



Department
of Energy &
Climate Change

Annual Energy Statement 2014





Annual Energy Statement 2014

Presented to Parliament
by the Secretary of State for Energy and Climate Change
by Command of Her Majesty

October 2014



© Crown copyright 2014

You may re-use this information (excluding logos) free of charge in any format or medium, under the terms of the Open Government Licence v.2. To view this licence visit www.nationalarchives.gov.uk/doc/open-government-licence/version/2/ or email PSI@nationalarchives.gsi.gov.uk Where third party material has been identified, permission from the respective copyright holder must be sought.

This publication is available at www.gov.uk/government/publications

Any enquiries regarding this publication should be sent to us at correspondence@decc.gsi.gov.uk

Print ISBN 9781474110617

Web ISBN 9781474110624

Printed in the UK by the Williams Lea Group on behalf of the Controller of Her Majesty's Stationery Office

ID P002669274 43586 10/14

Printed on paper containing 75% recycled fibre content minimum

Contents

Ministerial foreword	7
1. Executive Summary	9
2. Putting power in the hands of consumers	21
2.1 Fulfilling our energy saving potential	21
2.2 Getting a good deal for consumers.....	22
2.3 Enabling consumers to take control of their energy use	27
2.4 Extending support for households and the fuel poor	30
2.5 Extending support for business consumers	33
3. Delivering investment in energy infrastructure	36
3.1 Investment for a low carbon future	36
3.2 Maximising economic recovery of UK oil and gas	51
3.3 Investment to ensure security of supply	54
3.4 Managing our energy legacy responsibly	60
4. Driving international action on climate change	63
4.1 Ensuring progress in multilateral negotiations	64
4.2 Building political momentum	65
4.3 Driving international action	66
4.4 EU leadership	67
4.5 Supporting low carbon, resilient economies	68
Annex A: DECC's consumer funded policies	71
A.1 Introduction and scope.....	71
A.2 Supporting renewable and low carbon electricity generation within the Levy Control Framework	71
A.3 Levy expenditure and outcomes: 2011/12 – 2014/15.....	72
A.4 Estimated committed and projected levy expenditure from 2015/16 - 2020/21	74
A.5 Tackling fuel poverty: the Warm Home Discount scheme	76
A.6 Improving energy efficiency: the Energy Company Obligation.....	76

Ministerial foreword

When the Coalition Government took power in 2010, it wasn't just the country's finances that needed immediate action. It would be fair to say the UK faced an energy crisis too. A historic record of underinvestment in energy infrastructure threatened our energy security, with a fifth of our existing power stations set to close by the end of the decade and electricity transmission and distribution networks in major need of repair and replacement. After years of inexorable rises in energy costs, consumers were getting a raw deal from the big six energy suppliers in a market that had too little competition, confusing tariffs, complicated bills, and a tortuous switching system. On climate change, the Coalition inherited legal obligations to cut emissions from energy, but little practical policy to achieve them cost-effectively.

This Annual Energy Statement sets out the Coalition Government's achievements in turning this situation around and working to build the low carbon, sustainable, secure energy system this country needs in the most cost-effective way possible. To do so we have delivered the most radical overhaul of the system since the energy privatisation in the 1990s. Reforms have been introduced right across the sector from offshore oil and gas; to the way our electricity markets operate; to the drive for energy efficiency, to the way consumers are billed for the energy they use.

For consumers, the last four years has seen quite a revolution. Three quarters of a million homes are benefiting from lower bills thanks to the Government's energy efficiency policies. Payments to vulnerable people to help with bills have been protected and expanded and the number of households in fuel poverty has fallen. There are now a dozen new suppliers taking on the big six, providing choice and competition and people are now able to vote with their feet. The independents now boast over two million customers and regularly top the best buy tables, research suggests the big six lost 5% of their market share in the last year alone. Bills are easier to understand, tariffs simpler and switching times are being halved. And after years of rising bills, there have been no new price rise announcements from the big six this year, reflecting increased competition and the efforts the Government has made to reduce policy costs.

But there is still a long way to go. As a result of the first annual competition assessment that the Government commissioned through last year's Annual Energy Statement, Ofgem has now referred the gas and electricity markets to the Competition and Markets Authority. This is a critical step towards stronger competition and restoring trust in the market.

On energy security, National Grid and Ofgem now have a basket of new balancing measures that will ensure the risk of supply disruption will remain at very low levels over the next few years. The first auctions in our new Capacity Market will take place in December and will ensure we get the best out of our existing electricity generation fleet **and** drive new investment in gas powered supply. With the 2013 Energy Act passing into law last December, we now have one of the best legal and financial frameworks to support the cost-effective growth of low carbon technology anywhere in the world. Average annual investment in renewables has doubled this Parliament, reaching record levels. Around 19% of the UK electricity is now being provided by renewable resources and capacity is growing all the time. In the three years to 2013, we attracted £45 billion of investment in new electricity infrastructure, putting us on target to meet

energy security requirements as old and polluting generating capacity goes off line. Last year saw the Government agreeing key terms for the first new nuclear power station in a generation at Hinkley Point. We have also given the go ahead to renewables projects that will provide up to £12 billion of private sector investment, supporting 8,500 jobs. As a whole, we estimate that the Government's electricity market reforms have the capacity to support up to 250,000 low carbon jobs by 2020 and are likely to reach into every part of the country through the supply chain.

All this has been achieved whilst continuing to reduce the UK's greenhouse gas emissions. I was delighted to announce in February 2014 that the UK had met its first carbon budget, covering the period 2008 – 2012. Thanks to the policies of this Government, we are also on track to meet the even more demanding reductions required to meet the second and third carbon budgets. In September, I published the Government's strategy for achieving a legally binding global climate change deal in 2015. I have been working closely with like-minded European Ministers to build alliances and promote the UK's ambitious, flexible, cost-effective approach to energy security and low-carbon growth. And with agreement last month on the EU's 2030 climate and energy framework, Europe is now well placed to lead on the world stage and secure the global deal that is so crucial for future generations.

I am proud to be serving as the Secretary of State for Energy and Climate Change at such a crucial time. The progress we have made has required a joined up effort across Government, partnership with industry and business, strong and active regulators, engaged consumer groups, and dedicated, innovative engineers and scientists. This Annual Energy Statement is testament to the hard work being made across the whole of society to build the safe, secure, cost-effective low carbon energy system this country needs, meeting our responsibilities to our citizens and to the planet as well.

A handwritten signature in black ink, appearing to read 'Edward Davey', with a horizontal line underneath.

Edward Davey

1. Executive Summary

1. Energy is a vital part of our daily life. The Government's energy policies seek to meet three primary objectives: ensuring light, power, heat and transport are affordable for households and businesses; providing energy security; and reducing carbon emissions in order to mitigate climate change. In addition, government policy supports the energy sector in its role as a major contributor to the UK economy.
2. This Annual Energy Statement fulfils the commitment in the Coalition Programme for Government to present an annual statement of energy policy to Parliament.¹

1.1 The importance of energy to the UK

3. We use energy to generate the electricity needed to power our homes and businesses and to drive industrial processes. We also use it to travel and to keep warm. Figure 1 demonstrates how total energy usage breaks down in the UK.

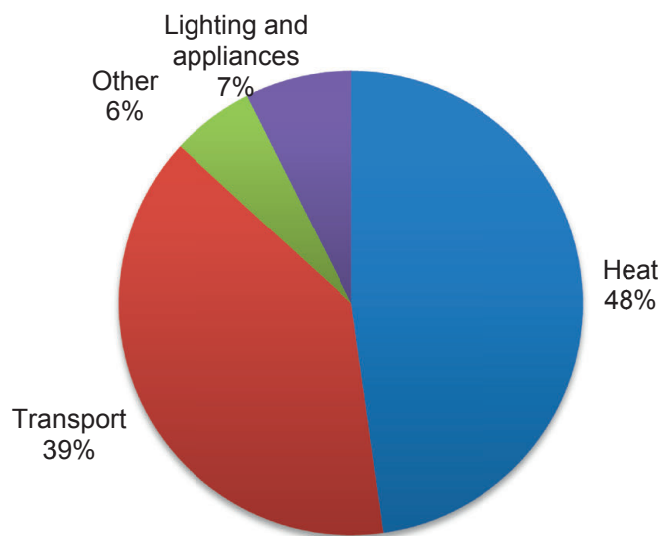


Figure 1. Total end energy use 2013²

4. The UK consumes a variety of different fuels to meet this demand for energy, as shown in Figure 2.

¹ *The Coalition: our programme for government*, HM Government, May 2010

² *Energy Consumption in the UK*, Department of Energy and Climate Change, Jul 2014

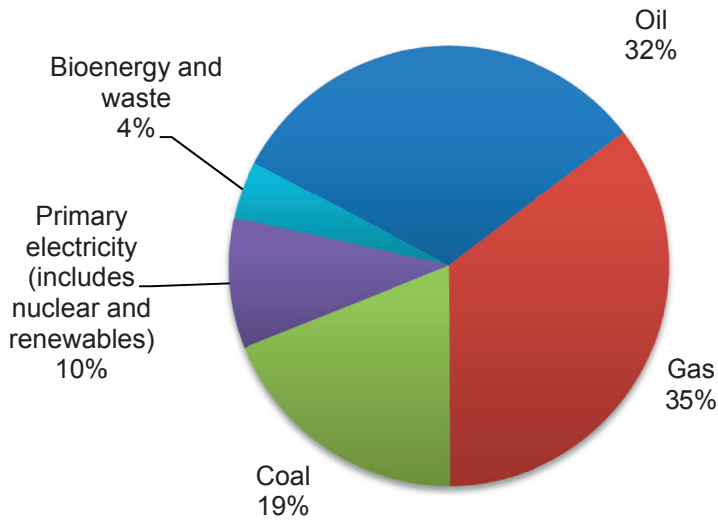


Figure 2. Inland energy consumption, 2013³

5. Oil is used primarily for transport, while gas is used to generate heat for a variety of purposes, including domestic use, industrial processes and electricity generation (Figure 3). Nuclear, renewables and coal are used predominantly to generate electricity.

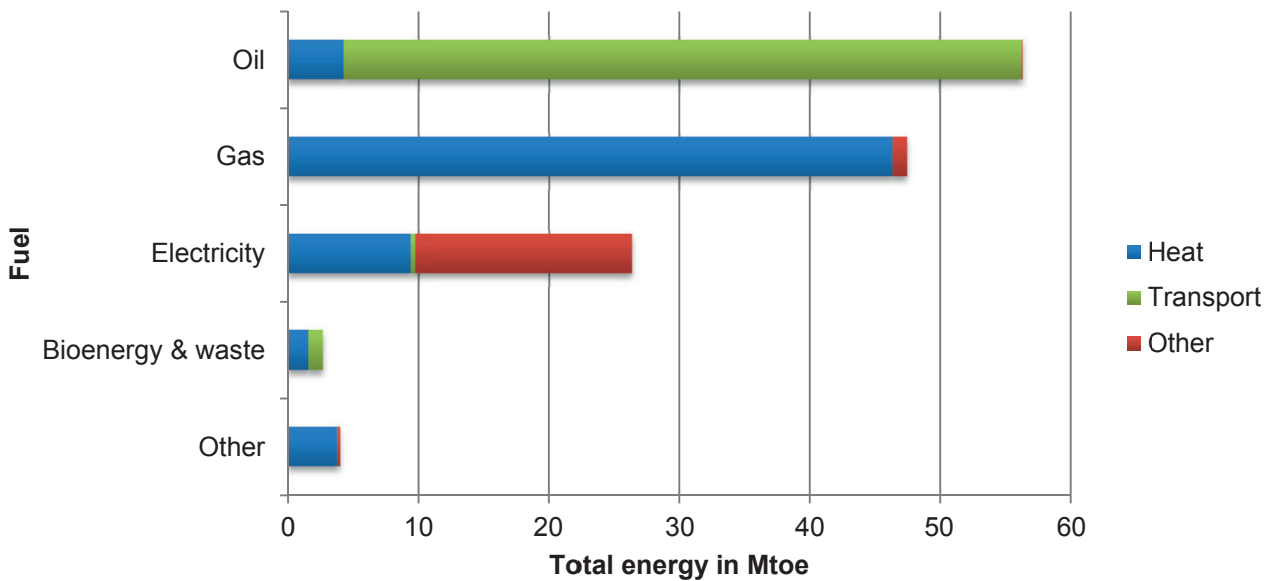


Figure 3. Final energy consumption by fuel and use, 2013⁴

6. The energy industries represented 3.3% of UK gross domestic product in 2013. This was mainly from oil and gas extraction and electricity generation, transmission and distribution (Figure 4). In addition, the energy sector currently represents 15% of the value of all UK imports and 14% of the value of all UK exports.⁵

³ *UK Energy in Brief*, Department of Energy and Climate Change, Jul 2014

⁴ *Energy Consumption in the UK*, Department of Energy and Climate Change, Jul 2014. Note: Mtoe stands for million tonnes of oil equivalent.

⁵ *UK Energy Sector Indicators 2014*, Department of Energy and Climate Change, Oct 2014

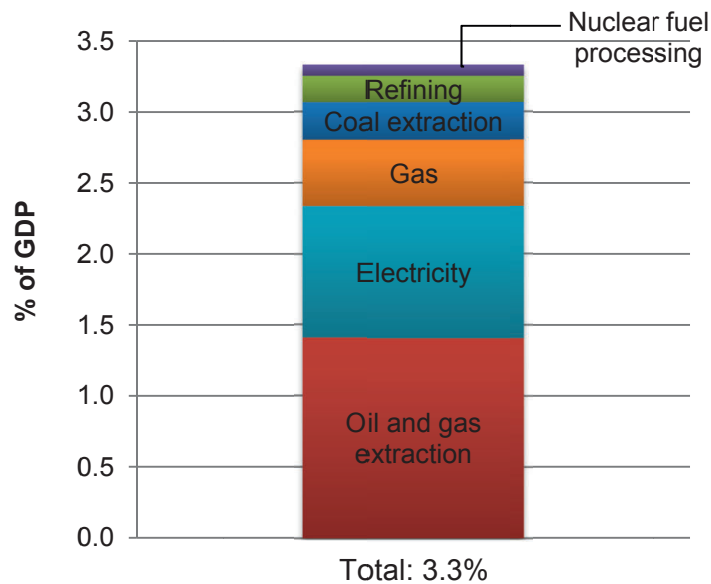


Figure 4. Contribution to GDP by the energy industries 2013⁶

1.2 Challenges for UK energy policy

Affordability

7. The UK currently ranks well internationally for household energy prices (Figure 5). However, we need to ensure that energy bills remain affordable for all consumers, from our energy intensive industries to the vulnerable and fuel poor.

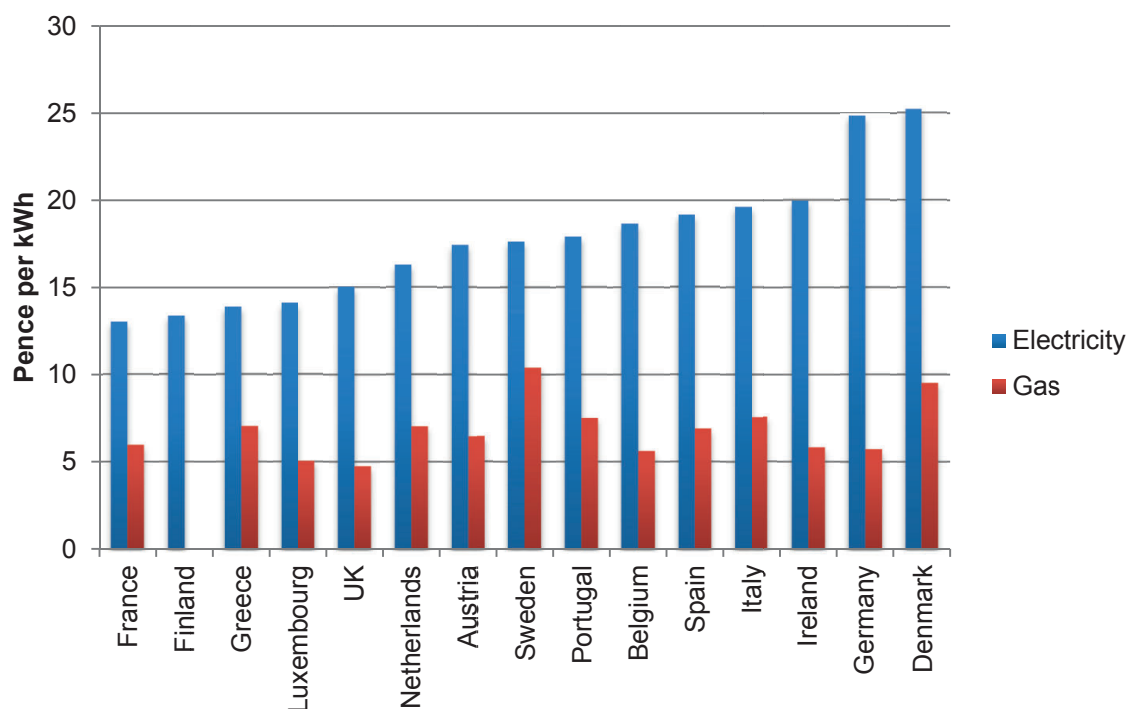


Figure 5. Electricity and gas prices for domestic consumers in the EU, 2013⁷

⁶ *UK Energy in Brief*, Department of Energy and Climate Change, Jul 2014

⁷ *Quarterly Energy Prices*, Department of Energy and Climate Change, Sep 2014. Derived from Eurostat data, sorted for electricity prices. Gas data for Finland not available.

Climate change

8. Climate change is one of the most serious threats that the world faces and we need to take action now so that we can insure ourselves against the risks. The UK has therefore committed to drastically cutting its greenhouse gas emissions, through both reducing demand for energy and making the transition to lower carbon sources of energy. The Climate Change Act 2008 introduced a legally binding target to reduce greenhouse gas emissions by at least 80% below the 1990 baseline by 2050. It also introduced a system of carbon budgets, which set the trajectory to ensure the targets in the Act are met. These budgets represent legally binding limits on the total emissions permissible across the UK over five year periods. The first four carbon budgets are set in law covering the period from 2008 to 2027. The Government must set the fifth carbon budget (2028-2032) by June 2016.⁸

Energy security

- 9. Energy consumers need to have access to reliable and secure energy supplies. Production of gas and oil from UK’s own reserves has been declining since 1999, and since 2004 the UK has been a net importer of energy. Although the UK has a lower import dependency than most other European countries, this has changed the way we need to view and tackle our energy security.⁹
- 10. Over 40 billion barrels of oil equivalent have so far been produced from the UK Continental Shelf and up to a further 20 billion more might still be recovered.¹⁰ However, the challenges of extraction are changing, with greater investment required to exploit reserves.

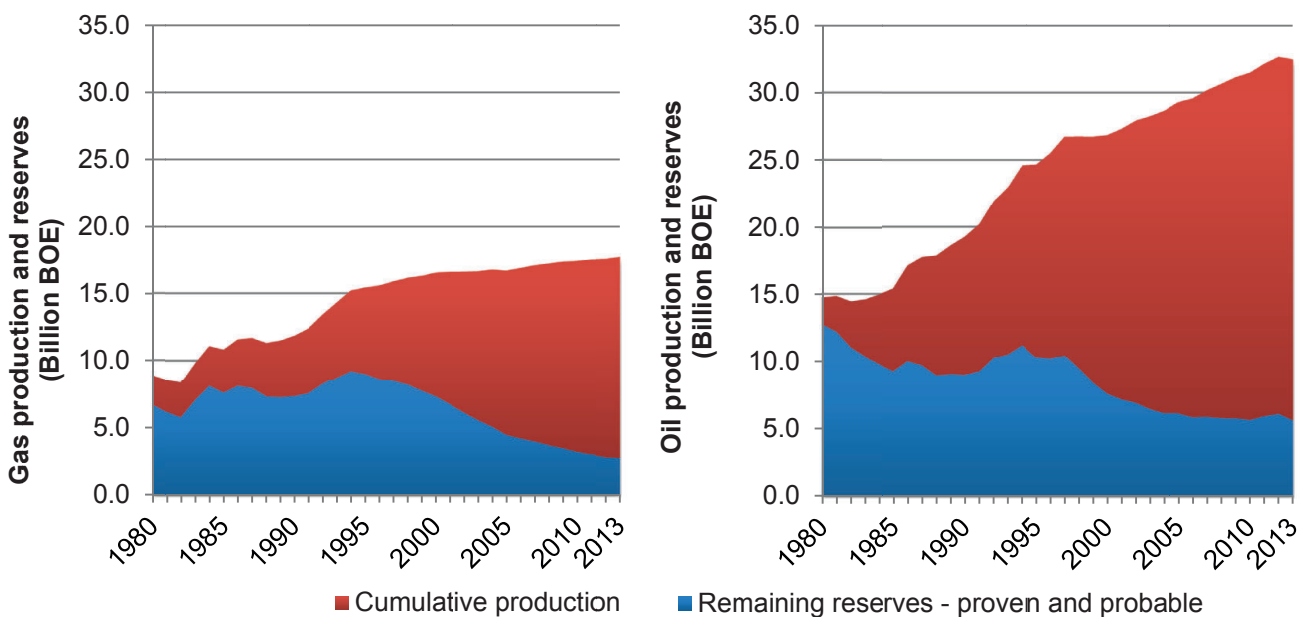


Figure 6. Oil and gas production and reserves, 1980 to 2013¹¹

⁸The Carbon Plan: Delivering our Low Carbon Future, Department of Energy and Climate Change, Dec 2011

⁹UK Energy in Brief, Department of Energy and Climate Change, Jul 2014

¹⁰Delivering UK Energy Investment, Department of Energy and Climate Change, Jul 2014. 20 billion figure includes proven, possible and potential finds.

¹¹UK Energy in Brief, Department of Energy and Climate Change, Jul 2014. Figures shown do not include estimates for shale gas.

11. In addition to secure supplies of fuel, the UK also requires sufficient power generation capacity to produce the electricity that it needs. The UK is facing very rapid closure of existing capacity as older, more polluting, plants go offline and the power system decarbonises.

1.3 What this Government has achieved

12. This Government has set about managing both the supply and demand side challenges the UK faces, as we work towards establishing a low carbon, sustainable and secure energy system. We have delivered the most radical overhaul of the energy system since the electricity market was privatised. Reforms have been introduced right across the sector from offshore oil and gas; to the way our electricity markets operate; through to the way consumers are billed for the energy they use.
13. Alongside our energy system reforms, we have helped consumers reduce their demand for energy; temperature-adjusted energy consumption has now fallen in eight of the last nine years.¹² From insulation to renewable heat and smart meters, we are putting more power in the hands of consumers, changing the way we think about energy and making it more relevant to people's everyday lives.

