suppliers at non-domestic sites. We commissioned qualitative research on non-domestic organisations' understanding and awareness of smart meters and related services as well as their perceived and actual benefits. The results will support the on-going development and delivery of the non-domestic consumer engagement strategy and facilitate an effective benefits management approach to the roll-out in this sector.

Recommendation 13

The Renewable Heat Incentive should be extended to cover the residential sector as soon as possible, funding committed beyond 2014/15, Green Deal finance allowed to pay for the upfront cost of low-carbon heat investment and approaches to address non-financial barriers introduced.

3.30 The Government is committed to extending the Renewable Heat Initiative (RHI) to the residential sector and announced the Domestic Renewable Heat Incentive policy on 12 July 2013. The scheme will open for applications in spring 2014.

3.31 The RHI now has firm budgets up to 2015/16 following the recent Spending Review. The Spending Review confirmed a budget of up to £430 million for the RHI in 2015/16, covering the domestic and non-domestic schemes.

3.32 In terms of financing the upfront costs of a renewable heating system, we expect that participants will use a range of different funding sources, including savings, extensions of mortgages and loans which could be repaid using the RHI income.

- For some householders the Green Deal could provide a way to part-finance a renewable heating system. The amount of Green Deal

²⁶ The CCC notes that the CRC Energy Efficiency Scheme was simplified in 2013 partly through the withdrawal of state funded schools from the scheme (see p.34 and p.126 of the CCC's progress report). It is important to recognise that only **English** state funded schools will be withdrawn from the scheme (from April 2014), while state funded schools in Wales, Northern Ireland and Scotland remain part of the scheme.

finance offered towards the cost of a renewable heating system will depend on the expected fuel bill savings from the measures installed in the particular property. People will be able to use Green Deal finance and claim the RHI.

- Based on experience with other schemes, such as the Feed in Tariff (FITs), we would also anticipate that the market will respond to the domestic RHI by creating specific funding packages around the RHI such as loans or other finance schemes to help consumers with the initial capital outlay.

3.33 The Government agrees with the CCC that there are significant non-financial barriers to installing a renewable heating system. The RHI tariffs include compensation for some of these barriers, such as the hassle of additional building work in the house and/or garden, lost space within the property (due to the fitting of a hot water tank, needing space for solid fuel or fitting larger radiators, for example). Barriers may also include some of the perceived risks associated with the installation of renewable heat and the receipt of a government subsidy over a number of years.

3.34 Over time, we expect some of these barriers to reduce as renewable heat is more widely deployed and awareness and reputation of the technologies improves. We will also be working with stakeholders from a variety of sectors, including industry and consumer groups, to develop and implement our marketing and communications strategy, which aims to raise awareness and promote uptake of the domestic RHI scheme. Prior to scheme launch, the Energy Saving Advice Service and Home Energy Scotland will be able to provide advice on renewable heating technologies and the RHI. Green Deal Assessors are also an important source of impartial advice on energy efficiency measures and microgeneration technologies.

3.35 The Government has established a Heat Network Delivery Unit within DECC, staffed by external experts from the sector, to promote the development of low carbon heat networks in urban areas. This will be done through the

provision of £6 million of grants to assist project development and by spreading expertise and best practice. As set out in the March publication *The Future of Heating: Meeting the Challenge*, heat networks situated in appropriate areas with sufficient density of demand can reduce emissions, exploit a greater variety of low carbon heat sources, provide useful energy storage capacity, and reduce bills for consumers.

Additional CCC findings

Fuel Poverty

Government has yet to publish its response to the consultation on a new measure for fuel poverty, in light of the Hills Fuel Poverty Review.

3.36 The CCC noted that the Government had yet to publish its response to the consultation on a new measure for fuel poverty. On 9 July 2013 Government announced a significant overhaul of the framework for fuel poverty in England including the response to the consultation on a new definition²⁷.

3.37 At the heart of these changes is a decision to adopt a new definition of fuel poverty in England. This change reflects the findings of the independent Hills Review of fuel poverty published in 2012. The Government has accepted Professor Sir John Hills's view that fuel poverty is a long term structural problem distinct from wider poverty, driven not only by low income but by the characteristics of the homes in which we live. The new approach to defining fuel poverty seeks to reflect this understanding.

3.38 The framework provides a bridge between the Hills Review and a future new Government Strategy for fuel poverty. It explains what the new definition tells us about who the fuel poor are, what characteristics they share, and the depth of the problem they face.

3.39 This, alongside new analysis on how we can assess the cost-effectiveness of different measures available to help fuel poor homes, informs a set of guiding principles for future policy design

²⁷ <https://www.gov.uk/government/news/davey-determined-to-tackle-scourge-of-fuel-poverty>

and delivery. It also allows for a greater degree of prioritisation of support to those who are suffering the very worst fuel poverty.

3.40 The final element of our announcement was a set of proposals to amend the law, in England, in relation to fuel poverty. Through amendments to the Energy Bill we are seeking to alter the Warm Homes and Energy Conservation Act to enable us to put in place a new fuel poverty target, focused on the energy efficiency standards of fuel poor homes. Once the Energy Bill has received Royal Assent, we expect to move quickly to set out concrete proposals for the future fuel poverty target, backed by a new fuel poverty strategy.

3.41 The CCC notes that neither of the fuel poverty measures against which the Government reports progress, reflect year-to-year changes in temperature (and any associated rises in energy bills. The required fuel costs used to calculate fuel poverty are based on the assumption that a household will heat their home to an adequate standard of warmth (21 degrees Celsius in the main living area and 18 degrees Celsius in other occupied rooms). These modelled costs reflect regional differences in temperature and are based on a long-term average temperature. Therefore a particularly mild or cold winter will not have a disproportionate impact on a household's modelled domestic energy consumption. The Government published an updated Fuel Poverty Statistics report on 8 August 2013 to reflect the new definition of fuel poverty²⁸. We will be reviewing the main assumptions underpinning the fuel poverty methodology in light of new evidence, and will consult with key stakeholders.

3.42 The Government does not accept the CCC's comments on fuel poverty spending in England. Our analysis, based on a combination of reported budgets for public expenditure on fuel poverty schemes and estimates based on Impact Assessments of current energy supplier obligations which either fully or partly target households at risk of fuel poverty, indicate a real terms increase across Great Britain in 2014/15 compared to resourcing levels in 2010/11. Furthermore, there are additional indicators of policy effectiveness that should be taken into account alongside total spend. For example ECO delivery is expected to be more cost effective than Warm Front – with more households helped per pound of expenditure.

²⁸ <https://www.gov.uk/government/organisations/department-of-energy-climate-change/series/fuel-poverty-statistics>

Chapter 4: Industry Emissions

Emissions Trends

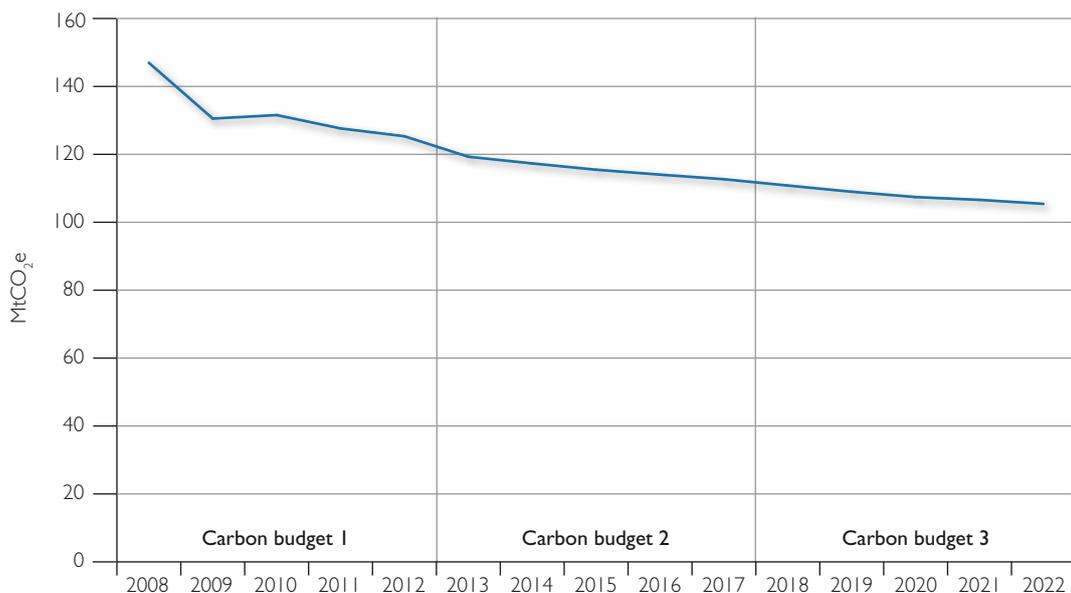
4.1 Greenhouse gas emissions from Industry (energy supply²⁹, industrial combustion and industrial processes) were 133 MtCO₂e in 2011 – 3% lower than in 2010 and 41% lower than 1990 levels.