Putting power in the hands of the consumer

14. A key focus of Government policy to help consumers with bills has been to increase competition in retail energy markets. Working alongside Ofgem, Government policy has been successful in increasing both the number and market share of the smaller competitors. The market share of the largest six energy firms has fallen sharply in the last two years to around 92%, with 12 new firms entering the UK market since 2010. Over 2 million customers have switched to these new competitors, partly encouraged by policies to make it quicker and simpler to switch.¹³ Last year, the Government challenged industry to halve switching times by the end of this Parliament and has worked with them and Ofgem to deliver this. Looking further ahead, Ofgem has consulted on its roadmap for moving to next day switching, with a decision due at the end of the year.
15. Last year, the Government asked Ofgem and the competition authorities (the Office for Fair Trading and the new Competition and Markets Authority) to conduct an annual competition assessment of the retail energy markets. The first assessment was published in March 2014.¹⁴ In light of the important issues identified in the assessment, Ofgem has now referred the electricity and gas retail markets to the Competition and Markets Authority for a formal investigation. This is a critical step towards restoring trust in these markets.
16. This work has been complemented by a regulatory framework that the Government has put in place to help consumers keep their bills down. Through the Green Deal, smart meters and other initiatives and technologies, it is becoming easier for people to control their energy use and make energy saving improvements to their homes. Business energy efficiency policies such as the new Energy Savings Opportunity Scheme will help business consumers to manage their energy costs and enhance their productivity, by providing them with bespoke information on the cost-effective energy efficiency investments available to them.

¹² *UK Energy in Brief*, Department of Energy and Climate Change, Jul 2014

¹³ *Electricity Switching*, Energy UK, Jul 2014

¹⁴ *State of the Market Assessment*, Ofgem, Mar 2014

Keeping our policies affordable

- 17. Achieving our challenging objectives in the energy sector will come at a cost, but the Government is committed to ensuring the costs of our energy policies are kept to a minimum. At Autumn Statement 2013, we took action to reduce the costs of policies on bills, ensuring household bills were on average £50 lower this year than they would otherwise have been.
- 18. This included a rebate saving domestic electricity customers £12 on their bill for two years, reductions to the cost of the Energy Companies Obligation, resulting in £30-£35 off bills on average and voluntary action by electricity distribution network companies, to defer network costs resulting in a £5 saving. The Government is committed to ensuring the costs of these policies on household energy bills are kept to a minimum and do not rise beyond 2013 levels within this current Parliament.
- 19. Taken together, the benefits achieved through saving energy can outweigh the costs of energy policies. The Government’s energy efficiency policies will play a key role in keeping the costs of domestic consumers’ bills down; in 2013 alone the Government’s energy saving policies saved the UK £4 billion on its fuel bills (Figure 7).¹⁵

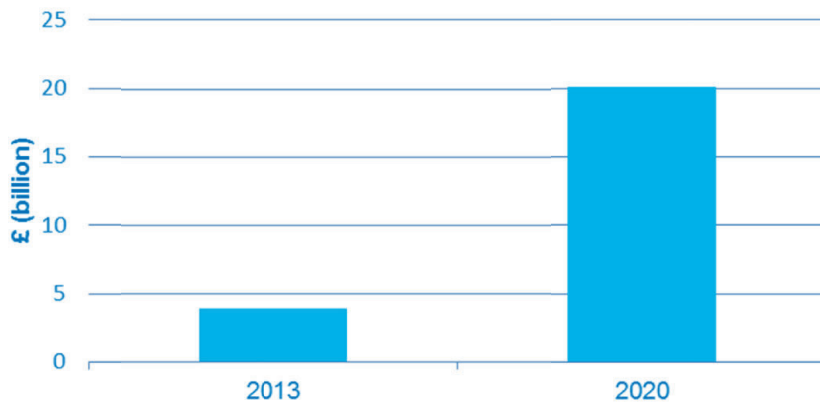


Figure 7. Estimated fuel bills savings from energy efficiency policies¹⁶

- 20. Household energy bills are estimated to be, on average, £90 (6%, 2014 prices) lower in 2014 than they would have been in the absence of the Government’s energy and climate change policies. Savings from energy efficiency policies and rebates to households more than offset the costs of supporting investment in low-carbon technologies.
- 21. Business energy bills are estimated to be higher in 2014 as a result of energy¹⁷ and climate change policies. For the majority of business, energy costs form a small proportion of total operating costs (around 3% overall), and the impact of policies is estimated to contribute to around 1% higher operating costs overall. For energy-intensive industries, the Government has introduced a number of measures to help limit the impact of policies on their competitiveness.¹⁸
- 22. The total costs of the Department of Energy and Climate Change’s (DECC) consumer funded policies are set out in Annex A.

¹⁵ DECC estimates based on the September 2013 Updated Energy and Emissions Projections, prices with the DECC supplementary appraisal guidance, 2013 prices. ‘Fuel bills’ refers to energy and transport bills.

¹⁶ *Ibid*

¹⁷ DECC analysis

¹⁸ *Ibid*. Sector dependent and subject to State Aid

23. Poorer households are typically hit hardest by energy price rises, particularly those who are in fuel poverty as a result of the overlapping problems of low income and high energy costs. Tackling fuel poverty is a Government priority: ensuring that everybody is able to keep warm in their homes. The number of households in fuel poverty has fallen. In 2012, the last year for which figures are available, there were 110,000 fewer fuel poor homes than in 2011.¹⁹
24. In July 2014, the government laid draft regulations before Parliament to put in place a new long-term fuel poverty target. The new target will be to ensure that as many fuel poor homes as is reasonably practicable achieve a minimum energy efficiency standard of Band C by 2030. The Department of Energy and Climate Change (DECC) also published “Cutting the Cost of Keeping Warm - a consultation” to prepare for a new fuel poverty strategy for England.²⁰

Securing investment

25. Radical reform of the energy system requires huge levels of investment. DECC’s latest analysis shows that £100 billion of investment could be needed in electricity generation and networks alone between 2014 and 2020 (Figure 8).²¹
26. However, the *National Infrastructure Plan 2013* put the pipeline of investment in all areas of energy at over £200 billion.²² More than £45 billion was invested in electricity generation and networks between 2010 and 2013.²³

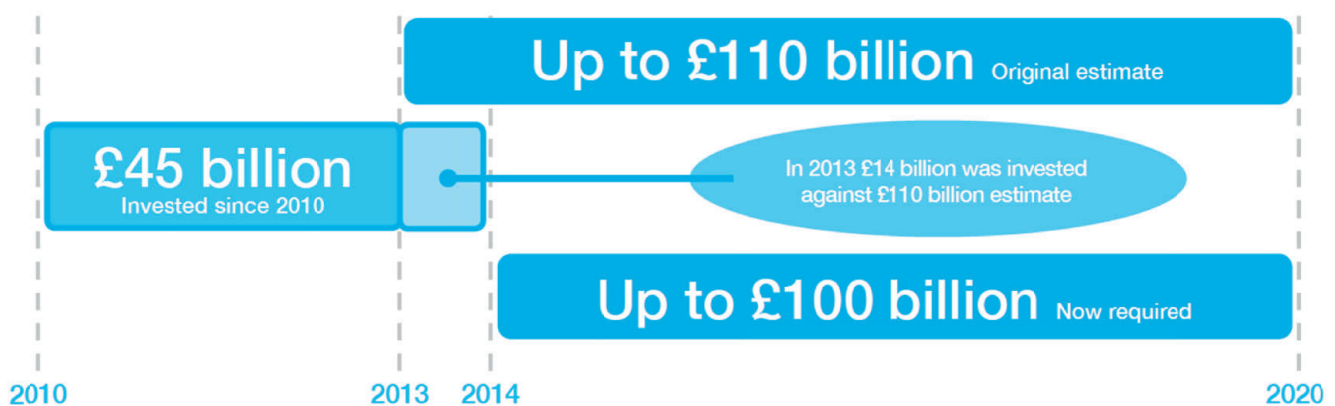


Figure 8. Investment in electricity generation and networks since 2010²⁴

27. The Government’s vision is to create a wholesale electricity market where low carbon technologies can compete on cost. With that in mind, the 2013 Energy Act was passed, which introduced innovative institutional and market arrangements to secure the investment that the UK needs in order to replace its ageing power stations with modern, cleaner alternatives. This will enable the UK to develop a clean, diverse and competitive mix of electricity.

¹⁹ *Fuel poverty report: annual report on statistics 2014*, Department of Energy and Climate Change, Jun 2014

²⁰ *Cutting the cost of keeping warm: a new fuel poverty strategy for England consultation document*, Department of Energy and Climate Change, Jul 2014

²¹ *Delivering UK Energy Investment*, Department of Energy and Climate Change, Jul 2014

²² *National Infrastructure Plan 2013*, HM Treasury, Dec 2013

²³ DECC estimates based on EMR Delivery Plan modelling

²⁴ *Delivering UK Energy Investment*, Department of Energy and Climate Change, Jul 2014

28. The main instruments introduced through the Electricity Market Reform programme are Contracts for Difference and the Capacity Market. They work to provide increased certainty to industry and investors while maintaining security of supply, progress towards decarbonisation targets and keeping energy affordable.
29. Both Contracts for Difference and the Capacity Market encourage competition in order to minimise cost to the consumer. This will help boost the UK's economy, with the wider electricity market reforms having the potential to support up to 250,000 jobs in low carbon generation.²⁵
30. The single biggest reason we use energy is to produce heat. This means there is an enormous investment opportunity for new and renewable forms of heating. The Renewable Heat Incentive, the world's first long-term financial support programme for renewable heat, could unlock around £13 billion of investment in lower-carbon heating systems by 2020.²⁶ Since launching in 2011, enough renewable heat has already been generated to heat the equivalent of around 115,000 UK homes for a year. In addition, investment in combined heat and power systems is expected to reach £5 billion by 2020.²⁷
31. Investing in energy efficiency, smart meters and smart grids can be another cost-effective way to support growth, cut bills, enhance business productivity, improve living standards and cut carbon emissions. The multi-billion pound energy efficiency market in the UK now supports over 100,000 jobs.²⁸

Carbon reduction

32. The UK is succeeding in reducing the greenhouse gases it emits. In February 2014, the UK's 2012 greenhouse gas inventory was published, confirming that the UK had met its first carbon budget. Over the first carbon budget period, which covered 2008 to 2012, the UK's emissions were on average 23.6% lower than 1990, which is the base year for emissions.²⁹
33. The Government's latest projections indicate that the UK is on track to meet its second and third legislated carbon budgets with current planned policies. The Government expects to reduce emissions to below the level required by these budgets by 76 and 80 MtCO_{2e} respectively on the reference scenario forecasts for these carbon budgets (Figure 9).³⁰
34. Based on current planned policies there is an expected shortfall of 133 MtCO_{2e} over the fourth carbon budget. This reflects the fact that detailed policy mechanisms have yet to be developed for this period. In the 2011 Carbon Plan, the Government set out a number of scenarios for bridging the shortfall.³¹

²⁵ *Electricity Market Reform Delivery Plan*, Department of Energy and Climate Change, Dec 2013

²⁶ Department of Energy and Climate Change estimate - see impact assessments for Renewable Heat Incentive

²⁷ *Projections of CHP capacity and use to 2030*, Ricardo-AEA, Mar 2013

²⁸ *Low carbon environmental goods and services report*, Department for Business, Innovation and Skills, Jul 2013

²⁹ *2012 UK Greenhouse Gas Emissions, Final Figures*, Department of Energy and Climate Change, Feb 2014

³⁰ *Updated energy and emissions projections: 2014*, Department of Energy and Climate Change, Sep 2014

³¹ *The Carbon Plan: Delivering our Low Carbon Future*, Department of Energy and Climate Change, Dec 2011

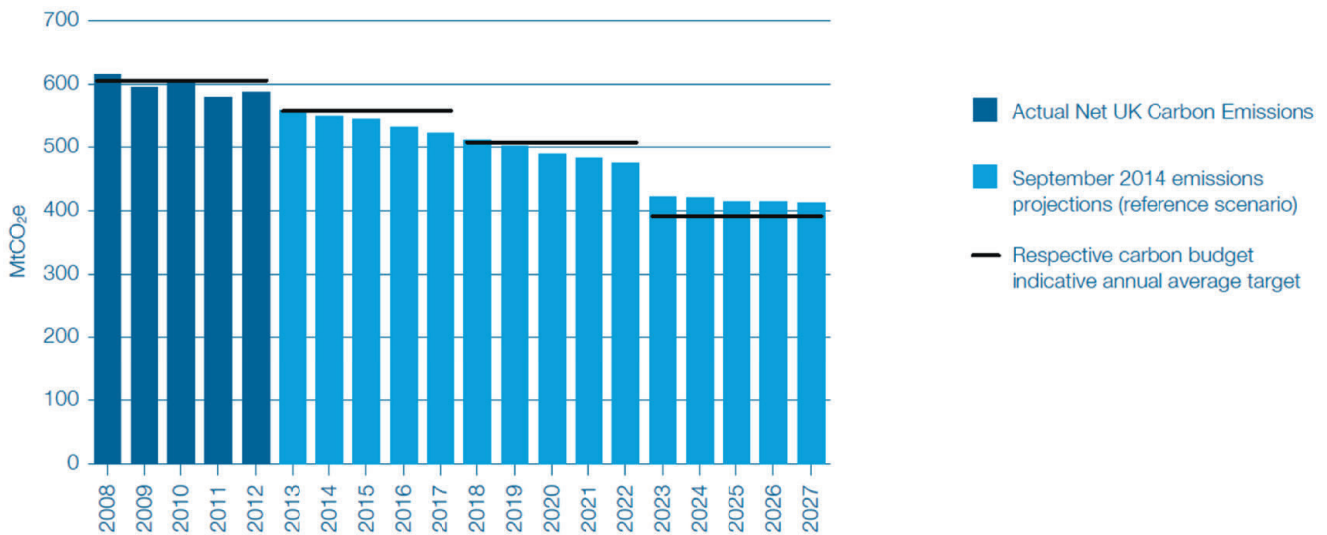


Figure 9. Current and projected UK carbon emissions³²

35. The UK is also making progress against its legally-binding EU commitment to source 15% of its final energy consumption from renewable sources by 2020. In 2013, this figure stood at 5.2% (Figure 10).³³

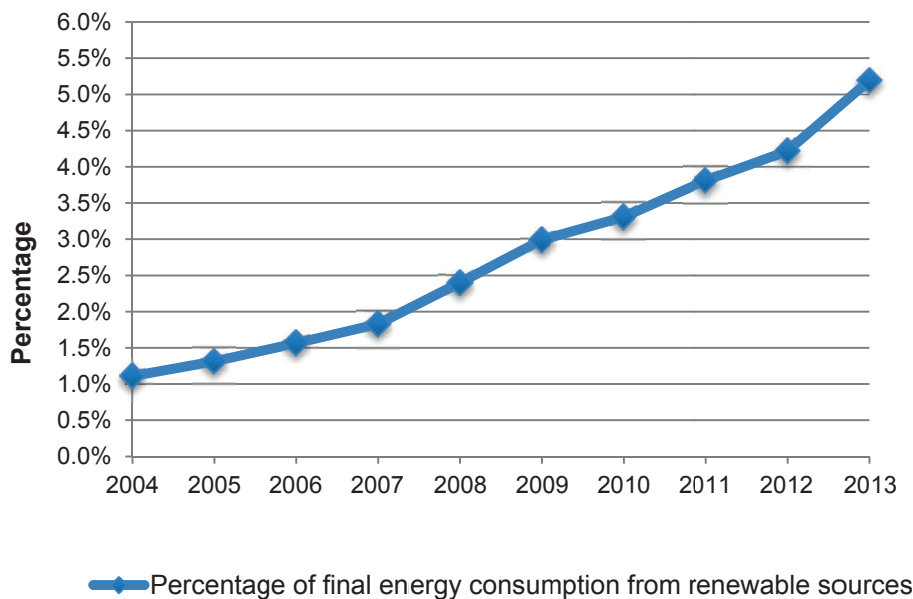


Figure 10. UK progress against 2009 renewable energy directive³⁴

36. The UK’s renewable electricity capacity has more than doubled since 2010, from 8.7 gigawatts (GW) at the end of June 2010 to nearly 19.7GW at the end of 2013. The percentage of electricity from renewable sources increased from 7.4% in 2010 to 13.9%

³² *Final UK greenhouse gas emissions official statistics*, Department of Energy And Climate Change, February 2014, *Updated energy and emissions projections*, Department of Energy And Climate Change, Sep 2014

³³ *UK Energy in Brief*, Department of Energy and Climate Change, Jul 2014

³⁴ *Ibid*

over this period.³⁵ The UK is ranked as one of the best countries in the world for investment in renewables.³⁶

37. The transport sector also continues to make progress towards the UK's renewable energy and greenhouse gas savings targets. The Renewable Transport Fuels Obligation sets mandatory sustainability criteria for biofuels and an obligation on fuel suppliers to provide 4.75% of transport fuels from renewable sources in 2014/15, with the contribution from wastes counting as double.
38. The 2012 *Energy Efficiency Strategy* outlined the important role that energy efficiency policies will also play in meeting the UK's carbon budgets. Energy efficiency policies in 2020 are due to deliver around a third of projected savings of greenhouse gases and nearly 60% of non-traded emissions, making a substantial contribution of savings needed to meet the third carbon budget.³⁷ The Government's current aim is to improve the energy efficiency of one million homes between January 2013 and March 2015. Significant progress towards this target has been made, with around 797,000 homes improved by the end of August 2014.³⁸

Secure and reliable supplies of energy

39. The Government is currently undertaking activities in a number of areas to enhance energy security whilst also delivering wider energy goals. This includes measures to: incentivise deployment of flexible gas and low carbon generation; maximise economic production of domestic oil and gas reserves; and prevent possible disruptions to our energy supply.
40. The Government's demand side policies also continue to play an important role in securing our energy future. A more energy efficient UK will have lower exposure to international energy market prices and volatility. Therefore, by reducing energy consumption we improve the UK's energy security. Our energy efficiency policy package is projected to deliver a 20% reduction in final energy consumption by 2020 relative to the 2007 baseline projection and to reduce UK net imports by 7% in 2013 and 20% in 2020.³⁹
41. To ensure the UK has a secure supply of electricity into the next decade, Government is introducing a Capacity Market, which will drive new investment in gas and demand side capacity to help keep the lights on, as well as getting the best out of our existing generation fleet as we transition to a low carbon electricity future. The first auction will be held in December 2014, ahead of delivery in 2018/19.
42. In preparation for the auction, National Grid completed prequalification in September 2014. This confirmed who will be able to participate in the auction and the maximum length of capacity agreement they are eligible to bid for. Those successful at pre-qualification included more than 67GW of capacity.
43. Ofgem has identified increased risks to electricity security of supply towards the middle of this decade, a similar finding to last year.⁴⁰ However, these risks have been mitigated due to decisive action by National Grid – supported by Ofgem and Government – to introduce new reserve services.

³⁵ *Digest of UK Energy Statistics*, Department of Energy and Climate Change, Jul 2014

³⁶ *Renewable energy country attractiveness index, Issue 42*, EY, Sep 2014

³⁷ *The Energy Efficiency Strategy: The Energy Efficiency Opportunity in the UK*, Department of Energy and Climate Change, Nov 2012

³⁸ *Domestic Green Deal and Energy Company Obligation in Great Britain, Monthly report*, Department of Energy and Climate Change, Oct 2014

³⁹ *DECC secondary analysis of Energy & Emissions Projections Sep 2013*

⁴⁰ *Electricity Capacity Assessment 2014*, Ofgem, Jun 2014

44. Increasing our electricity interconnection capacity also can support UK energy security, affordability and decarbonisation objectives, and significant progress has been made to bring forward investment in new projects since Government published *More interconnection: improving energy security, lowering bills* in December 2013.⁴¹ Ofgem has launched a new regulatory regime, under which it is already assessing 5 projects, and the Government is consulting on proposals to allow interconnected capacity to participate in the Capacity Market auctions from 2015.^{42 43} These developments have encouraged a strong pipeline of projects which could more than double our capacity by the 2020s. This includes a link to Norway which would become the longest sub-sea electricity cable in the world, and a link to Belgium, both of which expect to reach final investment decision by spring 2015.
45. The UK has a diverse range of gas suppliers, infrastructure and routes to market. Net of domestic production, UK import capacity is nearly double our annual gas demand. However, bringing forward new UK oil and gas fields before the existing infrastructure is decommissioned will ensure that as much as possible of the potential of UK oil and gas is tapped while it is cost-effective to do so. To ensure that everything possible is being done to incentivise investment, DECC commissioned an oil and gas review in June 2013, led by Sir Ian Wood. Sir Ian published his report on UK offshore oil and gas recovery in February 2014 and both government and industry are now working to implement his recommendations.⁴⁴
46. Developing our onshore shale gas resources could enhance our energy security, create jobs, support economic growth and be part of the transition to a greener future. By increasing production of home grown lower carbon fossil fuels, the Government is seeking to protect the country as far as possible from volatile global fuel prices.

Action on a global scale

47. This Government has a strong record of leading on climate change action, through its ambitious action at home; its investment in helping developing countries reduce their emissions and adapt to climate change and its leadership in international negotiations. Many countries and businesses are already making changes that will result in lower emissions. They are motivated by energy security, efficiency, health and sustainability concerns, as well as the risks and costs of climate change itself. Decarbonisation and securing long-term prosperity go hand in hand.
48. However, action is not yet happening on the scale needed and the Government believes that a global agreement can drive further action, build trust among countries, give investment confidence and help the poorest and most vulnerable also deal with the challenge. The Government is continuing to negotiate and prepare for a new international agreement, to be signed in Paris in 2015. It is working closely with others to influence key countries in the developed and developing world to bring forward ambitious proposed commitments early next year. Paris will not be the end of the road, but it can be a major step forward on which we can build further in future years.
49. Action at a European Union (EU) level is also critical to the achievement of the Government's priorities for energy and climate change. In October 2014, leaders from all

⁴¹ *More interconnection: improving energy security and lowering bills*, Department of Energy and Climate Change, Dec 2013

⁴² *Decision to roll out a cap and floor regime to near-term electricity interconnectors*, Ofgem, Aug 2014

⁴³ *Consultation on Capacity Market supplementary design proposals and Transitional Arrangements*, Department of Energy and Climate Change, Sep 2014

⁴⁴ *UKCS Maximising Recovery Review: Final Report*, Sir Ian Wood, Feb 2014

28 EU Member States agreed upon the 2030 climate and energy policy framework. Throughout the negotiations, the UK played an essential role in fostering consensus and ensuring that the final agreement was ambitious, cost-effective and maintained Member State flexibility on decisions over their energy mix and use of low carbon technologies. Another key achievement of this Government was to establish the Green Growth Group of Ministers. This group successfully lobbied the Commission to propose an ambitious framework for EU climate and energy policy to 2030 and to introduce legislative measures to reform the EU's Emissions Trading System, with the aim of unlocking investment in low carbon infrastructure and driving forward international climate negotiations.

50. The UK has also played an active role in helping to increase competitiveness and liquidity in the European energy markets by pushing for the completion of the internal energy market, thereby securing a better deal for consumers.
51. Finally, the UK has worked with EU and international partners, particularly G7 energy ministers, to promote measures to improve the EU's energy security. Thanks in part to this work, the European Commission adopted an EU Energy Security Strategy in May 2014, which will be discussed by the October European Council to agree the way forwards for the EU to improve its energy security.
52. The UK is active and forward-looking in its approach to EU energy and climate policy and is developing a comprehensive agenda to promote to the new Commission and the new European Parliament. This will help ensure the UK remains a constructive, well-informed and active player, looking to work with our allies to shape an ambitious, cost-effective and flexible EU energy and climate agenda for the next five years.