4.2 As with the power and buildings sectors, carbon dioxide is the most prominent greenhouse

gas in this sector. Provisional estimates show that CO₂ emissions increased by 1% between 2011 and 2012 to 115 MtCO₂.

4.3 *Figure 12* shows the latest emissions projections trajectory for the industry sector over the first three carbon budgets. Between 2008 and 2022 emissions from the industrial sector are expected to fall by 28%.

Figure 12: Emissions projections in the industrial sector for the first three carbon budgets



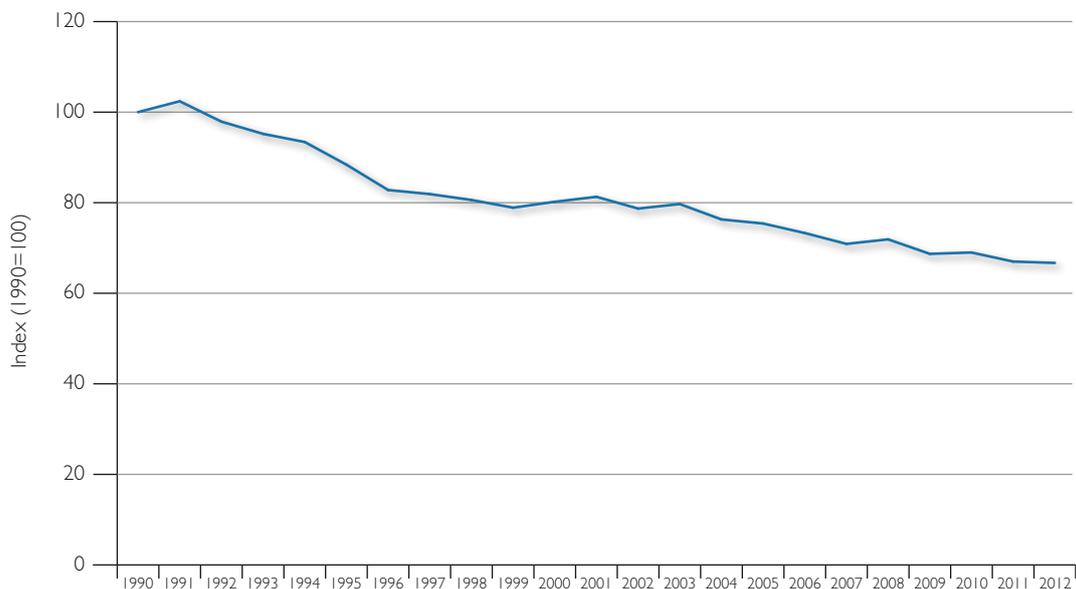
Source: Emissions projections derived from Updated Emissions Projections (published September 2013).

<https://www.gov.uk/government/organisations/department-of-energy-climate-change/series/energy-and-emissions-projections>.

Note: This chart is for illustrative purposes only. There is no direct estimate for industry from the UEP. This estimate includes emissions from Refineries, industrial processes, other energy supply, road construction and a proportion of emission from industrial combustion. Power stations are not included in this category.

²⁹ This exclude power stations which are discussed in Chapter 2.

Figure 13: Energy intensity of industry, 1990 to 2012



Source: ECUK Table 4.16
<https://www.gov.uk/government/publications/energy-consumption-in-the-uk>

4.4 Between 1990 and 2012, it is estimated that energy intensity (energy consumption per unit of output) fell by a third in the industrial sector as whole (see figure 13).

CCC Recommendations and Government response

Recommendation 14

Include the full range of cost-effective abatement options in the industry sector roadmaps and align financial incentives for low-cost abatement.

4.5 The Government agrees that the scope for the roadmaps project should look broadly at the opportunities for abatement of emissions from UK manufacturing.

4.6 The Government and the industrial sectors, working together, are developing decarbonisation pathways and action plans for the eight most heat intensive industrial sectors (iron and steel; chemicals; oil refining; paper and pulp; ceramics; glass; cement; food and drink). The project will explore the technical emissions abatement potential of the individual industrial sectors, the relative costs of alternative abatement

options and the related business environment including investment decisions, barriers and issues of competitiveness. All greenhouse gas emissions from direct and indirect (electricity) sources in each sector will be in scope. The project will run from November 2013 to spring 2015. The Government will consider relevant decarbonisation opportunities through material and resource efficiency where they are identified.

Recommendation 15

Set out an approach to demonstration and commercialisation of industry CCS compatible with deployment in the 2020s.

4.7 The Government accepts the CCC's recommendation. The Government's analysis for the Heat policy document published in March³⁰ agrees that CCS is likely to be a key technology for decarbonisation in specific industries, and that implementation may be required in the 2020s. In that document, DECC and BIS committed to work together over the remainder of the year to identify how to further support development of industrial CCS as part of the Government's wider efforts on CCS. This work involves developing a techno-economic study to help better understand

³⁰ The Future of Heating: Meeting the challenge (2013) <https://www.gov.uk/government/publications/the-future-of-heating-meeting-the-challenge>

the necessary technologies and costs; and exploring options for further supporting industrial CCS innovation.

Recommendation I 6

Introduce a detailed implementing package for commitments to mitigate competitiveness risks for UK firms from low-carbon policies (e.g. the £250 million compensation package and exemptions from costs under EMR).

4.8 The Government is making progress on the package of measures to reduce the impact of low carbon policies on the costs of electricity for the most electricity-intensive and trade-intensive industries, ensuring that manufacturing is able to remain competitive during the shift to a low carbon economy;

- The increase to 90 percent for the Climate Change Levy Discount has been implemented as from 1 April 2013;
- The Government has started to provide compensation for the indirect emission costs due to EU Emissions Trading System, in accordance with the European Commission's state aid guidelines;
- The Government has pre-notified the state aid case to provide compensation for the indirect emissions costs due to the carbon price floor and is pressing the European Commission for a response;
- Alongside the introduction of the Energy Bill, the Government has announced it is seeking to exempt certain energy intensive industries from additional costs arising from Feed-in Tariff CfDs. The Government has consulted on the scope of the exemption and is currently preparing its response.

Chapter 5: Transport Emissions

Emissions Trends

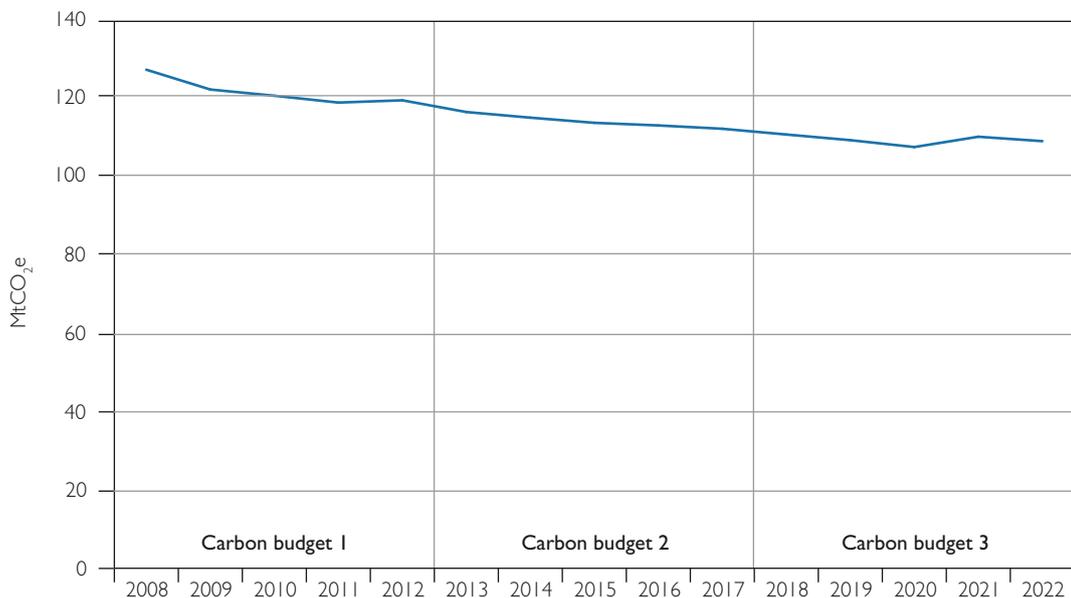
5.1 As stated in the CCC's report, emissions from surface transport fell 1.2% between 2010 and 2011 having remained steady the previous year. This reduction was largely driven by changes in the levels of transport activity and improvements to the efficiency of vehicles. Over the same period domestic aviation emissions fell by 4.5%.

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. The Government believes that the fourth carbon budget scenarios

still reflect our assessment of the range of feasible abatement potential in transport in the 2020s. 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. 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 14* 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 14% by 2022 relative to 2008 levels.

Figure 14: Emissions projections in the transport sector for the first three carbon budgets

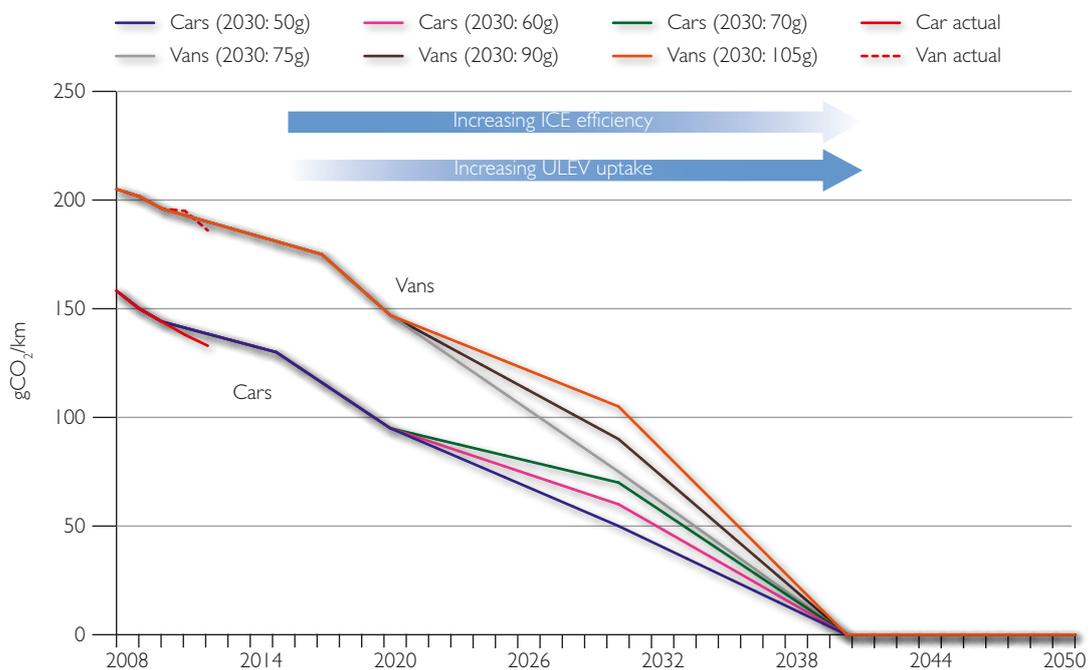


Source: Emissions projections derived from Updated Emissions Projections (published September 2013).
<https://www.gov.uk/government/organisations/department-of-energy-climate-change/series/energy-and-emissions-projections>.
 Note: This chart is for illustrative purposes only.

5.4 Progress in reducing average new car and van emissions has been positive. Data for 2012 shows that average new car and van emissions are below current projected levels – 133 and 186g CO₂/km respectively. The Department for Transport's projected emissions levels for 2012 were 138 and 190 gCO₂/km respectively (see figure 15).

5.6 The current regulations on cars and vans are important levers for a range of Government objectives. They support jobs and growth in the UK motor industry by promoting low carbon technology innovation, research and development, helping to build our supply chain and increasing demand for low emission vehicles in our own market. Supporting the development of those

Figure 15: 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 17

Support the setting of challenging longer-term new Car and Van CO₂ intensity targets at EU level as soon as possible (e.g. following the Commission's proposed review to be completed by the end of 2014).

5.5 The Government agrees with the CCC that setting longer-term targets in this area is important.

technologies here in the UK ensures we can capitalise on the mass shift to ultra low emission vehicles. Looking forward, it seems clear that progressively tighter standards on CO₂ emissions will continue to be an effective way to deliver carbon reductions from road vehicles.

5.7 On the issue of long-term targets, our ambition is set out in the *Carbon Plan: Delivering our low carbon future*³¹ (Dec 2011), where we anticipated that average new car emissions might need to be 50-70g CO₂/km by 2030 if we are to reach a near-zero average for new cars and vans by 2040. Recent negotiations in Europe have been about how industry will meet the current targets, though the issue of targets beyond 2020 has recently been raised by some Member States

³¹ https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/47613/3702-the-carbon-plan-delivering-our-low-carbon-future.pdf

and the European Parliament. Decisions on long-term targets must be made with robust evidence to ensure that those targets are realistic and cost effective based upon the available technology. That is why we look forward to supporting the European Commission in its proposed review of the regulatory framework next year and will look to ensure it is as well informed as possible.

Recommendation 18

Push for rapid progress in developing an EU framework for HGV emissions.

5.8 The Government agrees that emissions from larger vehicles including heavy goods vehicles (HGVs) must fall significantly if we are to meet our wider climate change objectives and some form of EU framework for these vehicles could deliver benefits. Any such framework would, however, need to be underpinned by a solid and robust methodology that accurately reports emissions and has the confidence of those using it.

5.9 The Government will continue to support international efforts to develop a robust methodology for reporting whole vehicle CO₂ emissions emitted from heavy-duty vehicles (HDV), including buses and coaches as well as HGVs. While we note the European Commission's intention to have such a methodology finalised for 2014, there remains a number of critical elements on which there is, as yet, no industry consensus. We will continue to work with the Commission, industry and academia to ensure that the methodology is robust, fit for purpose and correlates to real world emissions.

5.10 We await publication of the EU's Strategy for the Reduction of CO₂ emissions from heavy duty vehicles and the accompanying Impact Assessment. The general objective of this initiative will be to reduce HDV CO₂ emissions in a cost effective way, helping to promote a more resource efficient and competitive economy.

5.11 Government measures to decarbonise the HGV sector include the Low Carbon Truck and Infrastructure Trial; a joint task force with industry to develop low carbon HGV technologies;

and grants to shift freight from road to rail or water. The freight industry is also taking its own measures to reduce fuel consumption and hence carbon emissions, including driver training and performance, more efficient vehicles, better use of vehicles and improved operational organisation.

Recommendation 19

Ensure a stable framework of support for electric vehicles (commit to continuation of funding of Plug-in Car and Van Grants beyond 2015 and reinstate tax incentives for company cars).

5.12 The Government agrees that a stable framework for supporting ultra-low emissions vehicles (ULEVs) is important and since its Progress Report was published we have announced one of the world's most long-term and comprehensive packages of support for the ULEV sector. As part of this we will continue to back the UK's world-class research and development in this area, securing jobs and generating economic value for the country.

5.13 The Government already offers an attractive package of incentives for electric vehicles through tax and spending measures. Electric cars benefit from zero vehicle excise duty (VED) and no fuel duty; and the capital allowances regime provides 100% first-year allowance for business expenditure on ultra-low emission cars until 2017–18.

5.14 In addition to the February announcement of £37 million of government funding for plug-in vehicle charging infrastructure across the UK, the Government has committed over £500 million of additional capital investment by 2020 to continue supporting industry and consumers in the switch to the latest ULEV technology. More details are set out in the Government's ULEV strategy *Driving the future today: a strategy for ultra low emission vehicles in the UK*³² (September 2013).

5.15 The Government has announced a stable framework of support for ULEVs through the tax regime. The 2013 Budget announced that the 100% first year allowance (FYA) for low CO₂ emitting vehicles would be extended for a further

³² <https://www.gov.uk/government/publications/driving-the-future-today-a-strategy-for-ultra-low-emission-vehicles-in-the-uk>

three years until 31 March 2018, at a revised emissions threshold of 75 gCO₂/km. This will maintain the incentive for businesses to purchase ULEVs by reducing their up-front cost relative to higher emitting vehicles.