1.4 Our priorities

53. In delivering the UK's energy policies in the near term, the Government has set three strategic priorities, which are discussed in more detail in the following chapters:
 - supporting consumers and keeping energy bills down;
 - supporting investment in the UK's energy infrastructure; and
 - promoting action in the EU and internationally to maintain energy security and mitigate dangerous climate change as we chart the way towards a global deal on climate change in 2015.⁴⁵

⁴⁵ Available at: <https://www.gov.uk/government/organisations/department-of-energy-climate-change/about>

2. Putting power in the hands of consumers

54. The Government is committed to supporting consumers to manage the costs of their energy bills, and providing them with the tools with which to do so. Whether it be supporting consumers to find the best tariff for them, or providing them with access to the information and energy management technology they need to reduce their consumption; Government is taking steps to reduce demand for energy and establish a more sustainable and secure energy system.

2.1 Fulfilling our energy saving potential

55. In eight of the last nine years, energy consumption has fallen in the UK.⁴⁶ Even with increases in living standards, the UK's energy intensity has declined in most sectors over the last thirty years.⁴⁷ For every unit of output we are consuming less energy, saving consumers' money on their bills. Investing in greater energy efficiency also has a real impact on the UK economy. The UK's multi-billion pound energy efficiency sector already supports more than 100,000 jobs.⁴⁸

56. The 2012 *Energy Efficiency Strategy* set out our commitment to realising the untapped cost-effective energy efficiency potential in the UK, the barriers to realising this potential (Figure 11) and the policies to act on these barriers.⁴⁹ Since the publication of the *Energy Efficiency Strategy* we have made significant progress, securing real benefits for consumers across the spectrum, from householders to businesses and the public sector.

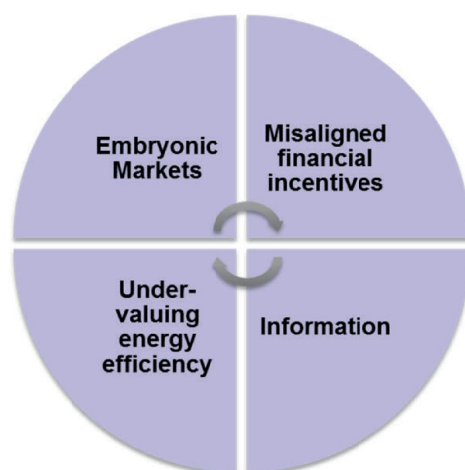


Figure 11. Barriers to energy efficiency take up⁵⁰

⁴⁶ *Energy Trends*, Department of Energy and Climate Change, Mar 2014. Statistics reported on a temperature corrected basis

⁴⁷ *UK Energy in Brief*, Department of Energy and Climate Change, Jul 2014.

⁴⁸ *Low carbon environmental goods and services report*, Department for Business, Innovation and Skills, Jul 2013

⁴⁹ *The Energy Efficiency Strategy: The Energy Efficiency Opportunity in the UK*, Department of Energy and Climate Change, Nov 2012

⁵⁰ *Ibid*

57. The Government has already made great strides in improving the energy efficiency of homes. A new home built today is already 30% more energy efficient than one built at the start of 2010 and will save home owners around £200 per year on energy bills. We are also committed to zero carbon homes from 2016 and are currently seeking legislation to realise this ambition. The minimum on-site requirement will require a further 20% uplift in energy efficiency standards, with all residual carbon emissions arising from heating, lighting and other fixed building services being mitigated through carbon abatement measures termed “allowable solutions”.⁵¹
58. The Green Deal and the Energy Company Obligation (ECO) have been introduced as part of a long term programme to extend support for households. Our aim is to improve the energy efficiency of one million homes between January 2013 and March 2015. Significant progress has already been made towards this target, with around 797,000 homes improved through ECO, Green Deal Cashback scheme, Green Deal Finance and the Green Deal Home Improvement Fund by the end of August 2014.⁵² Since 2004, average household energy consumption has declined by a quarter, leading to a saving in the average domestic bill at today’s prices of around £300.⁵³
59. Despite the clear benefits of energy efficiency and the improvements being made by UK businesses, there remains a lot of untapped cost-effective energy efficiency potential in the UK. Realising this potential will ensure that the UK is well-placed to compete in the global market. Going forward, the introduction of the Energy Savings Opportunity Scheme (ESOS) will support businesses looking to invest in energy efficiency to make the right decision for their business. ESOS works by ensuring that participating organisations receive tailored advice on the cost-effective energy efficiency investment opportunities available to them, and ensure that organisations’ saving potential is considered at board-level.
60. Tackling fuel poverty is a Government priority: ensuring that those on low incomes and living in the coldest homes, especially the vulnerable, are able to keep warm and cut bills. The Government is therefore putting a new statutory fuel poverty target in place. Our new target will be to ensure that as many fuel poor homes as is reasonably practicable achieve a minimum energy efficiency standard of Band C by 2030. Focusing on improving energy efficiency means our action will make a real, lasting difference to household bills regardless of future energy prices. Indeed, benefits grow where prices rise.

2.2 Getting a good deal for consumers

61. While UK households still pay some of the lowest prices for gas and electricity in Europe, consumer affordability is central to UK energy policy. In the immediate term, the Government has provided relief to consumers through a package of measures worth £50 per household, on average. The bulk of the savings come from reducing the cost of ECO.⁵⁴ The Government has also committed to ensuring energy policy costs will not rise beyond 2013 levels during this Parliament.

62. The package of changes consists of:

⁵¹ *Energy Measures to save £200 annually in fuel bills for a new home*, Department for Communities and Local Government, Jul 2013

⁵² *Domestic Green Deal and Energy Company Obligation in Great Britain, Monthly report*, Department of Energy and Climate Change, Sep 2014

⁵³ *Energy Consumption in the UK*, Department of Energy and Climate Change, Jul 2014, £300 figure based on analysis of DECC statistics

⁵⁴ The Energy Company Obligation requires energy supply companies to deliver energy efficiency measures to domestic energy users.

- a. Establishing a Government electricity rebate of £12 which will be delivered to customers of all licenced domestic electricity suppliers in autumn 2014 and 2015.
- b. Proposed changes to the Energy Company Obligation, an energy efficiency scheme delivered by major energy suppliers. Energy companies have stated that this will result in £30-£35 off bills, on average, this year.
- c. Voluntary action by electricity distribution network companies to defer some network charges in 2014/15. This will allow a further one-off deferral of an average of around £5 on electricity bills, which energy suppliers are able to pass on to their customers as well.

63. The Government is doing this while protecting vulnerable people and without any reduction in our carbon abatement ambitions. All of the major energy suppliers have announced how they will be passing the benefits on to consumers.

Making energy markets work better for consumers

64. The Government has focused on making the energy market work better for consumers through action to increase the opportunities for new competitive offerings in the market and to give consumers the tools and confidence to demand what they want from suppliers. The next step is to ensure that Great Britain has a diverse, fair and competitive energy market in which all suppliers - from large established companies to small new entrants - can compete to make better offers to consumers. Earlier this year Ofgem introduced new licence conditions to improve liquidity in the wholesale electricity market and announced proposals to increase transparency in the retail market.

65. Over the last few years, there have been an unprecedented number of suppliers entering in the retail energy market. In 2010 there were seven independent energy suppliers in the household market. All had fewer than 50,000 customers. Now there are 19 independent suppliers in the domestic retail energy market and collectively they have grown their market share more than ten-fold. This growth looks set to continue, as nearly half of all customers who are switching to a new electricity supplier are now switching to an independent supplier.⁵⁵

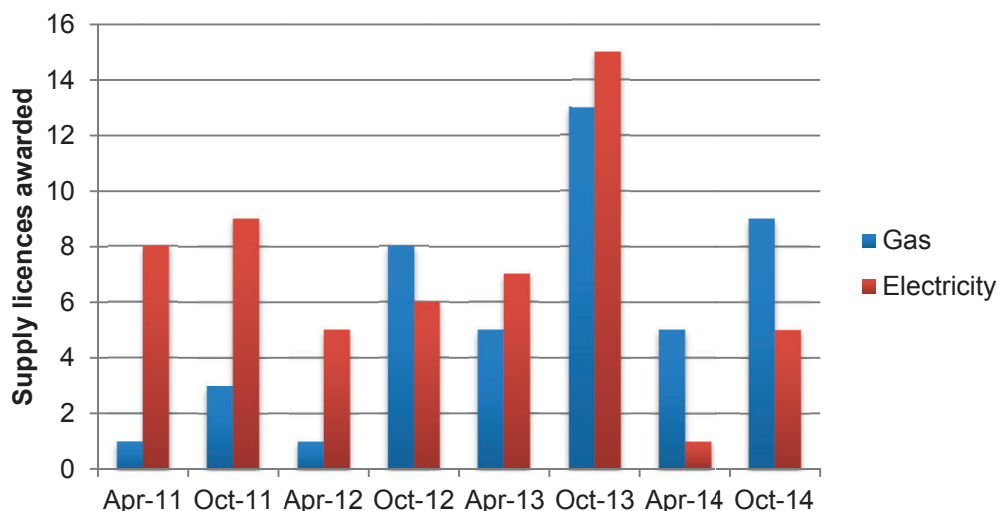


Figure 12. Supply licences awarded in the previous six months⁵⁶

⁵⁵ *Electricity Switching*, Energy UK, Aug 2014

⁵⁶ Lazarus

66. Independent suppliers consistently top the best buy tables, putting ever greater competitive pressure on the large established suppliers and helping to keep prices as low as possible. It is also independent suppliers that consistently come top of customer satisfaction surveys. Not only are they competing hard on price and customer service, they are bringing greater diversity to the market. Some specialise in green tariffs, others provide greater choice for households using pre-payment meters. Independent suppliers are at the forefront of providing innovative tariffs and products, such as community tariffs and micro combined heat and power boilers that generate electricity while they heat the home.

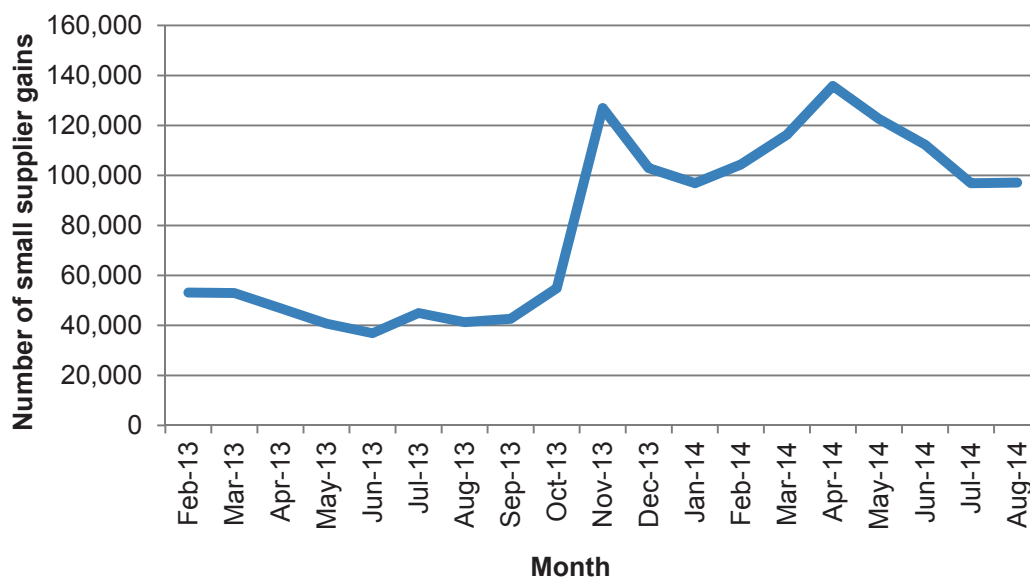


Figure 13. Small Supplier Net Gains⁵⁷

67. As a result of the first annual competition assessment that the Government commissioned through last year’s Annual Energy Statement, Ofgem has now referred the gas and electricity markets to the Competition and Markets Authority.⁵⁸ This is a critical step towards stronger competition and restoring trust in the market.

68. The Competition and Markets Authority is an independent body with strong investigatory powers. Where it finds adverse effects on competition, it is able to order both structural and behavioural remedies and to make recommendations to the Government and the regulator. As a result of the Government’s changes to competition law the Competition and Markets Authority will report to a tighter statutory timescale. The provisional findings are expected in early summer 2015 with the final report due in December 2015.

69. Through its Challenger Business programme, the Government is working with independent energy suppliers to identify what more can be done to reduce barriers to entry and growth. The focus of this work is on the rules and obligations with which suppliers are required to comply and the market governance and infrastructure. The Government will also identify ways of making it easier for independent suppliers to engage with both Government and Ofgem.

Encouraging engagement

70. An effective market needs engaged consumers who understand the products they are being offered and can easily switch between them in order to ensure they are on the best

⁵⁷ *Electricity Switching*, Energy UK, Sep 2014

⁵⁸ *State of the Market Assessment*, Ofgem, Mar 2014

deal for them. Over the last year, Ofgem, with backing from Government, has worked with suppliers to implement its retail market reform.

71. As a result, suppliers have had to reduce the number of tariffs they offer, as well as ensuring that all their customers on poor value tariffs which are no longer in use have been moved to the cheapest equivalent variable tariff. Suppliers are now required to tell their customers about the cheapest tariff they can offer them. The new simpler tariff framework, tariff information label and tariff comparison rate are making it easier for customers to compare tariffs across the market. Ofgem have committed to reviewing the impact of all the retail market reform remedies no later than 2017 but may examine specific issues before then as new information and evidence emerges.
72. In 2013, the Department of Energy and Climate Change kickstarted collective switching activity through the Cheaper Energy Together (CET) scheme, which awarded £5 million of funds to 31 different collective switching projects across the country. The published evaluation from October 2013 showed CET schemes delivered savings of over £2.7 million to consumers, a result of over 21,000 households switching energy supplier and making an average saving of £131.⁵⁹ Since then there have been further rounds of collective switching, mostly led by Local Authorities. These have resulted in around 14,000 consumers switching and additional savings of around £3.5 million.
73. Not only should consumers have access to simple, clear information to help them decide on the right deal for them, they should also be able to get that deal as quickly and easily as possible. Last year, the Government challenged industry to halve switching times by the end of this Parliament and has worked with industry and Ofgem to deliver this. From November, suppliers will be able to switch a consumer in just over two weeks and Energy UK's members have agreed that they will all offer this by the end of the year.
74. Furthermore, the process of switching needs to be as easy as possible. This can be greatly enhanced by ensuring that consumers and third party intermediaries (e.g. switching websites) have better access to electronic information. The Government is legislating to require suppliers to provide billing information to consumers that can be read by a smartphone or tablet.
75. As part of the Government's "midata" programme, the six largest energy suppliers and one smaller supplier are now providing their domestic consumers with secure access to their consumption and tariff data electronically. The Government wants to see this go further and is now working with the industry to explore automatically providing consumers and trusted third parties (with consumers' permission) access to data from their energy suppliers which can help them make more informed choices.
76. A further market development is the increased role played by third party intermediaries, such as switching websites. A greater number of new and innovative products and services are coming into the market, offering consumers an increasing choice of easier ways to switch. There is now a need to ensure that consumers using these services are protected, without stifling innovation. The Government is working with Ofgem to ensure that the voluntary confidence code that governs the behaviour of third party intermediaries is not only fit-for-purpose now, but robust enough to continue to deliver the protection that consumers need. This must be done whilst allowing the evolving third party intermediary market to remain dynamic and innovative.
77. The Government has also been working with suppliers to address concerns raised by consumer groups about the size of credit balances that energy companies are holding for

⁵⁹ *Helping Customers Switch: Collective Switching and Beyond*, Department of Energy and Climate Change, Oct 2013

direct debit consumers. In February this year, the Government secured an agreement with the five of the largest energy suppliers on the handling of outstanding credit balances. Instead of applying a threshold of credit above which the consumer would receive a refund, which in some cases could be as much as £100, participating suppliers agreed to refund automatically all credit outstanding when the customer's account was reconciled each year, unless the consumer wished to offset any credit against payments the following year.

Community Energy

78. The Government is also helping to improve choice and stimulate engagement with the energy market by working with communities. In January 2014 the Government launched its *Community Energy Strategy*.⁶⁰ The ambition is that every community that wants to take forward an energy project should be able to do so, regardless of background or location. The Government wants to help those who choose to pursue community energy, and will work to dismantle barriers and unlock the potential of the sector, which has been independently modelled as being up to 3GW of installed capacity by 2020, enough to power 1 million homes.⁶¹
79. Community-led action can produce energy, reduce energy use, manage energy demand and drive collective purchasing. It can often tackle challenges more effectively than government intervention alone, developing solutions to meet local needs, and involving local people. Community energy is capable of unlocking opportunities for lower energy bills and carbon emissions savings that could otherwise be missed.
80. Through the £15 million Rural Community Energy Fund, over 30 community groups have been supported so far in receiving grant funding for renewable technology feasibility studies, totalling over £600,000. In addition, the £10 million Urban Community Energy Fund will be launching later this year. There are already 60 expressions of interest from potential applicants. The Government has committed £100,000 to seed-fund an external information and networking online resource, to help projects access the tools, advice and guidance they need.
81. Community energy projects participating directly in the supply market could increase competition, innovation and possibly provide better deals for consumers. As the sector is still in its nascent stages, the evidence base is still under development. To help with this, DECC has established a Local Supply Working Group to gain a clearer understanding of the current regulatory and commercial landscape and the needs and ambitions of community groups and other non-traditional suppliers. This aims to provide recommendations next year.

Helping vulnerable consumers navigate the market

82. Despite the work that both the Government and Ofgem have done to make it easier to find and switch to a better deal, vulnerable consumers can continue to find it harder to deal with the market. Outreach to provide direct help and advice is one of the most effective ways to assist vulnerable consumers to get the best from the market.
83. Last year, to address this need, the Government created the Big Energy Saving Network. Working with trusted intermediaries from the third sector, the Network focussed on helping vulnerable consumers understand tariffs and switching options as well as how they can benefit from energy efficiency programmes available to them. The outreach activity delivered as a result of the first year of funding reached over 90,000 consumers.

⁶⁰ *Community Energy Strategy: Full Report*, Department of Energy and Climate Change, Jan 2014

⁶¹ *Community Renewable Electricity Generation: Potential Sector Growth to 2020*, Peter Capener, Jan 2014

84. The Government has therefore extended funding for a second year, providing in total nearly £2 million of funding over the two years specifically to provide support and advice to vulnerable consumers. The planned outreach activity will focus on providing bespoke advice to vulnerable consumers in order to help them to manage their energy bills.
85. In addition to the Big Energy Saving Network, whose activities will be on-going throughout autumn/winter 2014/2015, the Government also funded the first Big Energy Saving Week in October this year. This is a highly visible and much publicised week of concentrated activity across the country designed to encourage engagement and raise awareness of the help and advice available to vulnerable consumers. The first Big Energy Saving Week, in January 2014, reached over 300,000 consumers directly, either face to face or through dedicated telephone lines and was particularly successful in reaching vulnerable consumers.
86. As well as providing holistic support to vulnerable consumers through the network, the Government is continuing to work with suppliers, consumer groups and Ofgem, to ensure that we are doing all we can to support vulnerable consumers in the long term, including the 20% of fuel poor consumers who are on pre-payment meters.. The Government will also ensure that pre-payment consumers benefit from better information to help them manage their pre-payment meters more easily.
87. At present, some tariffs offered to pre-payment consumers are more expensive than those offered to direct debit consumers, because of the greater cost to serve a pre-payment consumer. In the longer term, smart meters will reduce these costs and this should be reflected by suppliers in the tariffs that they offer their pre-payment consumers. In April 2014, the Secretary of State challenged industry to ensure that from the end of 2016, current pre-payment meters are only replaced with smart meters and that smart meters with pay-as-you-go tariff options are offered to all customers with pre-payment meters by the end of the same year.

2.3 Enabling consumers to take control of their energy use

88. We are transforming the way we power and heat our homes and places of work. To do this, the Government is putting consumers in control of their energy use. For the first time ever consumers will have access to the full range of energy management technology. This will enable households and business consumers to reduce their bills and carbon footprint, and to improve their living and working conditions.

Smart Meters

89. The rollout of smart meters in Great Britain is a prime example of this. The provision of an In Home Display will mean domestic consumers are able to access near real-time information and make better informed decisions around their electricity and gas consumption. Smart metering will also build on the work to make switching between suppliers easier and quicker, helping to drive a more vibrant and competitive retail energy market.
90. Over the course of this Parliament a technical, commercial, regulatory and policy framework for smart metering has been developed to maximise the benefits for consumers. Some energy suppliers have started up their programmes to build operational experience during the foundation stage of the programme. As of the end of June 2014, over 400,000 domestic smart meters were operating in smart mode and almost half a million non-

domestic smart and advanced meters were operating in smart or advanced mode to meet suppliers' rollout obligations.⁶²

91. During the last year the Government has continued to develop the Smart Energy Code, which sets out a regulatory and contractual framework between the Data and Communication Company and its users. The GB Companion Specification and the second version of the Smart Meters Equipment Technical Specification were notified to the European Commission in July 2014 and will set the platform for enduring smart metering equipment to be built, tested and deployed for large scale roll out. In July Smart Energy GB, an independent body responsible for the national smart metering consumer engagement campaign, launched its public brand to partner organisations, through which it will work prior to and during the main installation stage of the programme.
92. The next twelve months will see the testing of the Data and Communications Company systems, the stepping up of preparations to deliver installations on the ground and the building of consumer awareness by Smart Energy GB. Over the remainder of the Parliament, the Government's focus will be on ensuring that energy suppliers, network operators and the Data and Communications Company are on course to meet their obligations and commitments, so they are ready to begin delivering the benefits of smart metering to consumers.

Energy Saving Opportunity Scheme

93. In June 2014, the Government laid regulations in Parliament to give effect to the Energy Savings Opportunity Scheme (ESOS). The scheme, which was introduced in order to comply with the EU Energy Efficiency Directive, requires every large undertaking in the UK to conduct energy audits by 5 December 2015 and every 4 years thereafter.
94. ESOS is a major new tool to help businesses manage their energy consumption, ensuring that board-level company directors receive quality, costed and cost-effective recommendations identifying energy waste in their organisations. Implementation of these recommendations is voluntary, but businesses will only achieve the cost benefits of the scheme if they act upon the audit findings. Those benefits are significant – the Government estimates that ESOS could benefit the UK by £1.6 billion over the next 15 years, with the vast majority of that benefit being felt by business directly through lower energy bills.
95. The Department of Energy and Climate Change is currently engaging with businesses through a series of roadshows to explain ESOS and, more generally, the Government's business energy efficiency policies. We will publish reports of these events in the new year.