5.16 The 2012 Budget announced expenditure incurred on leased cars will be excluded from this incentive from April 2013. This is designed to protect the Exchequer from the risk of cross border leasing and ensure that FYA delivers value-for-money in terms of the environmental benefits it brings to the UK.

5.17 The 2012 Budget also announced that electric cars would continue to benefit from a zero rate until 2014-15 while Budget 2013 announced reduced rates of company car tax for cars emitting 75 gCO₂/km or less from 2015-16 until at least 2019-20. Electric cars will therefore continue to benefit from the lowest rates of company car tax. The Government will review these incentives in light of market developments at Budget 2016, to inform decisions on company car tax from 2020-21 onwards.

5.18 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 either higher or top rate income tax payers, it is fair that all company car users, including those of zero carbon cars, make a contribution to the public finances. The Government therefore does not agree with the CCC's recommendation that the zero rate for zero-emission vehicles is reinstated.

Recommendation 20

Push for robust sustainability criteria for biofuels to be agreed at the EU level as soon as possible.

5.19 The Government agrees with the CCC's recommendation. At EU level the UK Government has consistently called for action to address indirect land use change (ILUC) that recognises the direct and indirect impacts of biofuels. The Government believes the most appropriate way to address ILUC is through the introduction of ILUC factors into both the Renewable Energy

Directive and Fuel Quality Directive, coupled with additional incentives for the most sustainable biofuels. Should it not prove possible to secure this approach the Government supports a cap on biofuels derived from food crops (such as corn, sugarcane and oilseed rape).

5.20 ILUC negotiations continue in Europe and the Government is pushing for swift resolution.

5.21 The UK is seeking to support the increased deployment of 'advanced' biofuels that are derived from feedstocks which do not compete with food or feed. To this end, the Government has announced £25 million of capital funding to enable the construction of a demonstration-scale waste to fuel and other advanced biofuel plant in the UK. Funding will follow a competition to identify the most promising and suitable industry proposals.

Recommendation 21

Actively promote uptake of eco-driving through a combination of inclusion as a key element in the practical driving test, driver training, awareness raising and in-car information on fuel efficiency.

5.22 The Government agrees that eco-driving can make a valuable contribution to reducing carbon emissions from road transport, and this is why it is included in the practical car driving test, which some 700,000 people pass each year. The Driving Standards Agency (DSA) National Standard for driving cars and light vans includes a section specifically about driving in an ecologically responsible way and the DSA National Standard for driver and rider training sets an expectation that Approved Driving Instructors will be able to teach those skills effectively. At the end of the driving test, candidates receive feedback on their technique and are given details of how to find further information on eco-driving.

5.23 Eco-driving advice is widely available. The Government supports the Energy Saving Trust's communications activities to raise awareness of the benefits of eco-driving and encourage take-up of eco-driving techniques and training. In 2012, their 'Fuel Your Passion' campaign, reached millions of consumers through TV and other media coverage.

5.24 The Government is also working to ensure that there is sound evidence available to the public on the potential financial benefits of eco-driving over the longer term, and is funding the Energy Saving Trust to undertake field trials that will provide eco-driving training to 500 drivers followed by evaluation of their driving over the next year. The results, expected in summer 2014, should provide businesses and motorists with demonstrable fuel efficiency savings and stimulate the eco-driving training market.

5.25 In principle we are supportive of regulations requiring fitting of fuel consumption meters and the extension of mandatory fitting of gear shift indicators, already mandatory for new cars, to light duty vans provided the benefits of these measures can be shown to outweigh the costs. The European Commission consulted on this in 2011 and we will consider proposals when available.

Additional CCC findings

As the Local Sustainable Transport Fund (LSTF) projects progress, monitoring and evaluation of outcomes should be encouraged, to ensure emission reductions are achieved. If successful, the Government should make a commitment to further funding post-2015 and develop a plan for nationwide roll-out of Smarter Choices over the next decade.

5.26 The Government agrees with the CCC's recommendation. Monitoring and evaluation plays an important role in the delivery of the LSTF and has been carefully considered from the outset. In December 2012, Government published the *Local Sustainable Transport Fund Monitoring and Evaluation Framework*³³.

5.27 The framework lays out the minimum levels of monitoring and evaluation LSTF projects are expected to deliver, although anecdotal evidence suggests that many projects are proactively undertaking more extensive monitoring and evaluation at a local level. The first Annual Report has been published³⁴.

5.28 Department for Transport economists are working with projects which received more

than £5m in funding to ensure their proposed methodologies are robust and meet Government objectives. One case study will focus on the role sustainable transport plays in reducing carbon emissions, with the results due in 2016.

5.29 In August 2013 the Prime Minister announced a package of measures to increase cycling, encourage cycling tourism and make roads safer for cyclists³⁵. This included awarding eight cities and four National Parks a total of £94 million of funding for the period 2013/14 to 2014/15 in a major injection of cash for cycling. With match funding this amounts to a total of £148 million. Additionally the Highways Agency is spending £4.8 million on 'cycle-proofing' 14 schemes across the strategic road network to improve the interaction between cyclists and other road users with a further £15 million to be invested in 2015/16.

5.30 The recent Spending Round announced an extra £100 million capital funding for sustainable transport in 2015/16. £78.5 million of resource funding will be set aside for the LSTF (including Bikeability), and further work is being done on the conditions which might be attached to it. Any funding beyond 2015/16 for LSTF and cycling will be determined in due course. Evidence gathered via the LSTF Monitoring and Evaluation Framework will form part of the ongoing development of an evidence base for the economic and carbon benefits sustainable transport projects can bring.

Enforcing current speed limits presents an opportunity for reducing emissions. In-car information from fuel consumption meters would also encourage driving within the speed limit by emphasising the excessive fuel consumption associated with driving at 80 rather than 70 mph.

5.31 Enforcement of speed limits is a matter for the police.

5.32 As stated against recommendation 21, in principle the Government is supportive of regulations requiring fitting of fuel consumption meters and other in-vehicle technology which

³³ <https://www.gov.uk/government/publications/local-sustainable-transport-fund-monitoring-and-evaluation-framework>

³⁴ <https://www.gov.uk/government/publications/local-sustainable-transport-fund-annual-report-2011-to-2012>

³⁵ <https://www.gov.uk/government/news/government-shifts-cycling-up-a-gear>

may encourage behaviour change in drivers. The European Commission is currently exploring ideas on intelligent speed adaptation and we await firm proposals.

The Government recently consulted on increasing the speed limit for HGVs on single carriageway roads. It is important that emissions impacts are properly reflected in the final decision, alongside other costs and benefits.

5.33 On 9 November 2012, the Department for Transport published *Examining the Speed Limit for HGVs over 7.5 tonnes on Single Carriageway Roads: A Consultation Document*³⁶. The consultation closed on 1 February 2013 and was accompanied by an impact assessment which set out details of the potential impact on greenhouse gas emissions.

5.34 The Department for Transport wants to make sure careful consideration is given to the evidence of all of the effects of raising the speed limit: on the economy, environment and road safety before a decision is made.

Going forward it is important that transport emissions are factored into planning decisions alongside other costs and benefits. An Impact Assessment setting out the potential effect on travel demand and emissions of the current proposals should be published as soon as possible.

5.35 The Government agrees it is important that transport emissions are factored into planning decisions alongside other costs and benefits. The responsibility for assessing the acceptability of the environmental impact of development rests solely with the relevant planning authority. The Secretary of State's policy for the Strategic Road Network reinforces this point including specific advice regarding the need to evaluate transport environmental impacts as an integral part of the overall Environmental Assessment for the development proposal itself.

5.36 The Government considers that the proposed new policies as set out in the revised

policy document 'Sustainable development and the Strategic Road Network' will continue to support meeting carbon budgets. This is due to the fact the new policies have retained the need to assess environmental impacts and in view of this a fast track validation impact assessment has been produced rather than a full impact assessment.

5.37 This change is further supported by the scope of existing legislation relating to planning and development which requires promoters of development and planning authorities to take account of all significant environmental impacts and to undertake appropriate mitigation measures.

5.38 The Government's new policy on planning and sustainable development related to the Strategic Road Network was published on 10 September 2013 as *Department for Transport Circular 02/2013 The Strategic Road Network and the Delivery of Sustainable Growth*.

CLG has an important role to play ensuring that... transport emissions are fully accounted for as part of the planning process.

5.39 The National Planning Policy Framework encourages transport solutions which support reductions in greenhouse gas emissions and congestion. It asks local planning authorities, in preparing Local Plans, to support a pattern of development which, where reasonable to do so, facilitates the use of sustainable modes of transport.

5.40 Local Planning Authorities will need to consider this in the light of particular local circumstances. Sustainable transport, and the impact of development, need to be taken account of at both a plan-making level and in relation to particular decisions. In doing so local planning authorities will consider whether a proposed development is sustainable – i.e., it reconciles economic, social and environmental impacts.

5.41 We therefore agree with the CCC's emphasis on promoting sustainable transport through planning, which already exists in national

³⁶ <https://www.gov.uk/government/consultations/examining-the-speed-limit-for-heavy-goods-vehicles-over-7-5-tonnes-on-single-carriageway-roads>

planning policy as applied by local planning authorities. However it is important that this is viewed in the context of enabling sustainable development as a whole.

It is important that, in considering alternative financing models for roads, government places due weight on the environmental damage of car use, and on incentives to move towards cleaner forms of travel consistent with meeting carbon budgets.

5.42 The Government has explored a range of options to improve the management of the Strategic Road Network and on 16 July 2013, we published *Actions for Roads: a network for the 21st century*³⁷, which sets out the changes we will make in the planning and running of our strategic roads. This represents the biggest change to highways management in 50 years.

5.43 We are confident that these plans offer the best solution for the Highways Agency to deliver the objectives of the feasibility study launched by the Prime Minister in March 2012. The command paper makes clear that there are other business models which could offer more flexibility and efficiencies, such as a regulated utility model, but this is an issue for the longer term. The Government has no plans to change the way in which roads are financed; and in this context it makes sense for reform to focus on what can be achieved within government.

5.44 In *Actions for Roads* the Government made clear that any improvements to the network must be made in a way that supports the nation's overall quality of life. This means that our vision for roads must:

- Be designed to minimise environmental impacts and, where possible, tackle existing problems.
- Build on existing cooperation with organisations like Natural England to find the best solutions to environmental challenges.
- Continue to work in a planning framework which protects the wider environment.
- Be matched with an aggressive policy of decarbonisation, to address the carbon consequences of motoring and move us to a lower-impact future.

5.45 An important part of managing the road network over the next 30 years will be preparing the infrastructure for a shift to new types of vehicle. In the years ahead there is likely to be a need for wide-reaching networks of rapid chargepoints and hydrogen refuelling stations. The expansion of such infrastructure across the strategic road network will encourage consumer adoption of ULEVs. Whilst much of the investment is likely to come from the private sector, there may well be a role for government in supporting this in the early years.

5.46 Later this year, the Government will set out greater detail on the process and timetable for reforming the Highways Agency. As these are major changes we will consult on the key elements of them. And later this Parliament, we will produce the first *Roads Investment Strategy* to begin taking steps to guarantee certainty of funding and bring forward legislation to back this package up in law.

³⁷ <https://www.gov.uk/government/publications/action-for-roads-a-network-for-the-21st-century>

Chapter 6: Agriculture and Land Use Emissions

Emissions Trends

6.1 Emissions from agriculture and land use increased by less than 1% between 2010 and 2011 to 47.8 MtCO₂e. Emissions from fertilisers and livestock dominate this sector which contributed 9% of total UK emissions in 2011. 2011 greenhouse gas emissions from agriculture and land use were nearly 30% lower than in 1990.

6.2 Nitrous oxide and methane are the prominent greenhouse gases in agriculture. Emissions from these greenhouse gases combined, and excluding land use, fell by 20% between 1990 and 2011.

6.3 Although the rate of emissions reductions seems to be slowing, it is clear that 2009 was an atypical year with a very rapid reduction in emissions (see *figure 16*). This is likely due to fertiliser price spikes around that time. The slight increase in emissions in 2010 can be thought of as a return to the trend. Between 2010 and 2011, there was a small decrease in emissions. Trends in the average rates of emissions reductions are presented in *figure 17*.

Figure 16: Trends in non-CO₂ agricultural emissions

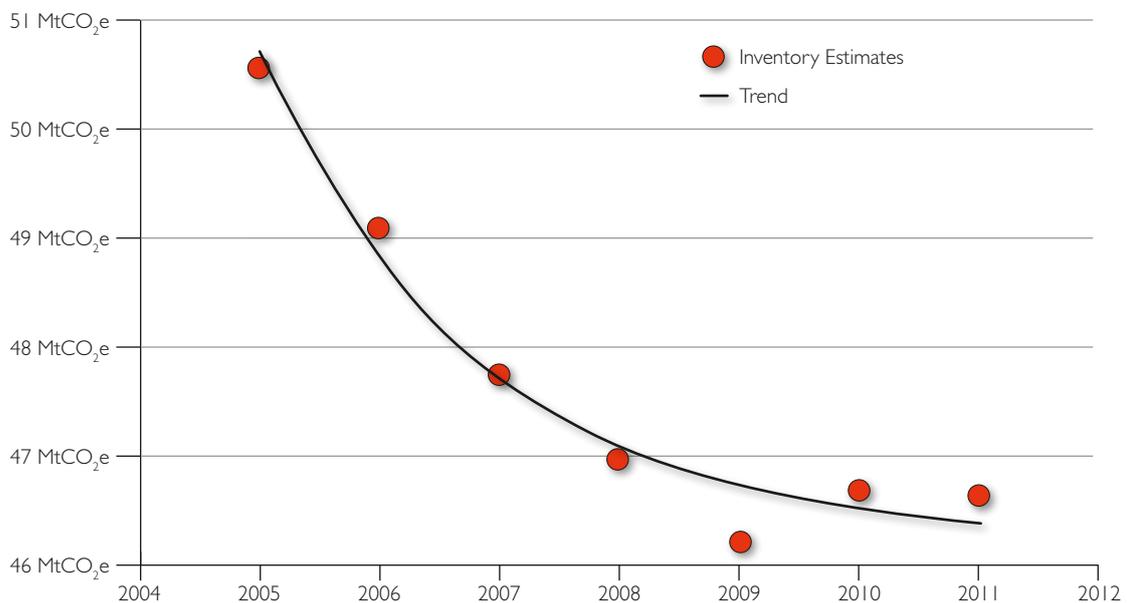


Figure 17: Trends in rates of non-CO₂ emissions reductions

Average rate of change in non-CO ₂ agricultural emissions	
From 1990 To 1995	-0.3 MtCO ₂ e per Year
From 1995 To 2000	-0.5 MtCO ₂ e per Year
From 2000 To 2005	-0.5 MtCO ₂ e per Year
From 2005 To 2010	-0.8 MtCO ₂ e per Year

6.4 Figure 18 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 increase by 2% by 2022 relative to 2008 levels.

6.5 Work continues to develop the agricultural greenhouse gas inventory to explicitly represent on-farm greenhouse gas mitigation practices, which are not captured at present. It is likely that emissions reported in the current agricultural inventory are overestimates, since efficiency of production is not taken into account. This was highlighted in the 2012 review³⁸, which found that around 1.5 MtCO₂e emissions reductions due to uptake of measures relating to cross compliance and the Nitrates Directive were not currently

represented in the inventory. The new inventory is developing well and will be implemented in 2015. In the interim period Defra has developed an indicator framework³⁹ to monitor emissions proxies based on the uptake of agricultural efficiency practices.