Feed-in Tariffs

96. The Feed-in Tariff scheme was introduced on 1 April 2010, under powers in the Energy Act 2008. The intention of the Feed-in Tariff scheme is to encourage deployment of small-scale, low-carbon electricity generation, particularly by organisations, businesses, communities and individuals that have not traditionally engaged in the electricity market. The technologies supported with Feed-in Tariffs are: solar PV, wind, hydro, anaerobic digestion and micro combined heat and power. The scheme has been a great success since its launch in April 2010.

⁶² *Statistical release and data: Smart Meters, Great Britain, quarter 2, 2014*, Department of Energy and Climate Change, Sep 2014

97. Over 600,000 households and businesses in the UK are benefitting from generating electricity, and by using this energy on site rather than having to import energy from the grid (Figure 14).⁶³ In addition, the Feed-in Tariff scheme is helping incentivise industry to bring down the costs of installing small-scale renewable energy, thus keeping the costs to the energy consumer as low as possible.

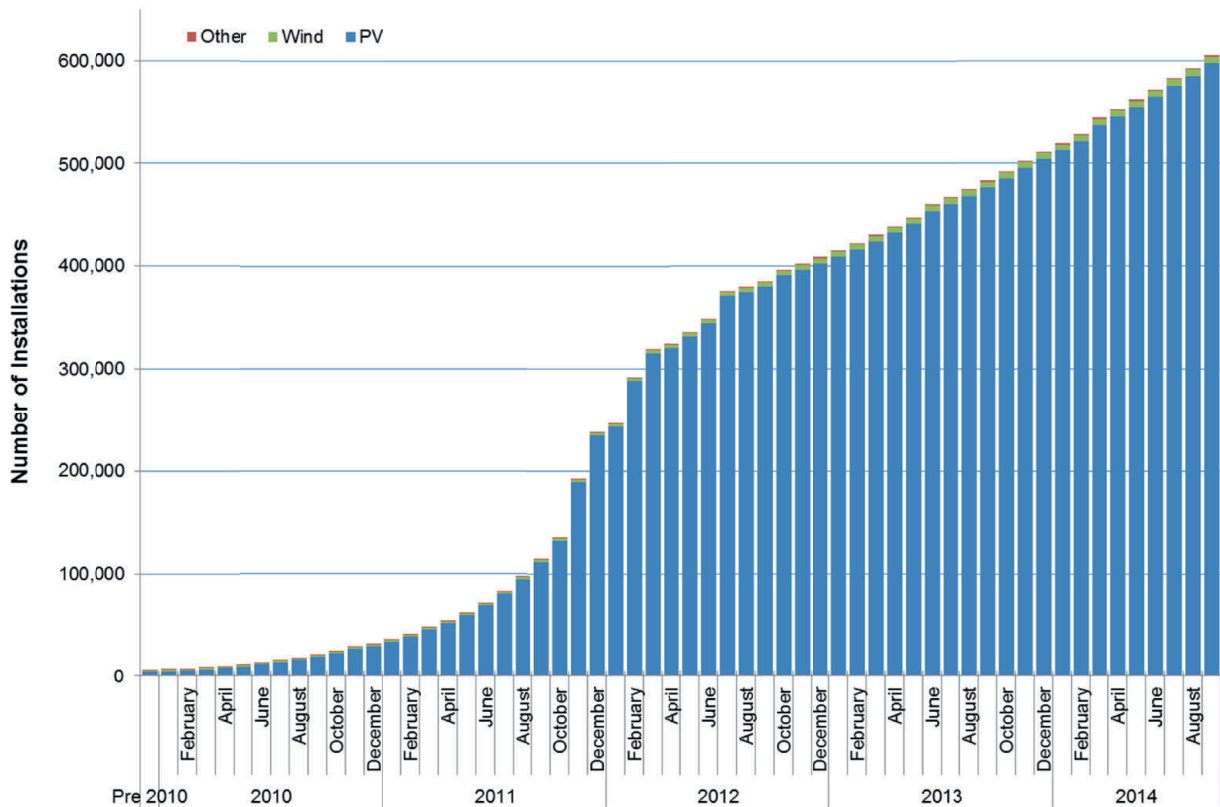


Figure 14. Feed-in tariff deployment, cumulative number of installations⁶⁴

98. The Government is working with the solar industry to ensure that the Feed-in Tariff is well suited to facilitate building-mounted deployment and has consulted on possible adaptations to the scheme. These include introducing a separate depreciation band for >50kW building-mounted installations and allowing such installations to transfer between buildings.

Renewable Heat Incentive

99. The Renewable Heat Incentive (RHI) is the world's first long-term financial support programme for renewable heat. The scheme is designed to bridge the gap between the cost of fossil fuel heat sources and renewable heat alternatives through financial support for owners of participating installations. It is estimated that the RHI could support 5.2 – 7.4TWh of renewable heat by the end of 2015/16.⁶⁵

100. The non-domestic RHI scheme has been open to commercial, industrial, public sector, not for profit and community generators of renewable heat since November 2011. The

⁶³ *Monthly feed-in tariff commissioned installations by month*, Department for Energy and Climate Change, Sep 2014. The vast majority of these installations are in households.

⁶⁴ *Monthly feed-in tariff commissioned installations by month*, Department for Energy and Climate Change, Sep 2014

⁶⁵ *RHI Tariff Review, Scheme Extensions and Budget Management*, Department of Energy and Climate Change, Sep 2013

technologies supported are: air- and water-source heat pumps; deep geothermal; energy from waste; on-site biogas and injection of biomethane into the grid; solar thermal; solid and gaseous biomass. The scheme provides a payment per kWh of renewable heat produced, payable for 20 years, to eligible, non-domestic renewable heat generators based in Great Britain.

101. Already, since the launch of the non-domestic Renewable Heat Incentive (RHI) in November 2011, enough renewable heat has been generated to heat the equivalent of around 115,000 UK homes for a year. As at the end of September 2014, there were 6,061 accredited installations under the non-domestic RHI, representing over 1,000 MW of capacity.⁶⁶
102. The domestic RHI opened in April 2014 and is available to homeowners, private and social landlords and people who build their own homes. The first six months of the scheme have seen a consistent increase in the rate of accreditations, with the almost 600 new installations a week being registered over the last three months. Those who have installed a renewable heat technology since July 2009 and whose installation meets the scheme's eligibility criteria are able to join the scheme. The domestic RHI is targeted at, but not limited to, homes off the gas grid - those without mains gas have the most potential to save on fuel bills and decrease carbon emissions. The technologies supported are air-to-water heat pumps; biomass-only boilers and biomass pellet stoves with back boilers; ground- and water-source heat pumps; solar water heating for domestic hot water using evacuated tube and flat plate solar thermal panels.
103. Between its launch in April 2014 and the end of September 2014, there were a total of 12,301 unique applications to join the domestic RHI, of which 10,048 have been accredited.⁶⁷ Of these accreditations, 1,755 (17.5 %) were from systems installed after the launch.⁶⁸ The average number of accreditations from these new installations has steadily increased from an average of 100 per month in the first three months of the scheme to over 600 in September.

2.4 Extending support for households and the fuel poor

104. The Green Deal has established the conditions to grow the domestic energy efficiency market in Britain, helping householders make energy-saving improvements to their home and find the best way to pay for them. Launched in January 2013, the Green Deal helps households take the first step to become more energy efficient.
105. With a Green Deal assessment and the resulting advice, householders are given a comprehensive understanding of what simple steps they can take to be more energy efficient. Since its introduction, there have been over 357,000 Green Deal assessments undertaken by households.⁶⁹ From a recent DECC survey of households having had a Green Deal assessment, 81% said they have already, are in the process, or intend to install at least one energy saving measure.⁷⁰

⁶⁶ *RHI and RHPP deployment data: Sep 2014*, Department of Energy and Climate Change, Oct 2014

⁶⁷ *Ibid*

⁶⁸ As opposed to those installed prior to launch of the scheme under the Renewable Heat Premium Payment scheme

⁶⁹ *Domestic Green Deal and Energy Company Obligation in Great Britain, Monthly Report*, Department of Energy and Climate Change, Oct 2014. Figures up to end of September 2014.

⁷⁰ *Green Deal customer journey survey: summary report - quantitative survey wave 3*, Department of Energy and Climate Change, Oct 2014

106. Under the Green Deal, households also have flexibility in how they pay for energy efficiency improvements – whether they make use of Green Deal Finance, one of the Government support schemes available, their own finance or a combination of these things. The Green Deal Finance option provides some households with the ability to pay for energy efficiency improvements over time through their electricity bill.
107. To help boost demand for installing home energy-saving improvements further, the Government introduced the Green Deal Home Improvement Fund (GDHIF) in summer 2014. The fund incentivised the installation of new energy efficiency measures in households, with individual homes able to receive as much as £7,600 towards the cost of the work. The popularity of the first phase of GDHIF has been hugely encouraging both for the industry and for households in England and Wales. Over 21,000 applications in six weeks means more homes saving energy this winter.
108. Following the initial scheme's success, on 7 October 2014, we announced an additional £100 million for the UK's household energy efficiency as part of a new phase of the Green Deal Home Improvement Fund which will open to households before the end of November.
109. A number of local authorities are also running targeted Green Deal Communities schemes in their areas, helping residents take up energy efficiency measures such as solid wall insulation. The scheme, backed by £88 million in 2014-15, supports 24 consortia of local authorities allowing essential street by street demonstration of the benefits of these kinds of home improvements, stimulating consumer interest in energy efficiency and potentially boosting local supply chains. The supply chain continues to grow with 162 authorised Green Deal Providers and 2,729 organisations accredited to carry out Green Deal installations.⁷¹
110. The Energy Company Obligation (ECO) was launched in January 2013. It requires energy supply companies to make energy efficiency improvements. It works alongside the Green Deal to provide support for packages of energy efficiency measures, including solid wall insulation and hard to treat cavity wall insulation.
111. In December 2013, as part of the Autumn Statement, the Government announced a number of proposed changes to ECO, including extending it to the end of March 2017 and introducing for the first time a minimum target for solid wall insulation. These changes also reduce the amount of carbon which energy supply companies are required to save by March 2015 and allow cheaper insulation measures to be delivered in the Carbon Saving sub-obligation. Having engaged widely across industry, consumer and charity sectors on the proposed modifications, the Government laid secondary legislation which will come into force by the end of 2014.
112. To ensure that both the Green Deal and ECO continue to stimulate the energy efficiency market, the Government is undertaking an evaluation programme. This includes an assessment of the effectiveness of the existing delivery framework processes for both programmes which will continue to help identify improvements where necessary.

Helping the fuel poor

113. Poorer households are typically hit hardest by energy price rises. The Government is particularly focused on helping those who, as well as having low incomes, have high energy costs and are therefore in fuel poverty. Providing a range of assistance to such households continues to be a priority.

⁷¹ *Domestic Green Deal and Energy Company Obligation in Great Britain, Monthly Report*, Department of Energy and Climate Change, Oct 2014. Figures up to end of September 2014.

114. The move to a new fuel poverty definition for England in 2013 has transformed our understanding of the problem (Figure 15).⁷² For example, fuel poverty is an issue that affects a range of households, not just pensioner households. Families with children and other working age households make up over 70% of those in fuel poverty.

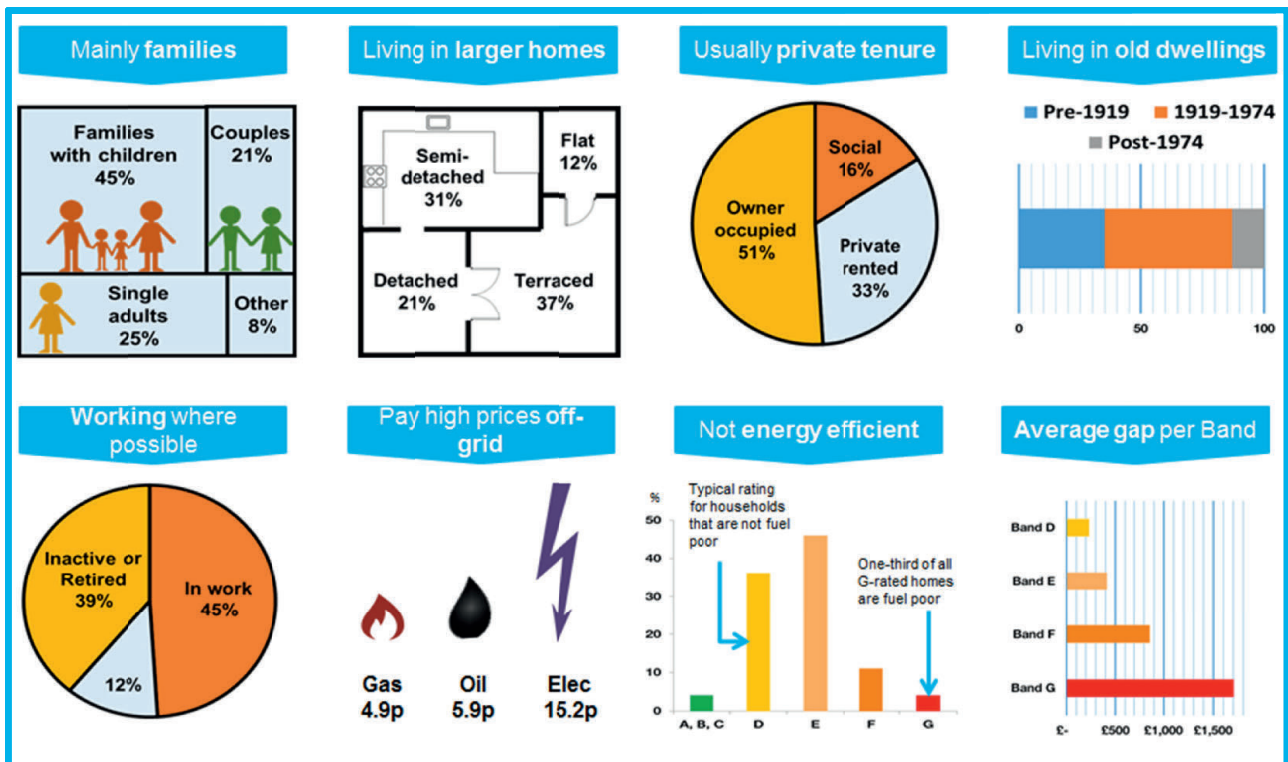


Figure 15. What the new indicator tells us about who is fuel poor⁷³

115. This year's fuel poverty statistics for England show that the number of households in fuel poverty, as measured by the new Low Income, High Costs definition, fell by around 5% (or 110,000 homes) between 2011 and 2012. The 'fuel poverty gap' – a measure of how much more the fuel poor need to spend to keep warm compared to typical households – also fell overall by 5% between 2011 and 2012.⁷⁴

116. However, the Government remains committed to tackling this long-term, structural problem. In July 2014, the government laid draft regulations before Parliament to put in place a new long term fuel poverty target. The new target will be to ensure that as many fuel poor homes as is reasonably practicable achieve a minimum energy efficiency standard of Band C, by 2030. The Department of Energy and Climate Change also published "Cutting the Cost of Keeping Warm - a consultation" to prepare for a new fuel poverty strategy for England.⁷⁵

117. The combination of an ambitious target and a strategy setting out the policies for achieving it will help to ensure that the fuel poor are not left behind as we move forward with plans to meet our wider climate change obligations. At the same time, taking action to

⁷² Final report of the Fuel Poverty Review, Department of Energy and Climate Change, Mar 2012

⁷³ Fuel poverty report: annual report on statistics 2014, Department of Energy and Climate Change, Jun 2014

⁷⁴ Ibid

⁷⁵ Cutting the cost of keeping warm: a new fuel poverty strategy for England consultation document, Department of Energy and Climate Change, Jul 2014

tackle fuel poverty will bring wider benefits, supporting jobs, saving carbon and improving health.

118. The Government has a range of other policies providing effective support to the fuel poor and other low income/vulnerable consumers, which include:

- Delivering around 500,000 energy efficiency measures in over 410,000 low income and vulnerable households under Energy Company Obligation Affordable Warmth and the Carbon Saving Community Obligations. It is estimated that the Energy Company Obligation as a whole will help around 260,000 low income and vulnerable households, or households in deprived areas, each year to 2017.⁷⁶ The Government is currently improving the Energy Company Obligation to increase rates of delivery in areas off the gas grid and ensure the quality of installations, in particular boilers.
- The Warm Home Discount provides direct help with energy costs to low income vulnerable households on a mass scale. It has just entered its fourth year and has helped around two million households each year since it began in 2011. In the coming winter, over two million households will receive £140 off their electricity bills; total spending on the scheme will reach more than £1.1 billion. As a result of data matching between the Department of Work and Pensions and energy suppliers the majority of people receive Warm Home Discount rebates automatically. Last winter 1.16 million poor pensioners received £135 off their bills without having to take any action. This method of delivery improves the targeting of the policy, makes it easier for customers, and is very low cost. This Government has already committed to run the scheme in 2015-16, when the scheme will be worth £320 million.
- The Government provides Cold Weather Payments to low income and vulnerable households on certain benefits in areas experiencing periods of very cold weather. They are made to people of any age who are entitled to certain benefits (including Universal Credit and Pension Credit) and who are vulnerable to the cold. Payments are made when the local temperature is either recorded as, or forecast to be, an average of zero degrees centigrade or below over seven consecutive days. A payment of £25 is made for each seven day period of very cold weather between 1 November and 31 March each year. In 2012/13, 5.8 million Cold Weather Payments were made at a cost of over £146 million.
- Winter Fuel Payments are a universal pensioner benefit based on age and residence, payable annually at between £100 and £300 (depending on circumstances). They are intended to provide reassurance to older people that they can keep warm during the colder winter months because they know they will receive help with paying their bills. Most are paid automatically to people in receipt of certain benefits, although the payments can also be claimed in their own right, so entitlement does not rely on receipt of other benefits. These payments helped over 12.4 million older people in around 9 million homes in winter 2013/14 at a cost of £2.11 billion.⁷⁷

2.5 Extending support for business consumers

119. The Government is supporting businesses to invest in energy efficiency measures through a range of regulatory and incentive schemes which are focused on eliminating the barriers to take up. In doing so, it is helping businesses to cut their costs and improve their bottom line, get access to the support and information they need, and reduce the

⁷⁶ *The Future of the Energy Company Obligation: Final Impact Assessment*, Department of Energy and Climate Change, Jul 2014

⁷⁷ *Winter Fuel Payment Bulletin*, Department of Work and Pensions, Sep 2013

administrative burdens they face. The Government will continue to look for opportunities to introduce new policies to help businesses manage their costs and take up cost-effective energy efficiency measures.

Small and Medium Enterprises

120. The Government is keen to see more small businesses engage in the market to find the best deal that suits their business needs and have access to a redress scheme if things go wrong. In addition, work has been carried out with industry and Small and Medium Enterprises consumer groups, through the Small and Medium Enterprises Energy Working Group, to address issues such as providing better information to help disengaged small business energy consumers.
121. At the end of 2013, Government announced the *Small and Medium Enterprises Energy Communique*, an agreement made with industry, as part of the Government's "Small Business Saturday", an initiative that supports and promotes small businesses.⁷⁸ The agreement included making the backbilling process fairer, improving transparency and clarity of communications, improving the switching process and ending or improving the practice of roll-over contracts.
122. The Government has also recently amended the Gas and Electricity Regulated Providers (Redress Scheme) Order 2008 so that a greater number of business customers have access to a redress scheme, such as Ombudsman Service: Energy if they have not been able to resolve a consumer complaint with their energy provider directly. It is estimated that up to 150,000 businesses will benefit.
123. The Government's energy efficiency policies are supporting small businesses to reduce their energy use and the cost of their bills. For example, Energy Performance Certificates (EPCs) are helping small business to make informed decisions about the energy performance of buildings before building, buying or renting a property; while support is available to small businesses operating out of domestic premises via the domestic Green Deal.
124. The smart meter roll out will replace over 2 million meters with smart or advanced meters in smaller non-domestic sites by 2020, giving small businesses access to accurate data on their energy consumption and helping them understand and control their energy use and save money. Already, over 490,000 smart and advanced meters are operating in smaller non-domestic sites.⁷⁹
125. Our proposal to establish a minimum energy efficiency standard (EPC E rating) for rented non-domestic properties from April 2018 could drive improvements in the efficiency of nearly one in five non-domestic properties.⁸⁰ As a result of these planned changes, small business occupiers could benefit from lower energy bills and more comfortable working spaces.

Energy Intensive Industries

126. To facilitate the transition to a low carbon economy, the Government will ensure that our energy intensive industries remain competitive and send a clear message that the UK is open for business. There would be no advantage, either for the UK economy or in terms of

⁷⁸ *Small Business Energy Working Group Communique*, Department for Energy and Climate Change, Dec 2013

⁷⁹ *Smart Meters, Great Britain, Quarterly report to end June 2014*, Department of Energy and Climate Change, Sep 2014

⁸⁰ *Private Rented Sector Minimum Energy Efficiency Standard Regulations (Non- Domestic) (England and Wales)*, Department for Energy and Climate Change, Jul 2014

global emissions reductions, in simply forcing UK businesses to relocate to other countries. That is why the UK has introduced a package of measures which takes steps to allow industries to remain competitive in the UK and reduce emissions where possible, whilst innovations become available to more fully decarbonise.

127. Our comprehensive energy intensive industry package:

- exempts the mineralogical and metallurgical sectors from the Climate Change Levy
- provides up to 90% relief from the Climate Change Levy for energy intensive sectors that have signed up to Climate Change Agreements. These cover 53 industrial sectors.
- will help electricity-intensive industries offset indirect costs of the EU Emissions Trading System and the Carbon Price Floor. The UK was the first member state to receive state aid approval to provide compensation for the costs of the EU Emissions Trading System. In 2013, the Government paid over £30 million to more than 50 UK companies to compensate for these costs, and will continue to make payments on a quarterly basis. Energy intensive industries will continue to receive compensation for the indirect costs of both the EU Emissions Trading System and the carbon price support mechanism until 2019-20.
- will exempt Good Quality Combined Heat and Power generation from the Carbon Price Floor from 2015/16
- will introduce a new compensation scheme from 2016-17 to help energy intensive industries with higher electricity costs resulting from the Renewables Obligation and small-scale Feed-in Tariffs. This is subject to State Aid approval, and Government is developing detailed guidance on how the schemes will be run. A consultation on eligibility ran from July to October.

128. The Government is also seeking to exempt energy intensive industries from the costs of electricity market reform Contracts for Difference, subject to state aid approval. Following the European Commission's adoption of their revised State Aid guidelines, a consultation on revised proposals on eligibility and design for the scheme was run along jointly with the Renewables Obligation consultation above.⁸¹

⁸¹ *Electricity intensive industries: relief from the indirect costs of renewables - consultation on eligibility*, Department for Business, Innovation and Skills, Jul 2014

3. Delivering investment in energy infrastructure

129. The UK faces a huge investment challenge across the energy sector. This chapter sets out the targeted action Government has taken to ensure the UK secures the investment necessary to: deliver a low carbon future; maximise domestic oil and gas production; secure the UK's energy supply; and manage our energy legacy responsibly.