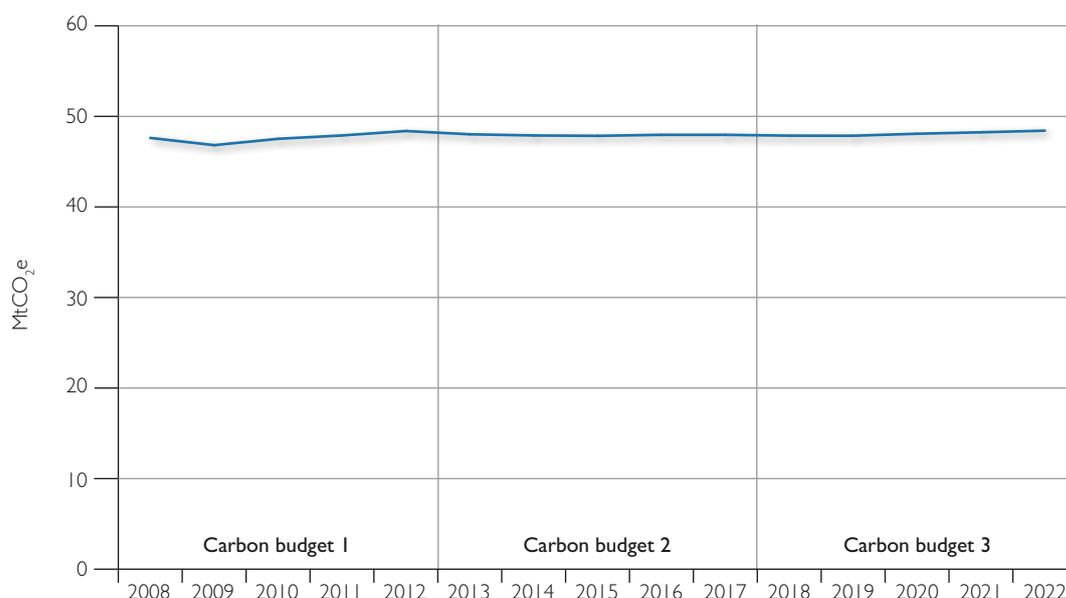
CCC Recommendations and Government Response

Recommendation 22

Set targets in their roadmaps as to how the cereals and oil seeds sectors will contribute to emission reductions.

6.6 The Government agrees with the CCC's recommendation to set targets in the industry's cereals and oil seeds sectors roadmap to indicate

Figure 18: Emissions projections in the agriculture sector for the first three carbon budgets



Source: Emissions projections derived from Updated Emissions Projections (published September 2013)
<https://www.gov.uk/government/organisations/department-of-energy-climate-change/series/energy-and-emissions-projections>
 Note: This chart is for illustrative purposes only.

³⁸ <https://www.gov.uk/government/publications/2012-review-of-progress-in-reducing-greenhouse-gas-emissions-from-english-agriculture>

³⁹ <https://www.gov.uk/government/statistical-data-sets/greenhouse-gas-emissions-from-agriculture-indicators>

the contribution to emission reductions. All product roadmaps are industry-led and need to have a clear expectation of the level of ambition. The other product roadmaps have clear and measurable targets.

6.7 Industry partners have ownership of the roadmap and will need convincing of the value in investing time to develop targets in any updated roadmap. In our opinion this works best where there are benefits to both farm efficiency and also reduced emissions.

6.8 The latest edition of Agricultural Statistics and Climate Change⁴⁰ was published on Thursday 25 July and included an updated assessment of the indicator framework⁴¹ developed in 2012 to monitor the contribution made by English agriculture to reducing greenhouse gas emissions. The latest assessment for cereal and oilseed rape production suggests that over the last 10 years there has been an overall positive trend in the quantity of barley and oilseed rape produced per unit of manufactured nitrogen applied, whilst for wheat there has been little change.

Recommendation 23

Set out approach to assessing the effectiveness of the voluntary approach in the GHG Industry Action Plan.

6.9 The Government agrees with the CCC that there would be value in the industry establishing key impact measures for the Greenhouse Gas Action Plan (GHGAP) but recognise that this will need to develop in line with the improved inventory which will provide more evidence on the value of various mitigation measures.

6.10 The Food Supply Chain Mitigation Group, formerly convened by Defra, is now part of the GHGAP which will strengthen the engagement of the supply chain (processors and supermarkets). The GHGAP also has wider potential positive benefits e.g. for air quality through the ammonia emission reductions achieved by good nutrient management practices.

6.11 The Government welcomes the progress made over the past year including the engagement of feed advisers through the Feed Adviser Register. This is a positive step in the direction of advising farmers how to both save on their input costs and also reduce their greenhouse gas emissions. The Government welcomes the integration of the GHGAP with the Campaign for the Farm Environment which provides a more integrated approach to providing support and advice to farmers.

6.12 The Government will inform the industry's GHGAP co-ordinator of the conclusions from the CCC report so that industry partners are fully aware of the need and importance for future indicator development in advance of the next review of the GHGAP (before 2016).

Recommendation 24

Any review on progress towards reducing emissions from agriculture should also consider a range of policy options, including policies that would provide stronger incentives for farmers.

6.13 The Government agrees with the CCC that providing incentives is the way forward rather than more regulation. The Government believes that the most effective incentives are those which enable farm businesses to be efficient and profitable as well as improving their environmental impacts, including a reduction in greenhouse gas emissions. Efforts to reduce the cost of farm inputs including fertilisers, together with efforts to improve genetics and breeding in food production, both serve to reduce the intensity of greenhouse gas emissions.

6.14 To that end, Defra is developing a Sustainable Intensification Research Platform. This will develop methodologies for determining the most efficient use of available natural resources, including land in raising agricultural productivity, while at the same time reducing environmental impact, including greenhouse gas emissions from farming. The Sustainable Intensification Platform will draw on research from the UK Greenhouse

⁴⁰ https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/225181/agriclimate-4edition-30jul13.pdf

⁴¹ <https://www.gov.uk/government/statistical-data-sets/greenhouse-gas-emissions-from-agriculture-indicators>

Gas Research and Development Platform which completes its work in 2015/16 with the adoption of the improved agricultural greenhouse gas inventory which will better monitor the impacts of on-farm mitigation actions.

6.15 The recently published 'UK Strategy for Agricultural Technologies'⁴² (July 2013) is intended to stimulate the development of technologies that will support more resource efficient and profitable farming with lower environmental impact. There will be close linkages with the Sustainable Intensification Research Platform.

⁴² https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/224610/13-1060_A_UK_strategy_for_agricultural_technologies.pdf

Chapter 7: Waste Emissions

Emissions Trends

7.1 Greenhouse gas emissions from waste fell by 3% between 2010 and 2011 to 17.2 MtCO₂e, of which 14.1 MtCO₂e were from landfill methane. The majority of the remaining emissions from waste were from wastewater handling (2.8 MtCO₂e). In 2011 greenhouse gas emissions from waste contributed to 3% of total UK emissions.

CCC Recommendations and Government response

Recommendation 25

Consider stronger levers to reduce the amount of biodegradable waste that is sent to landfill, including further provision by local authorities for separate collection of food waste, and review landfill bans on major sources of biodegradable waste on a case-by-case basis.

7.2 The Government agrees with the CCC that we need to reduce the amount of biodegradable waste sent to landfill. However, we do not agree that landfill bans are the best way to achieve this goal at present. Our experience from looking into the case for a restriction on wood waste highlighted the complexities and costs of landfill restrictions across the board. Before bringing forward any proposals on restricting any materials, Government will need to be content that bans

or restrictions are the best-value way of moving material up the waste hierarchy and that the costs to businesses and the public sector are affordable. We are of course watching with interest and will learn from Scotland's progress on landfill restrictions.

7.3 It is our view that the priority should be to focus activity at the top of the waste hierarchy, on waste prevention, and that this is preferable to the introduction of landfill bans. For food waste, prevention is the most cost-effective option. Evidence suggests that each tonne of food waste that is not prevented has an average⁴³ cost to consumers of £2,700.

7.4 A report by Eunomia in 2010 for the UK's Waste and Resources Action Programme (WRAP) on the feasibility of landfill bans concluded that a landfill ban on food waste would result in net costs to society rather than benefits. The report noted that the additional financial costs of collection and treatment (anaerobic digestion or composting) appeared to exceed the associated environmental benefits. It is likely that introducing either a ban on landfill or diversion targets would result in significant additional costs to businesses, require a long lead in time (5-7 years) and lead to additional resource requirements on regulators. We believe, therefore, that in the current climate where resources are constrained, the focus should be on prevention.

⁴³ <http://www.wrap.org.uk/content/new-estimates-household-food-and-drink-waste-uk>

7.5 The Eunomia report suggests that focussing on measures such as bans which operate at the bottom of the waste hierarchy would be insufficient to drive waste prevention. Whilst they may succeed in diverting food waste from landfill to anaerobic digestion or composting, other measures would be necessary to tackle waste prevention⁴⁴. We are due to commission further research to update the evidence on food waste bans provided by the 2010 Eunomia report.