3.1 Investment for a low carbon future

130. This Government has delivered the most radical reform of the energy system since the electricity market was privatised. The long term direction that we have set will reduce our energy demand, safeguard our energy security and meet our goals for reducing emissions by increasing the proportion of energy from renewables and other low carbon sources. Progress on a certain, stable, transparent framework that encourages innovation has helped support jobs and economic growth across the UK.

131. However, the investment challenge crosses the entire energy sector: from our primary sources of energy; to electricity infrastructure and networks; all the way to heating and energy efficiency measures.

Electricity

132. In 2013, the UK's electricity came from a diverse range of sources. Figure 16 highlights both the growth in low carbon electricity since 2010 and the significant role that fossil fuels such as coal and gas continue to play.

133. In order to meet its legally binding targets, the UK needs to invest now in low carbon sources of generation such as nuclear, renewables and carbon capture and storage. Up to £100 billion of investment may be required between now and 2020 in the electricity system in order to achieve this.⁸²

⁸² DECC estimates based on Electricity Market Reform Delivery Plan modelling

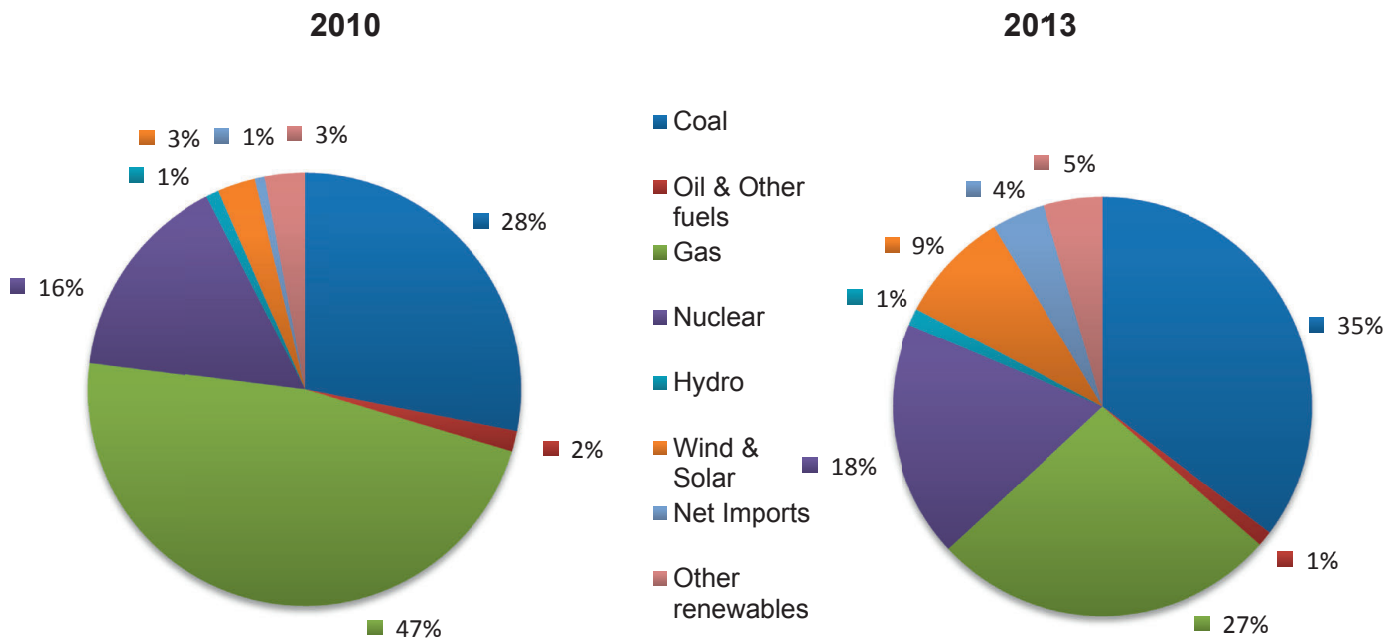


Figure 16. Electricity supplied by fuel type, 2010 and 2013⁸³

134. The 2013 Energy Act introduced two market-based tools, Contracts for Difference (CfDs) and the Capacity Market. CfDs will support the delivery of a new class of low carbon electricity generation. A CfD is a private law contract between a low carbon electricity generator and the Low Carbon Contracts Company. A generator is paid the difference between the ‘strike price’ – a price for electricity reflecting the cost of investing in a particular low carbon technology – and the ‘reference price’ – a measure of the average market price for electricity in the GB market. It provides greater certainty and stability of revenues to electricity generators by reducing their exposure to volatile wholesale prices, whilst protecting consumers from paying for higher support costs when electricity prices are high.

135. Moving from prices set administratively (the Renewables Obligation (RO) and early CfDs) to prices set by the market, via competitive auctions, will achieve the same level of generation from low carbon technologies at lower cost. The Government’s ambition remains to move to competitive price discovery processes for all technologies as soon as practicable, with the eventual aim of technology neutral auctions for all low carbon generation. Over time as technologies mature and the carbon price rises, the Government anticipates lower-cost technologies to gain larger market share and government support costs ultimately to be phased out. Until 31 March 2017 the RO, the predecessor to CfDs, will continue to provide support for some new large-scale renewables generation.⁸⁴

136. The Levy Control Framework allows Government to control the costs of supporting low carbon electricity paid for through consumers’ energy bills. It reflects the importance Government places both on delivering low carbon electricity generation, and keeping

⁸³ *UK Energy in Brief*, Department of Energy and Climate Change, Jul 2014

⁸⁴ Having listened carefully to the concerns of industry, we confirmed in March our intention to offer a number of grace periods to the 2017 closure date. These are intended to help avoid an investment hiatus during the transition period to CfDs by protecting projects against certain risks of delay which are outside investors’ control. Once it has closed to new renewables generation, generating capacity already supported under the Renewables Obligation can continue to receive support for 20 years, or until 2037, whichever is sooner.

consumer bills affordable.⁸⁵ It sets annual limits on the projected costs of all the Department of Energy and Climate Change’s low carbon electricity levy-funded schemes until 2020/21. These comprise the Renewables Obligation, the Feed-in Tariff scheme and Contracts for Difference, including Investment Contracts under the Final Investment Decision Enabling for Renewables programme (or early CfDs). In effect, the Levy Control Framework (LCF) acts as the budgetary constraint under which renewable and low carbon electricity policy must be made. The annual cap in 2020/21 has been set at £7.6 billion (in 2011/12 prices), a level which the Government believes will enable us to cost-effectively meet our low carbon and renewables ambitions.

137. The latest spend, outcomes and projections for schemes supported by the LCF can be found in *DECC’s Consumer Funded Policies*, published as an annex to this Annual Energy Statement.

Renewable electricity

138. As a result of the Government’s commitment to bringing forward cost-effective renewables as part of a balanced, low carbon and secure energy mix, the UK’s renewable electricity capacity has more than doubled since 2010 – from 8.7GW at the end of June 2010 to nearly 19.7GW at the end of 2013. In the second quarter of 2014, renewable energy capacity had increased by 13.8% compared to the same period in 2013 to 22.2GW.⁸⁶

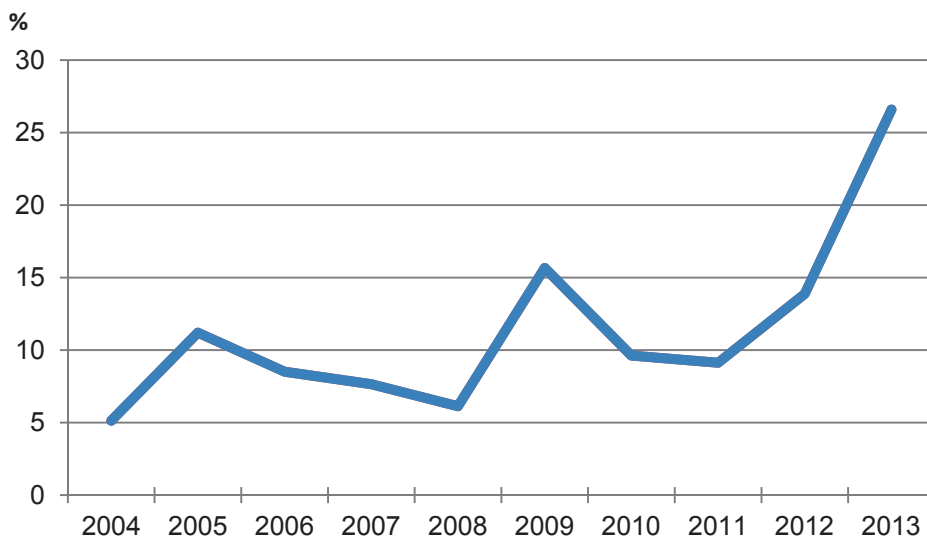


Figure 17. UK Renewable Investment (% of EU Investment)⁸⁷

139. Since 2010, there has been an average of £7 billion a year invested in renewable electricity, with almost £8 billion invested across the range of renewable electricity technologies in 2013.⁸⁸ This bucks the trend across Europe where investment has fallen by

⁸⁵ The LCF also currently includes the Warm Home Discount. However the costs of this scheme are not included in the ring-fenced funds for low carbon electricity.

⁸⁶ *Energy trends section 6: renewables*, Department of Energy and Climate Change, Oct 2014

⁸⁷ Bloomberg New Energy Finance Analysis, Jul 2014

⁸⁸ Bloomberg New Energy Finance, nominal, converted to pounds sterling.

65% since 2010 and has halved since 2012.⁸⁹ In fact, the UK is ranked as the best place in the world to invest in offshore wind and marine renewables.⁹⁰

	Offshore Wind	Onshore Wind	Solar PV	Biomass	Hydropower	Wave & Tidal
Estimated Investment 2010-2013 (£ billion) ⁹¹	6.9	7.6	6.4	6.3	0.2	0.1
Estimated Investment 2014-2020 (£ billion)	16.2 – 21.3	3.7 – 5.8	11.9 – 13.0	5.0 – 5.9	0.4 - 0.5	0.4 – 0.5
Employment Level 2012/13	18,300	17,100	15,600	Up to 14,700	5,000	600
Installed capacity at end of 2014 Q2 (GW) ⁹²	4.1	8.0	4.1	4.3	1.7	0.0
Under construction (GW) ⁹³	1.4	1.2	0.4	0.8	0.0	0.0
Awaiting construction (GW) ⁹⁴	8.1	5.3	2.2	3.8	0.1	0.2
In planning (GW) ⁹⁵	7.9	6.1	3.0	0.5	0.0	0.3

Table 1. Renewable Energy in the UK – Key Facts and Figures

140. In April 2014, the Department of Energy and Climate Change awarded eight projects an Investment Contract (early Contracts for Difference) through the Final Investment Decision Enabling for Renewables process. These projects are expected to bring forward up to £12 billion of private investment and support at least 8,500 jobs.⁹⁶

⁸⁹ Bloomberg New Energy Finance Analysis

⁹⁰ *Renewable energy country attractiveness index, Issue 42*, EY, Sep 2014

⁹¹ Top three lines of table: *Delivering UK Energy Investment*, Department of Energy and Climate Change, Jul 2014. 2012 prices.

⁹² *Energy Trends: September 2014*, Department of Energy and Climate Change, Sep 2014.

⁹³ Renewable Energy Planning Database monthly extract, Department of Energy and Climate Change, Sep 2014. This may include some partially operational wind capacity that is also included in the installed capacity figures.

⁹⁴ *Ibid*

⁹⁵ *Ibid*. This does not include applications that have been refused and are awaiting decisions on planning appeals.

⁹⁶ Figure based on the information provided by projects and compiled by the Department of Energy and Climate Change

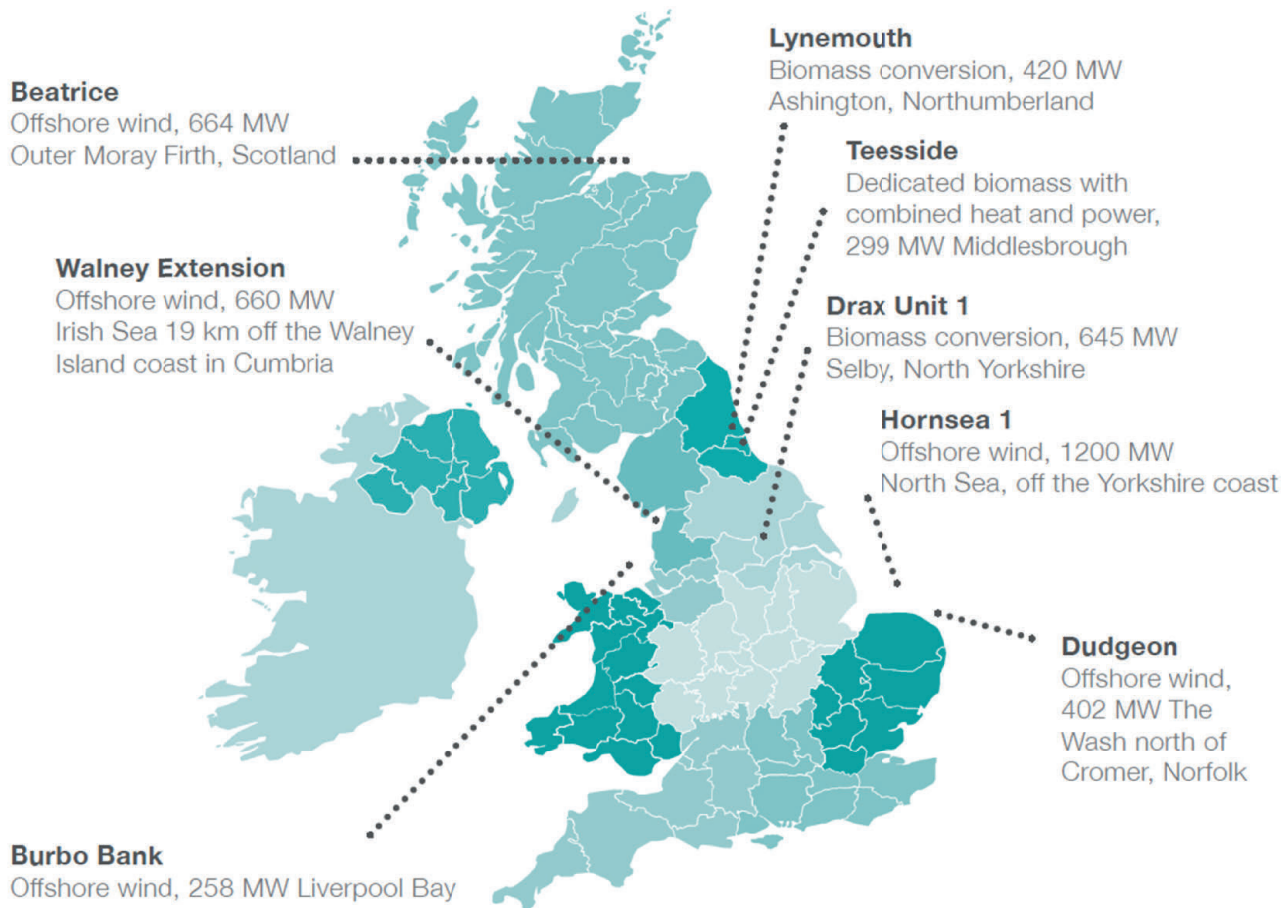


Figure 18. Map showing the eight new renewable projects that have been awarded Investment Contracts⁹⁷

Offshore wind

141. Our investment in offshore wind has made the UK the clear world leader in this key renewable technology of the future, with significantly more capacity than the next placed country.⁹⁸ The world's largest offshore wind farm, London Array, has a capacity of 630MW and produces enough to power nearly 500,000 homes.⁹⁹ We are on track to deliver over 10GW of installed capacity by 2020, enough to power almost 7 million homes.¹⁰⁰

142. Cost reduction is key to the future potential of the sector. The level of support the Government is providing will deliver the volume necessary to help achieve this and give the supply chain the confidence to invest. The *Offshore Wind Industrial Strategy*, which was published in August 2013, sets out how the industry and Government will work to deliver economic growth, including actions to build a thriving UK supply chain and seize commercial opportunities in the UK and abroad.¹⁰¹

Onshore wind

143. Onshore wind already accounts for a significant amount of the UK's total electricity generation (nearly 5% in 2013), enough to supply over 3 million homes, with expectations

⁹⁷ *Delivering UK Energy Investment*, Department of Energy and Climate Change, Jul 2014

⁹⁸ *Energy trends section 6: renewables*, Department of Energy and Climate Change, Sep 2014

⁹⁹ More details available at: <http://www.londonarray.com/>

¹⁰⁰ *Electricity Market Reform Delivery Plan*, Department of Energy and Climate Change, Dec 2013

¹⁰¹ *Offshore wind industrial strategy: business and government action*, Department for Business, Innovation & Skills and Department of Energy & Climate Change, Aug 2013

to power up to 7 million homes by 2020. Provisional figures show that there was 8GW of cumulative installed onshore wind capacity in the UK at the end of June 2014, with onshore wind accounting for the largest share of renewable electricity capacity (36%) in the UK.¹⁰²

144. As one of the most established and cost-effective renewable technologies, onshore wind has grown rapidly in the UK, helped by a stable investment framework, significant cost reductions and a healthy pipeline. The cost of onshore wind has been coming down, which has been reflected in the reduction of support levels required to bring forward onshore projects.¹⁰³
145. The Government has put local people at the heart of decision making on onshore wind, by changing the balance to ensure that they are consulted earlier and have the skills they need to engage with wind farm developers. Industry has implemented a new community benefits protocol that will see a five-fold increase in the amount that developers pay to communities. It will mean that, in England, community benefits packages should be worth at least £5,000 per megawatt of installed capacity for communities every year.

Solar PV

146. The UK's total solar PV installed capacity grew by almost 1,000MW (60%) to 2.7GW in 2013 alone, enough to power 500,000 homes.¹⁰⁴ The solar PV sector is aiming to achieve cost reductions in order to deliver 11-12GW of capacity by 2020. The sector has demonstrated its ability to deploy at all scales, from domestic and commercial buildings to large utility scale facilities. The Government is taking steps to support both sectors by removing non-financial barriers and tackling grid issues. The Government is also setting an example to follow by committing to install 1GW of solar capacity across the public sector estate.¹⁰⁵

Biomass

147. Biomass, when sourced sustainably, can provide a cost-effective, low carbon and controllable source of renewable energy. The Government's priority is to make the best use of our biomass resources. By 2020, biomass could provide power equivalent to 10% of the UK's current electricity supply, enough for around 8 million homes, providing cost-effective, low carbon and controllable source of renewable energy.¹⁰⁶
148. Anaerobic digestion is a growing sector within the UK energy market and the Coalition Agreement set out a government commitment to increase deployment. It provided 707GWh of electricity to the national grid in 2013, an increase of 208GWh over the previous year.¹⁰⁷

Hydropower

149. Hydropower has been a source of renewable electricity in the UK since the 1950s, and accounts for approximately 1.5% of total electricity generation today. Studies in Scotland, England and Wales indicate that there is a maximum remaining potential of around 1 - 2.5GW to be exploited.¹⁰⁸

¹⁰² *Energy Trends*, Department of Energy and Climate Change, Sep 2014

¹⁰³ *Government response to RO consultation*, Department of Energy and Climate Change, Jul 2012

¹⁰⁴ *Energy trends section 6: renewables*, Department of Energy and Climate Change, Aug 2014

¹⁰⁵ *UK Solar PV Strategy Part 2: Delivering a Brighter Future*, Department of Energy and Climate Change, Apr 2014

¹⁰⁶ *Delivering UK Energy Investment*, Department of Energy and Climate Change, Jul 2014

¹⁰⁷ *Energy Trends*, Department of Energy and Climate Change, Sept 2014

¹⁰⁸ *Delivering UK Energy Investment*, Department of Energy and Climate Change, Jul 2014

Wave and Tidal

150. With the second largest tidal range in the world, the UK could potentially be well placed to benefit from this reliable and predictable energy source, through construction of tidal lagoons and barrages.¹⁰⁹ Both the wave and tidal stream sectors are at the pre-commercialisation stage so the challenge is to provide sufficient confidence to attract the investment required to develop further. We have ring-fenced revenue support for 100MW worth of wave and tidal stream up to 2019.

Nuclear

151. Investor confidence continues to grow in the UK's new nuclear programme with projects being taken forward by NNB GenCo, Horizon Nuclear Power, and NuGen. These projects have set out plans to develop around 16GW of new nuclear in the UK, which could support an estimated 29,000 to 41,000 jobs across the nuclear supply chain at the peak of construction, delivering substantial economic benefit.¹¹⁰

152. There has been significant progress over the last year. The first new nuclear power station in a generation has moved a huge step closer when the European Commission announced on 8 October 2014 that it had approved the Hinkley Point C state aid case.

153. New nuclear power stations like Hinkley will be vital in the next decade for Britain's energy security as most of the country's existing nuclear stations are due to close before 2023. New nuclear power stations will also be key to cutting carbon emissions from Britain's electricity industry in the UK's future low carbon energy mix. Hinkley will generate a stable source of clean power to nearly 6 million homes once it is up and running, and will provide 25,000 jobs during construction. UK companies could benefit from getting more than 50% of the work, and thousands of jobs are expected to go to local people.

154. The state aid case included both the proposed Contract for Difference, which provides the developer with an increased price certainty for the electricity generated by the plant, and the proposed UK Guarantee for the project, which will help unlock debt finance. Last October's agreement in principle with EDF, the developer, remains in place, and there has been further agreement to strengthen arrangements for benefits to be shared with consumers if the project comes in under budget, or if the project's return exceeds a certain level. This ensures that consumers won't pay more than they have to whilst providing a reasonable return for the investors. The Government and EDF are continuing to work together to finalise the Hinkley project.

155. Other new nuclear projects are also advancing. The NuGen consortium has been newly configured with Toshiba-Westinghouse and GDF Suez. In June 2014 NuGen and the Nuclear Decommissioning Authority agreed and concluded an updated land option agreement for the Moorside new nuclear site. This is a major milestone towards building Moorside's three reactors, which are expected to come online from 2024. Furthermore, Horizon Nuclear Power has completed step 2 and begun step 3 of the Generic Design Assessment for the advanced boiling water reactor which Hitachi and Horizon have proposed for their sites at Wylfa and Oldbury, with completion of the process expected in 2017. Alongside this, an initial consultation on justification of the advanced boiling water reactor has been concluded and the Secretary of State's draft conclusion has recently been consulted on.

¹⁰⁹ *Turning the Tide, Tidal Power in the UK*, Sustainable Development Commission, Sep 2007

¹¹⁰ *The Nuclear Supply Chain Action Plan*, HM Government, Dec 2012

156. The *Nuclear Industrial Strategy* set out the Government's interest in the potential benefits offered by small modular reactors.¹¹¹ The development of small modular reactor designs could be of strategic importance for the UK, however small modular reactors are in the early stages of development and there are no commercially operational examples anywhere in the world. The Government has commissioned a feasibility study to explore the opportunity in detail and will report shortly.

157. The UK is an open economy and welcomes foreign investment, including into civil nuclear. This is provided that all of the independent rules and regulations are met. Any company involved in the UK's nuclear power industry does so in accordance with the most stringent regulations in the world and, on this basis, the Government welcomes companies which can demonstrate the capability to contribute to safe nuclear power generation in the UK.