7.6 We have worked very successfully with food manufacturers and retailers using voluntary agreements to reduce supply chain food and packaging waste by nearly 10% over the last three years, while household food waste is down by even more – 13% since 2006⁴⁵.

7.7 The above data show that the voluntary approach is achieving reductions in food waste. It allows businesses to reduce waste and be more efficient and competitive, rather than having restrictions imposed on them in this challenging economic time. The continuation of the Courtauld Commitment to reduce food and packaging waste in the retail and manufacturing sector will target a further 1.1 million tonnes of waste reduction by 2015 with an expected 2.9 MtCO₂e saving.

7.8 In addition we have launched a further voluntary agreement which takes the same approach with the hospitality and food service sector. The targets for the Hospitality and Food Service Agreement (HFSA) are:

Prevention target: Reduce food and associated packaging waste arising by 5% by the end of 2015. This will be against a 2012 baseline and be measured by CO₂e emissions.

Waste management target: Increase the overall rate of food and packaging waste being recycled, sent to anaerobic digestion or composted to at least 70% by the end of 2015.

7.9 Decisions on how to collect household waste in the UK are for Local Authorities, who are best placed to understand and take account of the needs of their residents. However, the Government continues to encourage separate collection of food waste from households where appropriate to complement work on food waste prevention. WRAP publishes extensive guidance and research⁴⁶ for Local Authorities who wish to collect food waste separately, while their “Love Food Hate Waste” campaign reinforces the waste prevention message. In the recent “Weekly Collections Support Scheme”⁴⁷ 20% of successful Local Authority bids were adding weekly collections of food waste, while a number of the schemes being trialled under the “Reward and Recognition Scheme”⁴⁸ include collection of food waste.

7.10 The Government is making progress in the collection and recycling of food waste, which is used to generate electricity, using anaerobic digestion or for composting. Local Authorities in the UK collected and recycled approximately 250,000 tonnes of separately collected food waste from households in 2011, a 54% increase on 2010. We expect this to be nearer 300,000 tonnes in 2013, which could provide electricity for 30,000 homes, if the food waste was all used to generate electricity.

7.11 The Government published a second annual report on progress under the Anaerobic Digestion Strategy and Action Plan in August 2013⁴⁹.

7.12 The Action Plan seeks to tackle the barriers to the uptake of anaerobic digestion including the availability of feedstocks. For example, WRAP have set up a food waste resources portal to provide links to the most up to date and relevant sources of data on different sources of food waste which could be used as feedstock for anaerobic digestion. The Annual Report shows that the anaerobic digestion sector is continuing

⁴⁴ The Green Alliance: Landfill bans and restrictions in the EU and US, 2009

⁴⁵ <http://www.wrap.org.uk/sites/files/wrap/New%20estimates%20for%20household%20food%20and%20drink%20waste%20in%20the%20UK%20FINAL%20v2%20%28updated%207thAugust2012%29.pdf>

⁴⁶ <http://www.wrap.org.uk/content/collection-and-recycling-food-waste-0>

⁴⁷ Run by the Department for Communities and Local Government

⁴⁸ Run by the Department for the Environment, Food and Rural Affairs

⁴⁹ <https://www.gov.uk/government/publications/anaerobic-digestion-strategy-and-action-plan-annual-report-2012-to-2013>

to grow and to deal with an increasing quantity of biodegradable wastes.

Recommendation 26

Support EC proposal to update the F-gas regulation and consider going further given the existence of cost effective alternatives.

7.13 The Government agrees with the CCC that we should support in principle the European Commission (EC) proposal for the further regulation of fluorinated greenhouse gases ("F gases"). Further proportionate regulation to reduce the emissions of F gases in Europe will be necessary to meet the emissions reduction milestones set out in the Commission's Low Carbon Roadmap.

7.14 However, there is no 'one size fits all' solution to the regulation of F gases given the range of F gases, equipment and applications. Policy measures must take into account the numerous types of products and equipment concerned and a wide range of factors that impact the feasibility and cost effectiveness of alternatives to F gases. A complete ban on the use of F gases would not be feasible in the foreseeable future since there are applications where there are no viable alternatives to F gases.

7.15 It is important to ensure that measures are only introduced where they will result in lower overall greenhouse gas emissions. These come from both direct emissions from the leakage of F gases as well as indirect emissions from CO₂ emissions relating to their energy efficiency in use. Nevertheless we recognise that there is potential in most sectors where F gases are used to replace them fully or partially with alternatives that are safe and at least as energy efficient. Alternatives vary in efficacy according to many factors including climate. Specific controls on the use of F gases would have to be considered on a case by case basis taking all of the above issues into account.

7.16 The EC's proposal for a phase down in the use of hydrofluorocarbons (HFCs), the most widely used of the F gases, is a pragmatic approach that takes account of these concerns. It would not prohibit the use of existing equipment which has not yet reached the end of its economic life, and allows flexibility for users to take account of factors (such as indirect emissions from energy use) when deciding what type of refrigerant or alternative technology to use.

7.17 The Government has, since 2010, supported in principle a global phase down of the production and use of HFCs to complement the emission reduction agreements under the Kyoto Protocol. An EU agreement to phase down HFC availability could ultimately help facilitate discussion and agreement of a global phase down of HFC production and use.

Chapter 8: Devolved Administrations

Northern Ireland

Progress to date

8.1 The Northern Ireland Cross Departmental Working Group on Climate Change, chaired by the Minister of the Environment, submitted its second annual report in May 2013 to the Executive on the performance of all departments in implementing the agreed Northern Ireland Greenhouse Gas Emissions Reduction – Action Plan. The Action Plan supports the achievement of the Programme for Government target of a reduction in greenhouse gas emissions of at least 35% on 1990 levels by 2025.

8.2 Progress on the implementation of this commitment is monitored 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. The latest available projection data indicate that Northern Ireland is estimated to achieve a reduction of 28.7% against the 35% target.

8.3 As a Programme for Government commitment, the Executive's 2025 greenhouse gas emissions target is 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.

Fuel Poverty

8.4 The Department for Social Development's (DSD's) Warm Homes Scheme improves the energy efficiency of over 9,000 low income households each year. The Department's boiler replacement scheme provides a grant of up to £1,000 to low income households to assist with the replacement of older boilers with newer, more energy efficient ones. The budget available will assist approximately 24,000 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.

8.5 There are no plans to change the definition on fuel poverty in Northern Ireland. In 2011 the DSD working with the University of Ulster carried out a major study which detailed levels of 'severe' fuel poverty and the work of the DSD to date in targeting available measures at the 13% of households who need to spend more than 20% of their income on energy costs. It is the intention to discuss the proposed new definition of 'fuel poverty' and benchmarking opportunities with DECC.

Scotland

Progress to date

8.6 The Committee on Climate Change published its 2nd Scottish progress report, (*Reducing Emissions in Scotland*) in March 2013, assessing the Scottish Government's progress on implementation of the policy framework set out in the statutory Reports on Proposals and Policies⁵⁰, required by the Climate Change (Scotland) Act 2009, to meet the Scottish Government greenhouse gas emission reduction targets, of a 42% reduction for 2020 and 80% by 2050 on 1990 base levels.

8.7 The Committee on Climate Change's second Scottish progress report acknowledged that the Scottish Government continues to make good progress towards achieving Scotland's 2020 ambitious climate change targets. The Committee on Climate Change's 5th UK progress report broadly restates the findings previously set-out in the Scottish progress report, in relation to Scotland's progress on reducing emissions.

8.8 The Scottish Government is committed to continuing to seek additional innovative ways to maximise the impact of current and future investments to ensure momentum and build on our progress to date. Recognising the importance of this investment, the Scottish Government has included the transition to a low carbon economy as a key strategic priority in the Scottish Government's Economic Strategy.

Fuel poverty

8.9 The Scottish Government welcomes the Committee on Climate Change's call for the UK Government to do more for fuel poor households. It would encourage the UK Government to do everything within its powers to minimise the impact of ever-increasing fuel bills on fuel poor households. Scottish Ministers are investing £79 million of Government funding in 2013/14 to enable a larger £200 million fund which draws on ECO funding. In addition, the

Scottish Government aims to work with the UK Government to influence the development of future phases of ECO to ensure that it more closely reflects the housing stock and climatic conditions in Scotland.