Carbon Capture and Storage

158. Developing Carbon Capture and Storage (CCS) is a significant challenge as the technology has not yet been deployed at a commercial scale. Individual parts of the process (capture, transport and storage) have been demonstrated separately, but the full chain of technologies has yet to be demonstrated together on a working power station or industrial facility in Europe.

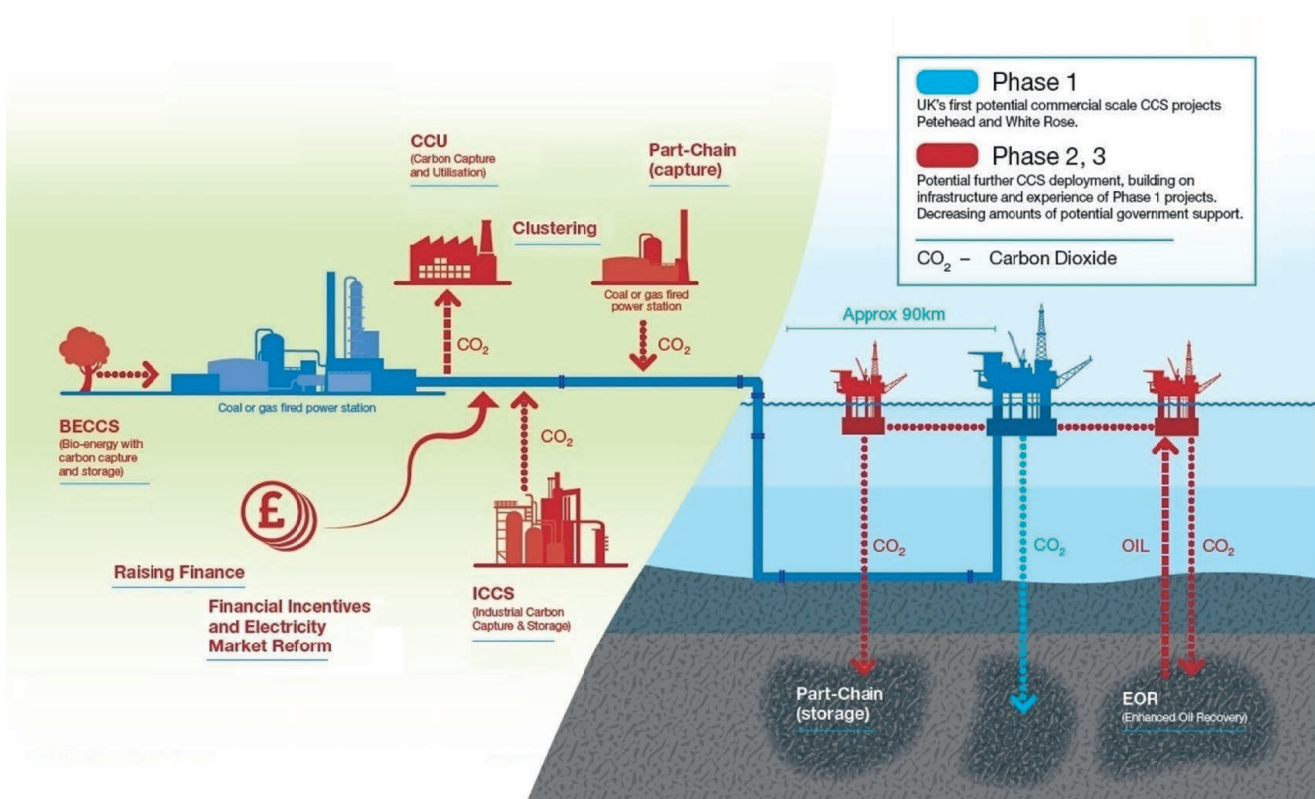


Figure 19. Different aspects of Carbon Capture and Storage

159. The Government is working with industry to create a new cost-competitive CCS industry into the 2020s. The *UK Carbon Capture and Storage Roadmap* was published in 2012 and set out a comprehensive package of measures to help the UK to cost-competitive Carbon

¹¹¹ *Nuclear industrial strategy: the UK's nuclear future*, Department for Business, Innovation & Skills, Mar 2013

Capture and Storage (CCS).¹¹² This package is widely recognised as one of the best offers of any government to support this technology.

160. The Government's approach is contained in the CCS Commercialisation Programme which has up to £1 billion in capital funding available designed to bring forward the first commercial scale projects in the UK. Projects are expected to be under construction as soon as possible after the necessary consents and financing is in place.

161. The Commercialisation Programme complements wider activity the Government is undertaking including a four year £125 million CCS Research and Development Programme and international engagement.

162. In August, the Government published a *Carbon Capture and Storage Policy Scoping Document*. This summarises the policies and actions already taken to support CCS deployment in the UK, and the main challenges to be addressed to further commercial deployment.¹¹³ The Government is continuing to engage with industry on how potential support under the Electricity Market Reform programme could be applied to early stage CCS projects.

Energy Efficiency

163. Energy efficiency is widely recognised as a global investment priority, with governments around the world implementing energy efficiency policies as they prioritise enhanced energy security and cost-effective decarbonisation. It is estimated that global investment in energy efficiency will more than quadruple to 530 billion US dollars per year in the 2030s.¹¹⁴ Already the UK has a multi-billion pound energy efficiency market, supporting more than 100,000 jobs, but the Government is committed to expanding this market further.¹¹⁵

164. The Government's existing energy efficiency policy package saved the UK £4 billion on its energy bills in 2013 and is estimated to save £20 billion from energy and transport bills in 2020, delivering savings of 154TWh in final energy consumption over the decade.¹¹⁶ This level of savings is equivalent to reducing the UK's projected net fuel imports by a fifth in 2020.

165. The roll out of smart meters will see the replacement of 53 million meters with smart electricity and gas meters in all domestic properties, and smart or advanced meters in smaller non-domestic sites by the end of 2020 across Great Britain. The roll out is expected to deliver a net present benefit of £6.2 billion to the economy over the period to 2030.¹¹⁷

166. Smart metering will also pave the way for future innovation. It will lay the foundations for smart grids as electricity network operators will be better equipped to understand the local loads on their infrastructure, plan investment activities and respond faster to loss of supply. It will enable a range of approaches to shifting the time of electricity use, avoiding the need

¹¹² *CCS Roadmap*, Department of Energy and Climate Change, Apr 2012

¹¹³ *Next steps in CCS: Policy Scoping Document*, Department of Energy and Climate Change, Aug 2014

¹¹⁴ *World Energy Investment Outlook*, International Energy Agency, 2014 \$530 billion figure is an estimate as part of the New Policies Scenario. The report defines investment as 'the additional expenditure made by households, firms and governments to improve the performance of their energy using equipment above the average efficiency level of that equipment in 2012.

¹¹⁵ *Low carbon environmental goods and services report*, Department for Business, Innovation and Skills, July 2013

¹¹⁶ DECC estimates based on the September Updated Energy and Emissions Projections, prices with the DECC supplementary appraisal guidance, 2013 prices. 'Fuel bills' refers to energy and transport bills.

¹¹⁷ *Smart meter roll-out for the domestic and small and medium non-domestic sectors (GB) Impact Assessment*, Department of Energy and Climate Change, Jan 2014

for investment in additional network and generation capacity to meet peak demand. Introducing time-of-use tariffs and automated demand side response through smart appliances will result in peak load shifting and bring benefits to the networks, consumers and the wider energy system.

167. The public sector is continuing to show leadership on energy efficiency across the UK. £90 million over three years will be spent improving the energy efficiency of schools, hospitals and other public sector buildings.
168. Alongside the action taken in the household, public and private sectors the Government has taken steps to connect demand for energy efficiency measures with available finance. Since the introduction of the UK Green Investment Bank, £150 million has been invested to support energy efficiency projects. In July 2014 the Government opened the Electricity Demand Reduction pilot to expressions of interest. This will provide financial support to organisations which deliver electricity savings at peak times by installing more efficient equipment.

Heat

169. Nearly half the energy used in the UK is for heating, including over 60% of all gas consumed.¹¹⁸ Fossil fuels remain the dominant source of energy for heating (in particular, natural gas), so security of heat supply in the short to medium term, coupled with the need to decarbonise this sector over the longer term to meet climate change targets, are important priorities for the Government.
170. The *Future of Heating: Meeting the Challenge* made it clear that reducing emissions from buildings and industry are key to delivering on these priorities.¹¹⁹ It set out a package of actions in response covering: industrial heat and combined heat and power; heat delivered through heat networks; heating and cooling in buildings; and the implications for energy grids and infrastructure.
171. There is an enormous investment opportunity for new and renewable forms of heating, such as heat pumps and heat networks, and more efficient traditional heating technologies including combined heat and power and gas boilers, in addition to investment in infrastructure to support the supply of heat.
172. In order to achieve the 30% annual growth rates the Government estimates are possible, the Government estimates that the domestic Renewable Heat Incentive would require around £3 billion of investment in new, lower carbon, heating systems between now and 2020, supporting up to 5,000 jobs.¹²⁰
173. Within commercial, public and industrial sectors, the Government estimates that in order to contribute the central range of deployment potential identified in the impact assessment, the non-domestic Renewable Heat Incentive would need to result in around £10 billion of investment between now and 2020, supporting up to 20,000 jobs.¹²¹
174. The Government is investing £650,000 in high-quality renewable heating training for heating engineers so that they can diversify away from only working on gas-based heating systems and ensure a high quality service in the exciting new renewable heat market.

¹¹⁸ Department of Energy and Climate Change estimate, based on *Energy Consumption in the UK* table 1.07 and *Digest of UK Energy Statistics* 2013 1.1

¹¹⁹ *The Future of Heating: Meeting the Challenge*, Department of Energy and Climate Change, May 2013

¹²⁰ Department of Energy and Climate Change estimate - see impact assessments for Renewable Heat Incentive

¹²¹ Department of Energy and Climate Change estimate – see impact assessments for Renewable Heat Incentive.

Combined heat and power

175. Combined Heat and Power (CHP) is an approach to improving the efficiency of energy supply, both renewable and fossil fuel, promoted by a range of support mechanisms, such as Climate Change Levy exemption, Carbon Price Support relief and, for renewable CHP, Contracts for Difference. In 2013, CHP of all fuel types saved almost 15 MtCO₂ compared to separate generation of heat and power from fossil fuels.¹²²
176. The Government is considering the potential for bespoke support for new natural gas CHP. The results of this analysis will be published in November 2014.

Heat networks

177. There are currently approximately 2,000 heat networks in the UK, supplying heat to 210,000 dwellings and 1,700 commercial and public buildings.¹²³ A further 150 schemes are known to be under development by local authorities across the UK. At present, heat networks only meet a small fraction of overall heating demand (2%), but the Department of Energy and Climate Change (DECC) has identified significant potential and is supporting industry and local authorities to develop new networks. Estimates suggest that 14% of UK heat demand could be cost effectively met by heat networks by 2030 and up to 43% by 2050, making a cost effective contribution to the UK's decarbonisation targets.¹²⁴
178. The Heat Networks Delivery Unit was established in September 2013 to provide support to local authorities in England and Wales. It is made up of technical and commercial specialists who administer grant funding to local authorities to support the development stages of heat network projects. Grant funding of £7 million is being allocated through a series of funding rounds until March 2015.
179. The Heat Networks Delivery Unit is also working with the Green Investment Bank to turn help these development plans into investment-ready propositions. Both Stoke and Tees Valley have heat network projects supported by the Government as part of the City Deal package. These innovative proposals will support the distribution of heat from industrial processes and from geothermal sources, respectively.
180. In August 2014, DECC published a water source heat map to highlight the opportunities for deploying innovative heat pump technology at larger scales (i.e. for heat networks).¹²⁵ A £7 million demonstration competition was launched in October 2014 to promote innovative low carbon heating and cooling solutions through heat networks.

¹²² *Digest of UK Energy Statistics*, Department of Energy and Climate Change, July 2014

¹²³ *The Future of Heating: Meeting the Challenge*, Department of Energy and Climate Change, Mar 2013

¹²⁴ *The potential and costs of district heating networks*, Department of Energy and Climate Change, Apr 2009 and *The Future of Heating: Meeting the Challenge*, Department of Energy and Climate Change, Mar 2013

¹²⁵ *Water Source Heat Map*, Department of Energy and Climate Change, Aug 2014

Heat in buildings

181. Analysis suggests that the increase in the uptake of high efficiency condensing boilers in households, the role of energy efficiency programmes in domestic and commercial buildings and investment under the Renewable Heat Incentive will be sufficient to meet carbon emissions reduction goals in this decade. Every year, the growth in condensing boilers reduces carbon emissions by an additional 0.7MtCO₂ tonnes of carbon and saves around £20 to £120 per household per year.¹²⁶

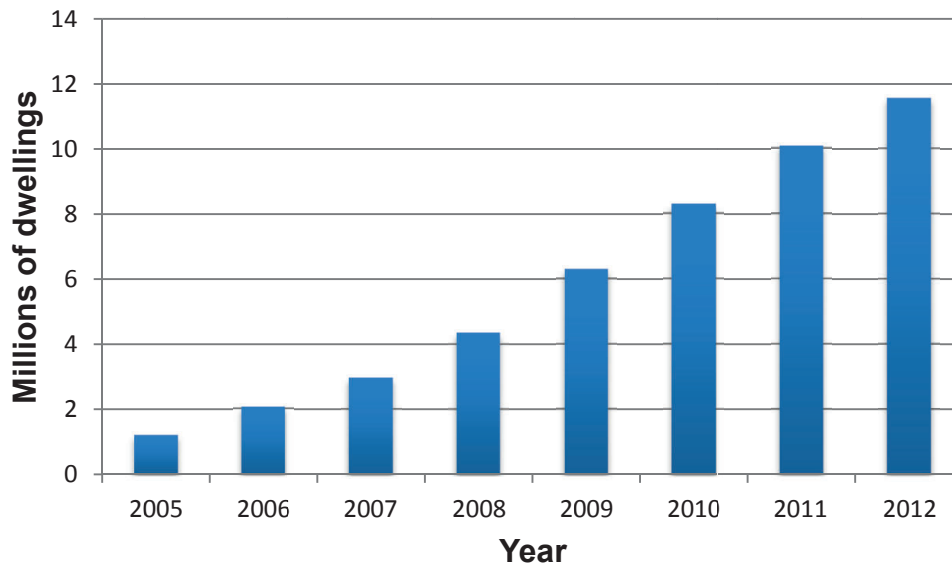


Figure 20. Millions of dwellings with high efficiency condensing boilers¹²⁷

Transport

182. The Government remains committed to improving fuel efficiency and reducing CO₂ emissions across the transport sector. Greater fuel efficiency of vehicles and increased use of low carbon fuels, such as electricity and hydrogen are key elements towards decarbonising the transport sector.

183. In the roads sector a key element of our policy is support for the introduction of ultra-low emission vehicles, which will need mass deployment during the 2020s and 2030s. To enable this shift and to support growth, inward investment and job creation, the Government is continuing with action to establish the UK as a dominant market for plug-in vehicles. Notable areas of progress on Ultra-Low Emission Vehicles (ULEVs) over the last year include:

- By June 2014 over 6,300 charge points had been provided through the eight Plugged-in Places schemes, with an estimated 5,000 additional charge points provided nationally by the private sector.
- In February 2013 we announced a £37 million package of measures to provide grants of up to 75% towards the installation of home and on-street charging, rapid chargers in key locations and chargers at railway stations and the wider public estate. From

¹²⁶ DECC estimate, drawing on work for *The Carbon Plan: delivering our low carbon future*, HM Government, Dec 2011; and *Policy Impacts on Prices and Bills*, Department of Energy and Climate Change, Mar 2013

¹²⁷ Derived from the *English Housing Survey*, Department for Communities and Local Government, 2013

this pot we have allocated over £21 million to support 112 projects for rapid chargers in strategic locations, for recharging points at railway stations and the wider public estate.

- The Plug-in Car Grant scheme (offering a grant of 25% off the vehicle price, up to a value of £5,000) had 4,889 claims during July to September 2014 (up from 920 in the same period in 2013). Over the same period claims made through the Plug-in Van Grant scheme (offering a grant of 20% of the vehicle price, up to a value of £8,000) were 170. Total claims for the two grants amounted to almost 17,000 by the end of September 2014.
- Phase two of the UKH2Mobility project has successfully concluded, with the development of an outline business case for the roll-out of hydrogen fuel cell vehicles and refuelling infrastructure in the UK. Work is now underway identifying the next steps to develop an appropriate initial hydrogen refuelling network in anticipation of the first hydrogen fuel cell vehicles being commercially available in 2015.
- In October we launched the Hydrogen Technology Advancement Programme (HyTAP) which will see £7.5m from Government and £3.5 from industry invested in new and upgraded hydrogen refuelling stations (HRS) and support the deployment of hydrogen Fuel Cell Electric Vehicles (FCEVs) in public sector fleets. With FCEVs expected to go on sale in the UK in 2015, HyTAP will help establish an early refuelling infrastructure and represent a significant first step towards the initial national network of 65 identified by UKH2Mobility.
- In April 2014 the Government announced the high level allocation for the £500 million available to support the early market for ULEVs during 2015 to 2020. This included commitments to maintain the existing Plug-in Car Grant; boost R&D funding; introduce a cities scheme and; support buses and taxis.

184. New car efficiency continues to improve, with 60% of UK new car registrations in 2013 meeting the EU 2015 fleet average CO₂ target of 130g. This means that drivers continue to benefit from higher fuel economies; an average increase of 14 miles per gallon over the period 2002 to 2012. However, with heavy goods vehicles accounting for around 20% of transport carbon emissions, there is a need to reduce heavy goods vehicles' carbon emissions too. Improved logistics, better driving behaviours and techniques, continued improvements in vehicle fuel efficiency and finding alternative sources of power are all ways of increasing energy efficiency in the heavy goods vehicles sector as well as the wider transport sector.

185. Industry is taking steps to increase its fuel efficiency. For example, operators in the Freight Transport Association Logistics Carbon Reduction Scheme are taking various actions to reduce their fuel consumption, and hence their carbon emissions. These include: driver training and performance monitoring; reduced empty running; improved routeing and scheduling; and greater use of more efficient engines, aerodynamic devices and low rolling resistance tyres to reduce drag.¹²⁸ The Government is undertaking two major heavy goods vehicles carbon emission reduction trials:

- **Low Carbon Truck Trial:** in 2012 a two year £11.3 million trial commenced involving around 300 low carbon heavy goods vehicles and their supporting infrastructure, including a number of public access refuelling points which will be available to other operators. Trial vehicles should have carbon emissions at least 15% lower than those

¹²⁸ Details on Logistics Carbon Reduction Scheme (LCRS) can be found at:

http://www.fta.co.uk/policy_and_compliance/environment/logistics_carbon_reduction_scheme/

emitted by equivalent diesel vehicles. Mostly these use some form of gas power (Compressed Natural Gas or Liquefied Natural Gas, some with an element of biomethane content) in dual fuel vehicles (diesel and gas). In June 2014, the Department for Transport published an executive summary of the evaluation of the first year of the project.¹²⁹

- **Longer Semi-Trailers:** In February 2012 the Government initiated a series of operational trials over 10 years eventually involving around 1800 longer semi-trailers up to 15.65 metres long. This will enable fewer heavy goods vehicles journeys to carry the same amount of goods. The trial is expected to save over 3000 tonnes of CO₂ with overall benefits estimated at £33 million. In June 2014, the Department for Transport published the second annual report, which found that in the period to the end of 2013, use of the longer semi-trailers had saved an estimated 600,000 to 900,000 vehicle kilometres, with an associated saving in emissions and energy usage.¹³⁰

Rail electrification

186. In the rail sector energy efficiency is key to driving down the cost of the rail network. The Government has already committed to electrifying the Great Western Main Line, Midland Main Line, many busy lines in the North of England and to creating an 'Electric Spine' for passengers and freight stretching from Southampton to the Midlands and Yorkshire.

Aviation

187. The aviation sector has unique challenges when responding to climate change concerns and addressing energy efficiency. The need for high energy density fuel means aircraft will likely use liquid fuel in the medium to long term but prior to this there are a number of measures that are being worked on to reduce the rate of fuel burn and to increase the amount of renewable fuel blended with traditional fossil fuel kerosene. The Department for Transport has been co-lead in United Nations negotiations on the introduction from around 2020 - 2023 of the first international standard for CO₂ emissions from new aircraft types. The Department for Transport is also working with the aviation industry on ways for it to increase efficiency and make use of alternative fuels. A British Airways project was announced that is intended to convert approximately 575,000 tonnes of post-recycled domestic refuse, normally destined for landfill or incineration, into 120,000 tonnes of clean burning liquid fuels. During 2014 announcements were also made for the Boeing 777X and Airbus A330 NEO, claimed to be respectively 12% and 14% more efficient than their predecessors as well as quieter.

188. Alongside this, the UK is working through the International Civil Aviation Organisation (ICAO) to develop a global measure to enable the aviation sector to attain carbon neutral growth from 2020. The technical and analytical work is already underway, and a 'strawman' for the global measure is also being discussed by the Environment Advisory Group in ICAO. The UK is contributing to all of this work, and will be working closely with other ICAO member states, industry and NGOs to ensure that an effective decision can be made at the 2016 ICAO Assembly.

189. In the meantime, since 2012, aviation emissions have been included in EU Emissions Trading System (ETS), which caps the total amount of CO₂ that can be emitted within the system. Following positive progress made at ICAO towards a global agreement in Autumn 2013, the European Commission, Parliament and Council agreed to reduce the scope of the Aviation ETS to an intra-European scope until 2016, with a review in 2016 following the

¹²⁹ *Low carbon truck trial: first year executive summary*, Department for Transport, Jun 2014

¹³⁰ *Evaluation of the longer semi-trailer trial: annual report 2013*, Department for Transport, Jun 2014

next ICAO Assembly. The EU Regulation (EU No.421/2014) enacting these amendments came into force on 30 April 2014. The UK believes the new scope will ensure that Aviation ETS continues to operate in an effective manner, whilst boosting the prospects for agreement on a global measure for aviation emissions at ICAO.

Supply Chains

190. Alongside investment in renewable electricity generation, there is also growth in the associated supply chain. Earlier this year, for example, Siemens and ABP announced £310 million of investment in Hull. This investment was won against stiff international competition and demonstrates the UK's attractiveness as a destination for investment.

Economic benefits for the UK from the offshore wind supply chain

On 25 March Siemens and ABP announced that they are investing £310 million to build two factories in Humberside.

- At Alexandra Dock, Siemens and ABP are investing in a factory that will assemble offshore wind turbines.
- At Paull, Siemens are investing in a factory that will make offshore wind turbine blades.

This will create 1,000 permanent jobs and support over 300 construction jobs in one of the UK's most deprived areas.



Artist's impression of the site

191. In order to be eligible to enter the generic Contracts for Difference round, projects with a generating capacity of 300 MW or more must have a supply chain plan approved by the Secretary of State. Supply chain plans set out the actions a project will take, and the impacts of that action, to encourage robust, open and competitive supply chains in the low carbon electricity sector; how they will contribute to open competition, innovation, and investment in skills, and thereby contribute to increasing low carbon generation and lower costs for consumers in the UK.

192. Investment in smart metering will create new opportunities in product, technology and service development. The roll out of smart meters will, at its peak, mean at least 10,000 jobs in meter installations and associated support; one meter manufacturer has already announced it expects to double its 600-strong UK workforce as a result of a significant procurement of smart meters by a large supplier.¹³¹

¹³¹ Department of Energy and Climate Change modelling

Innovation

193. Innovation in low carbon technologies will be key in the transformation of our energy system, bringing about a profound shift over the coming decades to a cleaner, greener, more distributed, interconnected and smarter energy market. The innovation that will continue to drive progress and reduce costs for consumers, also presents a major opportunity for UK companies competing internationally for low carbon jobs and growth.
194. The UK has strengths in research and development, world class universities and a track record of innovative companies. Partnerships between industry, government, business and academia will allow us to transform the way we generate and use energy, and rise to the low carbon challenge.
195. In 2012/13 UK public sector energy research, development and demonstration spend made by members (excluding the devolved administrations) of the Low Carbon Innovation Coordination Group was £318 million, and will be worth over £1 billion from 2011 to 2015. DECC itself has allocated up to £185 million to its programme of innovation support from 2011 to 2015 for key low carbon technologies, including: energy efficiency in buildings; marine; electricity storage; bioenergy, nuclear; and offshore wind.
196. The Low Carbon Innovation Coordination Group brings together the public sector backed funders of low carbon innovation and published a *Low Carbon Innovation Strategic Framework* in early 2014.¹³² This sets out why low carbon innovation is so crucial and how innovation partners can best target and coordinate their support.

3.2 Maximising economic recovery of UK oil and gas

197. The UK oil and gas industry continues to make a substantial contribution to our economy, supporting around 450,000 jobs throughout the wider UK economy and supplying the equivalent of more than half the UK's oil and gas.^{133 134}

Offshore

198. The UK Continental Shelf (UKCS) continues to attract global investment. In 2013, the UK upstream oil and gas industry invested £16 billion in exploration and new/incremental developments.¹³⁵ DECC launched the 28th Offshore Licensing Round in April 2014 and received over 170 applications for more than 350 blocks, confirming that there continues to be a strong interest in UKCS exploration and development. The technical assessment of the applications is well advanced and the Department aims to award new licences later in the autumn.

¹³² *Coordinating Low Carbon Technology Innovation Support: The LCICG's Strategic Framework*, Low Carbon Innovation Co-ordination Group, Feb 2014

¹³³ *Economic Report 2014*, Oil & Gas UK, 2014

¹³⁴ *Table 1.3, Energy Trends*, Department of Energy and Climate Change, September 2014

¹³⁵ DECC estimates based on returns from operators to joint DECC–Oil & Gas UK Field and E&A Activity Surveys conducted in late 2013

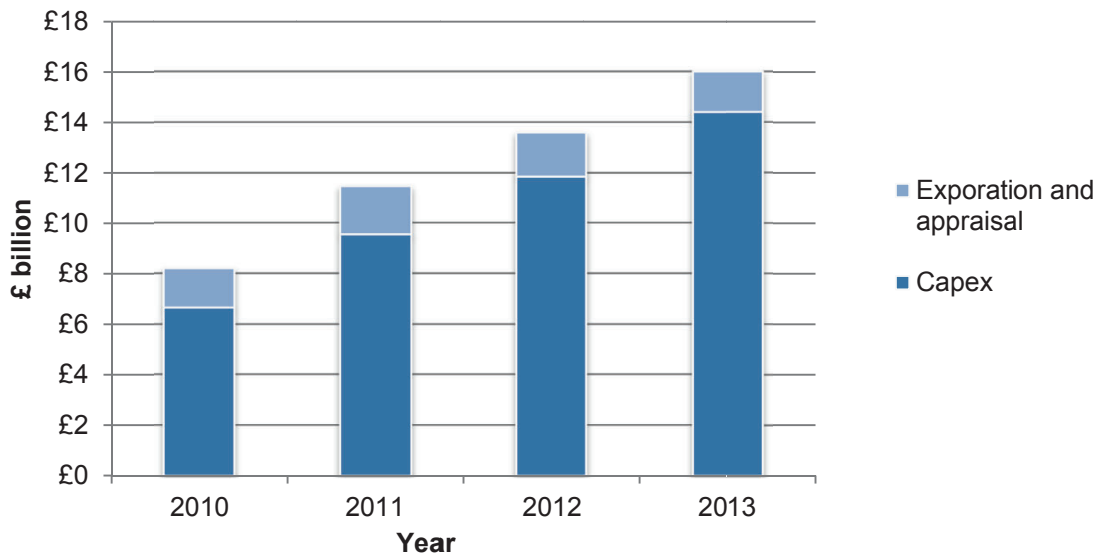


Figure 21. UK Continental Shelf Capital Expenditure¹³⁶

199. Through PILOT (the oil and gas task force), Government and industry are continuing to work in partnership to address barriers to success and bring forward initiatives which will help achieve the best overall outcome from the exploitation of the UK’s oil and gas resources. Current focus areas include: enhanced oil recovery, production efficiency, area rejuvenation and stimulating exploration. Good progress is being made in addressing the recommendations set out in the *Oil and Gas Industrial Strategy* which was developed in partnership with industry and the Department for Business, Innovation and Skills, with the one year on progress report showing over half of the original 40 action points completed.

The Wood Review

200. To ensure that everything possible is being done to maximise economic recovery of hydrocarbons, DECC commissioned an oil and gas review in June 2013, led by Sir Ian Wood. His final report on UK offshore oil and gas recovery was published in February 2014.¹³⁷

201. The key finding of the Wood Review was that government, the regulator and industry must adopt a cohesive tripartite approach to develop and commit to a new, shared strategy of “Maximising Economic Recovery for the UK”, to maximise the huge economic and energy security opportunity that lies off the UK’s shores.

202. The review notes that the UK Continental Shelf (UKCS) is a very different, and more complex, operating environment now than in the past and recommends that Government should create a new arm’s length body to take on the role of regulator as we move into the next phase of the UKCS.

203. The Government accepted the report’s recommendations and the Department of Energy and Climate Change is making good progress in implementing them, including establishing a new arm’s length body which will take over the regulation and stewardship of the UKCS. This regulator will be called the Oil and Gas Authority and will be headquartered in Aberdeen. A formal Government response to the Wood Review was published on 16

¹³⁶ *Income from and expenditure on UKCS exploration, development and operating activities: annually 1970-2012*, Department of Energy and Climate Change, constant 2013 prices, using IHS CERA UCCI deflator

¹³⁷ *UKCS Maximising Recovery Review: Final Report*, Sir Ian Wood, Feb 2014

July.¹³⁸ The Department of Energy and Climate Change (DECC) is currently undertaking recruitment of a new CEO and new staff for the arm's length body and, subject to the successful appointment of a CEO, we envisage the Oil and Gas Authority to be established as an executive agency in April 2015. We intend that the Oil and Gas Authority will be vested as a Government Company in 2016.

204. An advisory panel chaired by Sir Ian Wood and made up of senior DECC, Treasury and Competitions and Markets Authority advisors as well as representatives from industry, has been assembled and is guiding and advising the process of implementation.

205. The Infrastructure Bill, currently passing through Parliament, includes provisions for a framework to establish the principles of maximising economic recovery in statute, and a levy making power to fund the costs of the new Oil and Gas Authority.

North Sea Fiscal Regime

206. Government is committed to supporting a fiscal regime that encourages further investment and innovation in the UK Continental Shelf (UKCS), while ensuring a fair return for UK taxpayers. Budget 2014 announced a review of the UK upstream oil and gas fiscal regime to ensure it continues to encourage investment in the UKCS over the longer-term and help maximise the benefits of the country's oil and gas resources for the economy. In July 2014 the Treasury launched a call for evidence on the fiscal regime with a view to publishing a roadmap at the Autumn Statement.

Onshore

207. Continued progress has been made by Government to encourage the safe and sustainable exploration for shale gas, bringing the UK closer to the economic production of this valuable resource. DECC commissioned British Geological Survey studies suggest the areas with most potential for shale gas exploration are where existing conventional gas has been found. Significant parts of the UK have no shale rock. The UK has over 1,300 trillion cubic feet of shale "gas in place" and resources of shale oil.¹³⁹

208. Little drilling or testing has taken place in our shale deposits, so it is not yet possible to estimate how much shale gas or oil may be practically and commercially recoverable. The Government therefore cannot set specific goals, but wishes to see safe and sustainable exploration and subsequent development.

209. Following the publication of data on potential shale hydrocarbon resources for a number of areas, the Government launched the 14th onshore licensing round in July 2014. This will open more of the UK to potential exploration of shale gas and oil operations where appropriate. The Department for Energy and Climate Change will undertake a technical evaluation of the applications and the required Habitats Assessments, with the first tranche of licence awards likely to be offered in early 2015.

210. Ensuring that the public, both nationally and locally are properly informed about how shale oil and gas are extracted and how risks are managed through the regulatory system is vitally important – especially in areas where shale development may occur in the future. Part of DECC's role is to support public engagement, including by ensuring there is access to evidence-based information which can address the questions raised. The Government

¹³⁸ *Government Response to Sir Ian Wood's UKCS: Maximising Economic Recovery Review*, Department of Energy and Climate Change, Jul 2014

¹³⁹ *Bowland Shale Gas Study – Main Report*, British Geological Survey for Department of Energy and Climate Change, 2013

has produced a regulatory roadmap to allow operators and citizens to see what processes any shale development must pass through.¹⁴⁰

211. Existing EU Environmental Directives ensure Member States are well placed to manage the environmental risks associated with shale gas and oil extraction. The Government has therefore argued successfully against further EU regulation of shale. The Environment Agency is developing standard environmental permits to reduce environmental permitting times from 13 to 2-4 weeks, without reducing environmental protection. In September, the Government tabled amendments to the Infrastructure Bill on underground access for shale gas and oil and deep geothermal underground drilling. These will allow development, offering a fair deal for communities in return for underground access at depths so deep they will have no negative impact on landowners.¹⁴¹
212. Some operators have now applied for planning permission to drill exploration wells in shale formations. If development consents are secured, and they secure the necessary environmental, health and safety, seismic and drilling approvals, exploration work could start next year. Other operators will follow, and depending on the results of exploration, companies will in due course to move from exploration into development and production over the next few years. In anticipation of this, the Government will shortly begin work on developing a robust regulatory regime for full production, building on the learning from developing the regime for exploration.
213. The Department of Energy and Climate Change will also continue to work with other government departments and local and regional organisations to maximise the economic opportunity and benefit to the UK and prepare the workforce appropriately. A government-supported EY supply chain report published in April, indicated there could be significant benefits for jobs and growth from a successful UK shale industry: over 64,000 jobs at peak could be supported across the wider economy, with more than 6,000 jobs on shale gas pads themselves. Many of these would be highly skilled, high quality jobs, with above-average pay.¹⁴²
214. Industry have agreed that local communities should receive benefits from development in their area including payments for each well which is hydraulically fractured and 1% of any revenues from production. On top of this, the Government has announced 100% business rate retention for local authorities so that wider community benefits can be realised, while new tax incentives have made the UK tax regime for shale gas the most competitive in Europe.

3.3 Investment to ensure security of supply

215. Energy security is defined as “ensuring that consumers have access to the energy services they need at prices that avoid excessive volatility”.¹⁴³ It goes hand in hand with our action on climate change and affordability. All of these challenges demand action to avoid unacceptable economic and human costs. The Government’s *Energy Security Strategy* is based on competitive energy markets combined with effective regulation to deliver diversity of supply and robust infrastructure for consumers.¹⁴⁴

¹⁴⁰ *Onshore oil and gas exploration in the UK: regulation and best practice*, Department of Energy and Climate Change, Dec 2013

¹⁴¹ *Consultation on Proposal for Underground Access for the Extraction of Gas, Oil or Geothermal Energy*, Department of Energy and Climate Change, May 2014

¹⁴² *Getting ready for UK shale gas*, EY, Apr 2014

¹⁴³ *Energy Security Strategy*, Department of Energy and Climate Change, Nov 2012

¹⁴⁴ *Ibid*

216. As EU energy markets become more integrated and the UK becomes more dependent on imported energy, our energy security is more than ever connected with what happens in other EU Member States. Recent events in Ukraine have underlined the risk of the EU as a whole being too heavily dependent on imported fossil fuels from a single supplier. In May, the Commission released an EU Energy Security Strategy; which set out a combination of immediate actions aimed at increasing the EU's capacity to overcome a major disruption during the winter 2014/15, and longer-term measures to help diversify external supplies and related infrastructure; boost indigenous production of energy; and improve energy efficiency. EU leaders are expected to agree on final measures at the October European Council
217. The UK has consistently stressed that one of the most effective ways to improve the EU's energy security is through completion of the internal energy market. This requires EU energy legislation to be fully and consistently implemented across the EU, the right arrangements to be in place to facilitate efficient cross-border trading of energy, and sufficient physical interconnection between countries. Provisions and obligations under the Security of Gas Supply Regulation and the creation of Projects of Common Interest under the Trans-European Energy Infrastructure Regulation will help drive efforts to ensure that physical interconnections are put in place where needed, reinforced where appropriate, and enhance energy security.
218. The UK has taken significant strides towards reducing our energy demand and securing our energy future. The Government's energy efficiency policy package is projected to deliver around a 20% reduction in final energy consumption by 2020. By reducing energy consumption we improve the UK's energy security. A more energy efficient UK will have lower exposure to international energy market prices and volatility. The UK's energy efficiency policy package is estimated to reduce UK net imports by 7% in 2013 and 20% in 2020.¹⁴⁵

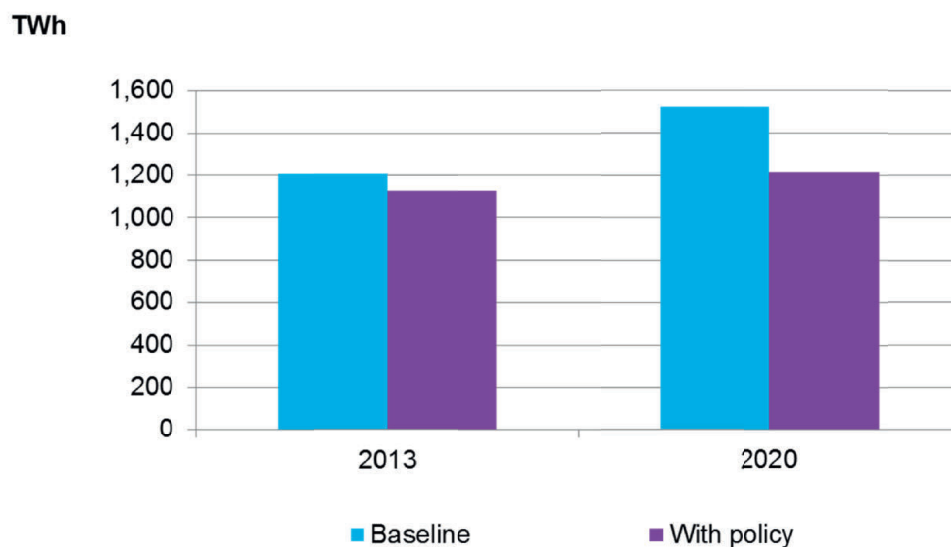


Figure 22. UK net imports of primary energy – 2013 and 2020¹⁴⁶

¹⁴⁵ DECC analysis based on the September 2013 Updated Energy and Emissions Projections

¹⁴⁶ *Ibid*

Electricity

219. Different types of electricity generation have different characteristics. Some, like coal and gas generation, can respond to fluctuations in demand by turning up or down while others, like wind and solar, are reliant on intermittent fuel sources to produce electricity. With more wind and nuclear on the system fossil-fuel generators will be less certain of their revenues; this could lead to under-investment and uncomfortably low levels of reliable capacity. The Government has therefore legislated to introduce a Capacity Market to ensure future security of electricity supply. From Winter 2018, this will provide an insurance policy against future blackouts – for example, during cold, windless periods – and help ensure that consumers continue to receive reliable electricity supplies at an affordable cost.
220. The Capacity Market mechanism is technology neutral, but will ensure the continued role of gas, as well as unlocking the potential from demand side response. Gas is one of the most flexible and reliable sources of electricity and is essential to ensuring we maintain security of supply. The first Capacity Market auction will take place in 2014, with capacity committing to be in place by Winter 2018. The auction has been designed to deliver maximum competition; with generation, demand side response, new plant and existing plant all competing against each other. This will ensure the best value for money for the consumer.
221. Earlier this year, Ofgem set out their security of electricity supply outlook in their Electricity Capacity Assessment Report 2014.¹⁴⁷ This set out the risks associated with closures over the coming five winters (2014/15 to 2018/19). This equates to increased risks to electricity security of supply towards the middle of this decade. However, these risks have been mitigated due to decisive action by National Grid – supported by Ofgem and Government – to introduce new reserve services.
222. These new balancing services will provide additional capacity over the next two winters beginning with winter 2014/15 (with the potential of extension for a further two years if necessary, subject to Ofgem approval). This will ensure that there is enough back up capacity to cope with any short term shocks to the system. This is a prudent approach in order to provide an additional safeguard if some power stations are unavailable.
223. Great Britain also currently has around 20-GW of coal-fired generation capacity, delivered through 11 power stations. However, the EU Industrial Emissions Directive is expected to have a significant impact on coal generation when it comes into force on 1 January 2016. The operators of the remaining 11 plants will need to consider whether to make the investments necessary to meet the more stringent emissions limits set by the Directive or to opt-out operating under limited hours and closing by end 2023 at the latest.
224. Cost-competitive carbon capture and storage is essential for the long-term future of coal and can play an important role for gas. The Government has introduced a ‘triple lock’ of policies through the National Policy Statements for Energy, the Carbon Price Floor and the Emissions Performance Standard to give investors the certainty they need and to ensure that new coal power stations can only be built if equipped with carbon capture and storage.

Electricity Networks

225. Strengthening our electricity networks is critical for maintaining energy security and ensuring we can meet our wider energy objectives. Considerable progress continues to be made in delivering the investment needed to replace ageing assets, accommodate new generation, create a smarter grid and increase our interconnection with other countries.

¹⁴⁷ *Electricity Capacity Assessment Report 2014*, Ofgem, Jun 2014

226. As regulated monopolies, investment in networks is ultimately funded through consumer bills at a level set independently by Ofgem through a price control process. This involves Ofgem reviewing the business plans of the network companies to ensure investment is efficient as possible and remains affordable for consumers. Ofgem has recently adopted a new methodology for conducting price controls, the Revenue = Incentives + Innovation + Outputs (RIIO) mechanism.
227. Ofgem has agreed up to £21.5 billion of funding for Great Britain's onshore transmission network for the 2013-21 period through the RIIO-T1 electricity transmission price control.¹⁴⁸ Ofgem estimates investment in the transition network could support over 8000 jobs.¹⁴⁹ Transmission Owners are constructing around 12.6-GW of network capacity for delivery by mid-2018.¹⁵⁰
228. The price control for the electricity distribution network, RIIO-ED1 (2015-2023) is currently under consideration, with Ofgem scheduled to publish its final determination of network operators' business plans in November 2014. Through this, we expect to see over £20 billion of funding for the distribution networks over the coming years. This will enable the vital upgrade replacement and extension of critical network infrastructure.
229. In July 2014 Ofgem announced its approval of a subsea transmission link between Caithness and Moray on the East Coast of Scotland.¹⁵¹ The project, valued at over £1 billion, will help bring around 1.2GW of renewable generation in Scotland to homes and business throughout Great Britain. Construction is expected to be completed in 2018. The project has the potential to support over 600 jobs during construction.¹⁵²
230. The innovative regulatory regime for offshore transmission, jointly developed by the Government and Ofgem, continues to realise investment and drive savings for consumers. Offshore Transmission Owners are selected through a tender process deliberately designed to attract new sources of finance and harness competitive pressures to realise efficiencies. Nine Offshore Transmission Owner licences have now been granted, with over £1.4 billion of investment in offshore transmission delivered by the regime, and a further £1.5 billion of assets in the tender process.¹⁵³ Ofgem recently concluded that this approach has saved £200-£400 million on the first tranche of projects alone.¹⁵⁴
231. The Government's enduring Connect and Manage regime continues to reduce grid connection timescales for many new generation projects. Under Connect and Manage, 191 large generation projects have seen their connection times reduced by an average of five years.¹⁵⁵

¹⁴⁸ £21.5 billion estimate is based on Ofgem's announcements, available at: <https://www.ofgem.gov.uk/ofgem-publications/76242/20121217-press-release-riio.pdf> and <https://www.ofgem.gov.uk/ofgem-publications/76230/riio-controls-come-effect.pdf>

¹⁴⁹ *Ofgem's £30 billion price controls come into effect*, Ofgem, Apr 2013

¹⁵⁰ *Electricity Networks Strategy Group*, Department of Energy and Climate Change. Transmission Owner major projects status update. Available at: <https://www.gov.uk/government/groups/electricity-networks-strategy-group>

¹⁵¹ *Ofgem gives green light to new £1.2 billion Scottish subsea link and transmission charging reform*, Ofgem, Jul 2014

¹⁵² *ENA welcomes Ofgem approval for £1.2 Billion Caithness-Moray transmission link*, Electricity Networks Association, Jul 2014

¹⁵³ *Full Commencement of the Offshore Transmission Regime*, Ofgem, Jun 2014

¹⁵⁴ *Conclusions of Consultation on the Evaluation of OFTO Tender Round 1 Benefits*, Ofgem, Sep 2014

¹⁵⁵ *Connect and Manage Forecast and Actuals Report*, National Grid, Jul 2014

232. In December 2013, Government published *More interconnection: improving energy security, lowering bills*.¹⁵⁶ This outlined the commitment to increase Great Britain's interconnection capacity and the steps underway to achieve this. Progress includes Ofgem's 6th August decision to roll out a new 'cap and floor' regulatory regime for interconnector projects targeting operation before 2021, and the Government's proposals, published on 25 September to allow interconnected capacity to participate in the Capacity Market from 2015.
233. The increased policy and regulatory clarity brought by these developments has encouraged a strong pipeline of proposed interconnector projects, which includes around 6GW supported by Government, to benefit from European Project of Common Interest status. This would represent a 150% increase in our current interconnection capacity.