Wales

Progress to date

8.10 The UK Climate Change Committee published *Progress reducing emissions and preparing for climate change in Wales*, in January 2013 and is a high level report aimed at establishing long term trends on how Wales is adapting over time to the impacts of climate change.

8.11 Overall, the results found that Wales has continued to make progress implementing emissions reduction policies, particularly in the residential and waste sectors.

8.12 The Committee on Climate Change's 5th UK progress report broadly restates the findings previously set-out in the Wales progress report, in relation to Wales' progress on reducing emissions.

8.13 The impact of climate change poses a number of opportunities and threats to the Welsh economy. The Welsh Government's aim of creating a low carbon, resource efficient and socially inclusive Wales goes hand in hand with the Welsh Government's climate change objectives. In order to deliver on the Welsh Government's priorities – creating jobs and tackling poverty – climate change is a key consideration.

8.14 The Welsh Government continues to invest in the most productive and innovative ways in order to drive growth, reduce emissions and increase the living standards of citizens in Wales, including:

- Through all Wales procurement, we have ensured over £500m of private sector investment in new waste facilities, the largest co-operative procurement across Welsh Government and Local Government and

⁵⁰ *The first Report, Low Carbon Scotland – Meeting the Emissions Reduction Targets 2010–2022* (March 2011) and *Low Carbon Scotland – Meeting the Emissions Reduction Targets 2013–2027*, (June 2013) which refined the policies and proposals detailed in the earlier Report.

the largest private finance project in Welsh Government.

- Phase 1 of Arbed invested £30 million of Welsh Government funding to deliver improvements to over 6,000 households in Wales. Arbed Phase 2 will invest £45 million between 2012 and 2015. The scheme has so far realised 128 new sustainable jobs and all 12 schemes that have been tendered have been won by consortia of Welsh based SMEs.
- Between January 2010 and April 2013 more than £29 billion in investment was announced in the renewable energy market in the UK, £1.4 billion of this was in Wales.
- The Welsh Government is investing over £150 million in flood and coastal erosion over the life of this Government. Benefits of investment by the Welsh Government include supporting or creating 930 jobs, 6,000 job losses avoided, and 7,000 homes and businesses that will benefit from reduced flood risk.

Fuel poverty

8.15 The Welsh Government is concerned at the impact of rising energy bills on low income and vulnerable households in Wales, particularly those living in rural, off-gas areas and in homes that are hard to heat. The Welsh Government is committed to doing everything it reasonably can do to reduce the number of households living in fuel poverty and welcome the Committee on Climate Change's call for the UK Government to do more for fuel poor households. The Welsh Government is continuing to invest in the Nest and Arbed schemes, which provide grant funded support for households most in need and enable additional funding to be leveraged through the ECO. It looks forward to working closely with the UK Government to ensure that future energy company obligations meet the needs of Welsh households and that the Nest and Arbed schemes continue to complement UK-wide energy improvement programmes.

Glossary

BIS	The Department for Business, Innovation and Skills
CCA	Climate Change Agreement
CCC	Committee on Climate Change
CCS	Carbon Capture and Storage
CHP	Combined Heat and Power
CfD	Contracts for Difference
CO ₂ e	Carbon Dioxide equivalent
CRC	Carbon Reduction Commitment Energy Efficiency Scheme
DECC	The Department of Energy and Climate Change
Defra	The Department for Environment, Food and Rural Affairs
DfT	Department for Transport
ECO	Energy Company Obligation
EMR	Electricity Market Reform
EU	European Union
EU ETS	European Union Emissions Trading System
FEED	Front-End Engineering and Design
F gases	Fluorinated greenhouse gases
FITs	Feed-in Tariffs
FYA	First year allowance
GHG	Greenhouse gas
GHGAP	Greenhouse Gas Action Plan

GIB	Green Investment Bank
GW	Gigawatt
HDV	Heavy duty vehicle
HGV	Heavy goods vehicle
HFC	Hydrofluorocarbon
ILUC	Indirect land use change
kWh	Kilowatt hour
kWth	Kilowatt Thermal
LCF	Levy Control Framework
LSTF	Local Sustainable Transport Fund
MtCO ₂	Million tonnes of carbon dioxide
MtCO ₂ e	Million tonnes of carbon dioxide equivalent
MW	Megawatt
ONS	Office for National Statistics
RHI	Renewable Heat Incentive
RO	Renewables Obligation
ULEV	Ultra Low Emissions Vehicle

Annex A: Summary of CCC Recommendations

Power
<ol style="list-style-type: none"> 1. Set out in the Delivery Plan for the Electricity Market Reform (EMR) the quantity of capacity to be contracted during the period 2014/15 to 2018/19, and the intended prices for wind generation. 2. Resolve detailed implementing issues for EMR relating to contract design and payment mechanism as the Energy Bill is finalised, ready to sign contracts in 2014. 3. Clarify that the funding under the levy control framework will be calculated relative to the cost of building and running a new unabated gas-fired plant rather than the wholesale electricity price and increase funding if contract lengths are shorter than expected project lifetime. 4. Agree the contract for the first new nuclear project. 5. Provide clarity on power sector development through the 2020s: legislate a target for carbon intensity of power generation in 2030; set out commercialisation strategies for carbon capture and storage (CCS) and offshore wind; extend the levy control framework to 2030. 6. Ensure the two selected CCS projects move forward such that contracts can be signed by early 2015, enabling plant to become operational by 2018/19. Set out the timing of further projects and approaches to de-risking and CO₂ infrastructure development. 7. Set stretching sustainability standards for the use of biomass, and require that forest biomass comes from sustainably managed forests.
Buildings
<ol style="list-style-type: none"> 8. Carry out an early review of the Green Deal and ECO and consider further incentives to encourage uptake of measures (especially lofts and cavity wall insulation). 9. Tighten building regulations in line with the previously announced schedule towards all new homes being zero carbon from 2016.

Buildings (*continued*)

10. Ensure measures are in place to adequately support fuel poor electrically heated households, either within the Energy Company Obligation, or otherwise. Ensure that the Energy Company Obligation continues to the point where all fuel poor households have benefitted from it, and address very high rates of fuel poverty found in the devolved administrations..
11. Set ambitious minimum standards for energy efficiency in the residential and non-residential sector, as envisaged under the 2011 Energy Act. These standards should be announced now with a lead time so that landlords can optimise the timing of implementation, for example, as tenancy agreements come to an end.
12. Make a comprehensive assessment of non-residential low-carbon policies to ensure they work effectively.
13. Extend the Renewable Heat Incentive to the residential sector and ensure funding beyond 2015, allow Green Deal finance to cover the up-front cost of purchasing heat pumps, and consider options to address non-financial barriers.

Industry

14. Include the full range of cost-effective abatement options in the industry sector roadmaps and align financial incentives for low-cost abatement.
15. Set out an approach to demonstration and commercialisation of industry CCS compatible with deployment in the 2020s.
16. Introduce a detailed implementing package for commitments to mitigate competitiveness risks for UK firms from low-carbon policies (e.g. the £250 million compensation package and exemptions from costs under EMR).

Transport

17. Support the setting of challenging longer-term new Car and Van CO₂ intensity targets at EU level as soon as possible (e.g. following the Commission's proposed review to be completed by the end of 2014).
18. Push for rapid progress in developing an EU framework for HGV emissions.
19. Ensure a stable framework of support for electric vehicles (commit to continuation of funding of Plug-in Car and Van Grants beyond 2015 and reinstate tax incentives for company cars).
20. Push for robust sustainability criteria for biofuels to be agreed at the EU level as soon as possible.
21. Actively promote uptake of eco-driving through a combination of inclusion as a key element in the practical driving test, driver training, awareness raising and in-car information on fuel efficiency.

Agriculture

22. Set targets in their roadmaps as to how the cereals and oil seeds sectors will contribute to emission reductions.
23. Set out approach to assessing the effectiveness of the voluntary approach in the GHG Industry Action Plan.
24. Any review on progress towards reducing emissions from agriculture should also consider a range of policy options, including policies that would provide stronger incentives for farmers.

Waste and other non-CO₂

25. Consider stronger levers to reduce the amount of biodegradable waste that is sent to landfill, including further provision by local authorities for separate collection of food waste, and review landfill bans on major sources of biodegradable waste on a case-by-case basis.
26. Support EC proposal to update the F-gas regulation and consider going further given the existence of cost effective alternatives.



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ISBN 978-0-10-851270-4



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