Gas

234. The UK has diverse and reliable gas infrastructure capable of responding flexibly to changing market conditions. This has been well demonstrated in recent years in a range of challenging circumstances: from geopolitical tensions stemming from the 2009 Russia/Ukraine crisis; to record-breaking demand conditions in December 2010; to the late and prolonged cold snap of March 2013.
235. The UK has a diverse range of gas suppliers, infrastructure, and routes to market. This includes substantial domestic production, pipelines from Norway, interconnectors with Belgium and the Netherlands, four liquefied natural gas terminals, and a range of gas storage facilities. Net of domestic production, the UK's import capacity on its own is nearly double our annual gas demand.
236. Our gas infrastructure capacity also more than exceeds daily gas demand, known as deliverability. Total infrastructure deliverability stands at around 700 million cubic meters a day (mcm/d), compared to average winter demand of around 290 mcm/d (2008 - 2014) and record peak demand of 465 mcm/d experienced in December 2010.
237. The gas market has delivered existing import infrastructure without government incentive, much of it since the mid-2000s, in response to the decline of UK gas production. Market demand for new assets is tested through an 'open season', and connection of this new infrastructure to the National Transmission System is triggered through an entry capacity auction run by National Grid. Total deliverability is set to improve this year with 30 mcm/d of new storage facilities due online within the next year.¹⁵⁷ In addition, there are 11 gas storage projects currently with planning permission, as well as proposals for three new liquefied natural gas terminals and expansion at an existing facility.
238. A report by Ofgem in 2012 suggested that UK gas infrastructure was able to cope with all but the most unlikely combination of high demand and infrastructure outages and DECC's 2014 Gas Risk Assessment showed that the UK is likely to cope with the loss of its single largest piece of gas infrastructure combined with severe 1-in-20 winter weather conditions.¹⁵⁸
239. In September 2014, Ofgem concluded the cash-out reform under the Significant Code Review. The commercial incentives on shippers to balance their positions will be sharpened by unfreezing the price in later stages of an emergency and pricing in the value

¹⁵⁶ *More interconnection: improving energy security and lowering bills*, Department of Energy and Climate Change, Dec 2013

¹⁵⁷ *Gas Ten Year Statement 2013*, National Grid, Dec 2013

¹⁵⁸ *UK risk assessment on security of gas supply*, Department of Energy and Climate Change, Jun 2014

of any lost supply to domestic consumers. This is expected to encourage gas shippers to guarantee their gas supplies and could include infrastructure resilience improvements.¹⁵⁹

240. Ofgem has also decided to pursue the development of a demand side response mechanism. Following changes to National Grid's licence, National Grid will develop and submit a demand side response methodology to Ofgem. If the methodology is approved, and the trial successful, such a mechanism should encourage greater participation by industrial and commercial consumers in reducing gas demand during periods of market tightness.

Gas Networks

241. UK has an extensive transmission and distribution network that is one of the most reliable in the world. Investment now focuses around replacing ageing assets and updating the system to handle the changing nature of gas flows around the country. Continued investment in the transmission and distribution network is required to keep it safe and reliable.
242. GB gas networks have agreed £19.9 billion expenditure for the current RIIO price control period (1 April 2013 until 31 March 2021). Of that, £14.4 billion is due to be spent on the distribution network and £5.5 billion is due to be spent on the transmission network.

Oil

243. The Government needs to ensure a secure and resilient oil supply at affordable prices whilst supporting investment and jobs. In 2013, demand for oil products stood at 66MT, with transport fuels (petrol, diesel and JET fuels) accounting for around 69% of UK oil consumption. 43% of total 2013 UK oil demand was met by imports, principally to meet the shortfall in production of diesel and jet fuels.¹⁶⁰
244. Although current UK fuel supplies are robust, the government recognises the importance of maintaining a viable midstream oil sector to deliver them. In April 2014, the Department of Energy and Climate Change published its *Review of the Refining and Fuel Import Sectors in the UK*.¹⁶¹ The review concluded that both refiners and importers in the UK play a critical role in supplying these oil products and that resilience and security of supply is supported by retaining a mix of domestic refining and imported product. The Government is aware of the significant challenges facing the sector, and in recognition of this and the actions coming out of the review a new joint Midstream Oil Government and Industry Task Force has been set up. The Task Force is taking forward work in a number of areas including looking at measures to improve resilience, international competitiveness and to consider any market distortions and regulatory burdens that are barriers to further investment.

Resilience

245. Our energy systems need to be resilient in the face of a wide number of risks which could cause disruption through flooding, other severe weather conditions, accidents, malicious physical or cyber-attack or industrial action. The Government therefore works to reduce the likelihood and impact of incidents and strengthen our capabilities to respond to incidents.

¹⁵⁹ *Gas Security of Supply Significant Code Review: Final Policy Decision*, Ofgem, Feb 2014

¹⁶⁰ *Digest of UK Energy Statistics*, Department of Energy and Climate Change, Jul 2014

¹⁶¹ *Review of the Refining and Fuel Import Sectors in the UK*, Department of Energy and Climate Change, Apr 2014

246. Following the disruptions to power supplies experienced by almost one million households in December 2013 the Secretary of State commissioned a review of the Distribution Network Operator response, which prompted two priority actions:
- Ensure Network Operators have access to better customer contact details, allowing them to proactively contact those who are disrupted to provide accurate information including on expected restoration times.
 - A programme plan for the delivery of a single national number for customers to use to contact their Network Operator in the event of a disruption.
247. The UK also maintains emergency oil stocks under obligations from the EU and International Energy Agency, in order to ensure resilience to global supply disruptions. In April 2014, government set out that, subject to an agreeable roadmap for this being prepared by obligated companies and presented to government, it supported the establishment of an industry owned and operated Central Stocking Entity in the UK. If this roadmap is acceptable the government will look to legislate for this as soon as parliamentary time allows.

Nuclear Safety, Security and Resilience

248. The Government continues to have a programme of investment to ensure all nuclear sites (current and legacy) remain safe and secure. Key actions on nuclear safety and resilience include:
- ensuring a robust safety and security framework for nuclear sites and the transportation of nuclear materials
 - planning to ensure robust co-ordination of national responses to incidents
 - working domestically and internationally to reduce risks to national and global security
249. The regulation of nuclear safety, security, emergency planning and transport is carried out by the independent civil nuclear regulator, the Office for Nuclear Regulation which was established as a statutory Public Corporation in April 2014 under the Energy Act 2013. The Office for Nuclear Regulation also ensures that the UK's nuclear safeguards obligations are met.
250. Following the International Atomic Energy Agency's Integrated Regulatory Review Service mission to the UK in October 2013, a final report identifying good practice, suggestions for improvement and recommendations was published on 16 April 2014. The Integrated Regulatory Review Service missions provide independent expert third party scrutiny to verify that nuclear regulatory systems are robust.
251. RIMNET (Radioactive Incident Monitoring Network) is the UK Government's national radiation monitoring and nuclear emergency response system. RIMNET is a monitoring system which provides an alert mechanism. It is funded by the Department of Energy and Climate Change and operated by the Meteorological Office. In May 2014, CGI was awarded a four year contract to provide application support services and security and facilities management to RIMNET. The contract went live on time and to budget in July 2014, ensuring no disruption to this critical monitoring service.

3.4 Managing our energy legacy responsibly

252. Energy generation from coal, nuclear and, oil and gas has played an important role in the UK's electricity mix. However, using these resources comes with associated clean up and certain health liabilities, as well as on-going commitments to former employees. These

liabilities are large, so tackling them safely, securely and cost-effectively, whilst minimising the burden for taxpayers, is important.

253. Coal liabilities mainly result from the health problems suffered as a result of mining activities; the continuing fulfilment of employee entitlements such as pensions; and above ground structural problems associated with the presence of underground mines. Nuclear liabilities arise due to the very long-term activity of spent fuel; nuclear waste; and materials arising from decommissioning which must be managed and protected for many decades. Oil and gas liabilities result from the need to safely stop production in fields that have reached the end of their lives, dismantle the infrastructure and ensure there are no long term environmental or other impacts.

Coal liabilities

254. The Coal Authority works to resolve the impacts of mining. It is responsible for the environmental and public safety liabilities arising from past coal mining in Britain, and for the licensing of coal. It continues to meet its statutory and regulatory obligations, whilst growing commercial value from its unique information, in-depth knowledge and expertise as part of its five year plan. The Authority has provided help to temporarily alleviate some of the financial obligations of the coal industry in England and Scotland, following their recent commercial difficulties. Experts at the Authority are playing an important advisory role across the UK on surface mine related restoration and bonding issues. On public safety, the Authority's experts have inspected 52,000 urban mine entries (90%). It will complete the remaining inspections by December 2014. The Authority was notified of 568 surface hazards during 2013/14, 55% were accepted as being related to coal mining.¹⁶² Its environmental work includes managing 70 mine water treatment schemes across Britain, which help to restore rivers and lakes from the pollution caused by past coal and metal mining and protect important sources of drinking water.

255. The Department of Energy and Climate Change's (DECC) latest (as at March 2014) assessment of outstanding coal mining health related liabilities estimates their value at around £234 million. Noise-related hearing loss continues to be the most significant source of claims.

256. DECC continues to work to implement the court judgments previously handed down on two group litigation actions. The first related to cancer and respiratory claims at a former plant in South Wales. As at 16 October 2014, 98% of the claims on the register had been settled. The second case which related to osteoarthritis of the knee amongst coal miners was successfully defended and the Department has been engaged in recovering its costs. In July 2013, DECC received notification of potential new compensation claims for former coke production workers employed by the nationalised coal industry. Discussions to narrow the issue are continuing with claimant solicitors.

257. As of 30 September 2014, the total number of beneficiaries of the National Concessionary Fuel Scheme was over 64,000. This figure includes ex UK Coal Operations Limited beneficiaries added to the scheme following the Chancellor of the Exchequer's announcement in November 2013. Of these, approximately 53,400 were taking their entitlement in cash and the balance, around 10,700, continuing to receive solid fuel. It is expected that this liability will continue for a further 50 years at a cost to the taxpayer of around £533 million. DECC continues to meet its obligations under this scheme.

¹⁶² *Annual Report and Accounts 2013–14*, Coal Authority, Jul 2014

Nuclear waste and decommissioning

258. As one of the pioneers of nuclear technology, the UK has accumulated a substantial legacy of civil nuclear facilities dating back to the early post-war years. The challenge is to clean up and restore these sites so they remain safe into the future, while long-term solutions are required for the large quantities of waste that will be radioactive for hundreds of thousands of years.

259. The Nuclear Decommissioning Authority (NDA), established in 2005, is charged with bringing a coherent national strategy to this challenging legacy of 17 historic nuclear sites and associated radioactive materials. Through its supply chains, the NDA is making an important contribution to UK growth, with some 18,000 people employed at sites across the UK and spending of £3.1 billion in 2013/14 via the site licence companies managing the various sites across the UK. There are also more than 3,500 companies in the supply chain.¹⁶³ 19% of NDA spend across the estate is with small and medium enterprises.¹⁶⁴

260. In the long term, the Government is committed to permanently disposing of our higher activity radioactive waste deep underground in a geological disposal facility. The Government's preferred approach is to work with interested communities, starting with two years of actions designed to provide more information before formal discussions start. Over the next two years, there will be a geological screening exercise, which will examine existing data on the UK's geology; the Government will then bring a geological disposal facility within the definition of a 'Nationally Significant Infrastructure Project' and define the details of how communities can become involved with the process.

North Sea oil and gas decommissioning

261. Like nuclear power, the development of offshore oil and gas has taken place over a number of decades in the UK. This now means that there are many offshore sites which have come to the end of their operational life.

262. The Department of Energy and Climate Change is currently working on the highest level of decommissioning projects in its experience. Through the Government's responsibilities for managing the decommissioning of offshore oil and gas installations, the aim is to minimise the risk of companies failing to meet their obligations and the cost of decommissioning falling to the taxpayer. The industry has already decommissioned 10% of the 618 installations and 25,000 kilometres of pipelines on the UK Continental Shelf. Work will be on-going on the remaining infrastructure for at least a further 20 to 30 years.

263. With an estimated £30 billion to £40 billion of decommissioning costs for the infrastructure currently on the UK Continental Shelf, this is a clear opportunity to support UK economic growth and has been highlighted in the Government's *Oil and Gas Industrial Strategy* as being an area where there is the potential for considerable supply chain growth.¹⁶⁵ Decommissioning cost reduction will also be an area of work for the new Oil and Gas Authority.

¹⁶³ Information available at: <http://www.nda.gov.uk/suppliers/>

¹⁶⁴ *SME Procurement Action Plan*, Nuclear Decommissioning Authority, Aug 2014

¹⁶⁵ *Industrial Strategy: Government and industry in partnership – UK oil and gas business and government in action*, HM Government, Mar 2013

4. Driving international action on climate change

264. Climate change is happening. There is little doubt that human activity is the dominant cause. If we do not act the impacts are expected to become increasingly severe.¹⁶⁶ All countries will be affected, regardless of their own levels of emissions now or in the past. No country can insulate themselves from threats to global food supplies, damage to the global economy or global instability caused by resource scarcity.
265. In the face of this threat, the UK Government's aim, and the internationally agreed goal, is to limit global temperature rise to an average of no more than 2°C above pre-industrial levels. As made clear throughout this Statement, the Government is committed to playing its part to transition to a low carbon economy, whilst maintaining security of supply and affordability. However, the UK accounts for only around 1.5% of global emissions, and so this goal cannot be achieved by acting alone. Instead we need a global response for a global issue, to address the challenge that climate change presents to prosperity, security, resources and the environment in all countries.¹⁶⁷
266. The international body responsible for agreeing action is the United Nations Framework Convention on Climate Change (UNFCCC). With its 195 country membership, it is the only forum which has the legitimacy, coverage and buy-in to deliver the global response needed. Through it, the Kyoto Protocol was agreed and 38 countries took legally binding quantified emission reduction commitments for the period 2008-12. The EU delivered on its commitment to reduce emissions by 8% over the period compared to 1990. In 2012, countries decided to enter into a second commitment period, which runs from 2013-2020. The EU has committed to reduce emissions by 20% by 2020 compared to 1990, and is on track to meet this commitment.¹⁶⁸
267. Since the UNFCCC Conference of the Parties (COP) meeting in Copenhagen in 2009, over 90 countries (accounting for around 80% of global emissions), have submitted pledges to reduce their emissions by 2020. If countries only reduce emissions in line with the lower end of these pledges it will result in a reduction of 3-4 GT CO₂e per annum by 2020 compared to business as usual. However, despite this action, there will still be a gap in 2020 to be on a cost-effective trajectory consistent with the 2°C goal.
268. The 2013 UNEP Emissions Gap Report sets out the extent of the gap in 2020 between business as usual and cost-effective trajectories consistent with the 2°C goal (Figure 23). The chart also shows the expected impact of the Copenhagen pledges which, depending on whether they are delivered at their high or low level of ambition, still leave a gap of

¹⁶⁶ *Summary for policymakers. In: Climate Change 2014: Impacts, Adaptation, and Vulnerability Part A: Global and Sectoral Aspects. Contribution of Working Group II to the Fifth Assessment Report of the Intergovernmental Panel on Climate Change, IPCC, 2014*

¹⁶⁷ *Climate Analysis Indicators Tool: WRI's Climate Data Explorer*, World Resources Institute. Available at: <http://cait2.wri.org> [Accessed 2 September 2014]

¹⁶⁸ *Communication: A policy framework for climate and energy in the period from 2020 to 2030*, European Commission, 2014

between 8 and 12 GT of CO₂e. This gap is more than the entire yearly emissions of the US at the low estimate, and the entire yearly emissions from China at the high end.¹⁶⁹ Further effort at all levels in the period up to 2020 and beyond will be vital.

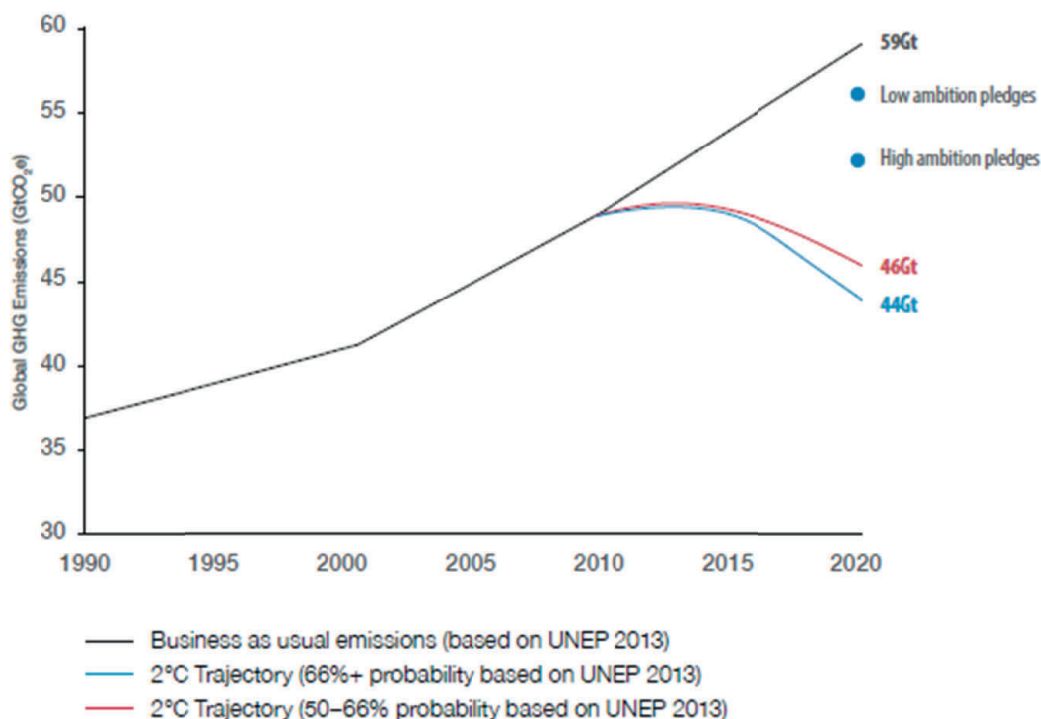


Figure 23. Gap between current pledges and emission levels needed in 2020 for a medium or likely chance of meeting 2°C goal¹⁷⁰

4.1 Ensuring progress in multilateral negotiations

269. The best chance of securing the scale of action required is through a global legally binding agreement to reduce emissions. A global agreement can drive further action, build confidence among countries that all are acting, encourage low-carbon investment, innovation and entrepreneurship by giving policy confidence and include provisions to help the poorest and most vulnerable also meet these challenges.

270. We have made progress in the international negotiations. The UNFCCC Conference of the Parties (COP) 17 in Durban in 2011 was a major turning point where all countries in the UNFCCC committed to:

(a) agree by 2015, a new global, legally binding deal, applicable to all nations, to come into force by 2020¹⁷¹

(b) to increase effort to reduce emissions in the period before 2020

271. COP18 in Doha in 2012 reinforced progress on both of these issues. All countries reiterated their commitment to negotiate a new deal by 2015 and to identify actions to help reduce further emissions before 2020. Developed countries demonstrated that they had met their Fast Start Finance commitment of providing \$30 billion of climate finance by the

¹⁶⁹ *Climate Analysis Indicators Tool: WRI's Climate Data Explorer*, World Resources Institute. Available at: <http://cait2.wri.org>

¹⁷⁰ *The Emissions Gap Report 2013*, United Nations Environment Program, Nov 2013

¹⁷¹ *Establishment of an Ad Hoc Working Group on the Durban Platform for Enhanced Action*, UNFCCC, Dec 2011

end of 2012 (within which the UK met its fair share, with a contribution of £1.5 billion between 2010-12). Additionally, the EU alongside a number of other countries agreed to a second commitment period of the Kyoto Protocol to bridge the period until the new global agreement comes into force in 2020 and to help ensure continuity of the international legal framework and rules until then.

272. COP19 in Warsaw in 2013 saw further important progress towards adopting the new agreement. All countries agreed a work programme and timetable through to the end of 2015, including every country agreeing to start, or intensify, their domestic preparations for the new global deal.
273. Additionally in Warsaw, the UK Government continued its strong record of leading on climate change action, announcing extra help for some of the world's poorest to adapt to the impacts of climate change by committing to provide £50 million to the Least Developed Country Fund. The UK Government also unveiled a major new package of support for tackling deforestation including a £75 million contribution to a new fund for forested landscapes in partnership with Norway and the United States; a willingness (subject to the development of high quality project proposals) to provide further funding to the world-leading multilateral forestry initiative, the Forest Carbon Partnership Facility Carbon Fund; as well as, Colombia's programme to achieve a zero-deforestation Amazon. The UK also announced a change to development policy in order to bring an end to UK public financing of new coal-fired power plants overseas, except in rare circumstances.

4.2 Building political momentum

274. The lead up to Paris will be important in making progress and building momentum and the next 14 months will see intense negotiations and preparations for a new agreement.
275. In early September, we published HM Government's vision for an ambitious and fair global deal '*Paris 2015: Securing our prosperity through a global climate change agreement*'.¹⁷² The publication considers the latest climate science on risks and impacts; the benefits of low carbon action for our prosperity, security and well-being, showcasing many leading businesses in the UK who are already realising the commercial gains of climate action; the gap in global emission reduction efforts and recent progress on global action. It recognises that whilst much more is needed a global climate agreement is now within reach and it sets out what we are aiming to see from it. It demonstrates that the UK remains committed to climate action and an ambitious international climate change deal in Paris in 2015.
276. The economic evidence for climate change action is supported in the New Climate Economy report, *Better Growth Better Climate*, which was commissioned by seven countries including the UK, and published by an independent Global Commission in September 2014.¹⁷³ The Commission brought together 24 economic leaders from government, business, civil society, and academia from across 19 countries, and was advised by a group of world-leading economists, including Lord Nicholas Stern and two Nobel laureates.
277. The underlying message of this report is that action on climate change and growth can go hand-in-hand. The Commission has created a ten point Global Action Plan with recommendations on how, by harnessing the power of markets, prosperity and a safer climate can be achieved together. This will create new opportunities to improve growth,

¹⁷² *Paris 2015: Securing our prosperity through a global climate change agreement*, HM Government, Sep 2014

¹⁷³ *Better Growth, Better Climate: The New Climate Economy Report*, The Global Commission on the Economy and Climate, Sep 2014

create jobs, boost company profits and spur innovation for countries that take action now. The New Climate Economy report concludes that climate action is not only required to reduce climate risks; it is also vital to building long-term, sustainable economic growth.

278. The UN Secretary General's Leaders' Summit, which the Prime Minister, the Secretary of State for Energy and Climate Change and the Parliamentary Under Secretary of State for Climate Change attended, took place on 23 September and was another important step in building political momentum for an ambitious global deal in Paris in 2015. Key outcomes for the UK included the strong endorsement from governments, companies, civil society and indigenous people's organisations of the New York Declaration on Forests. The Declaration includes a collective commitment to halve natural forest loss by 2020 and halt it by 2030, and actions which could reduce emissions by 4.5 billion to 8.8 billion tons per year by 2030.
279. The UK also committed additional funding for projects to tackle deforestation, including £45 million for the Forest and Carbon Partnership Facility Carbon Fund, an additional £84 million for the Forest Governance, Markets and Climate Programme, and a new £60 million programme, Investments in Forests and Sustainable Land Use, which will support public-private partnerships and smallholder farmers. A joint statement by the UK, Germany and Norway signalled our collective commitment to fund up to 20 new large-scale emission reduction programmes if forest nations put forward robust, credible proposals by the end of 2016. Finally, the UK announced further cuts to emissions from pollutant gases through the Climate and Clean Air Coalition, supporting the US-led Oil and Gas Methane Partnership.
280. This year's COP will be held in Lima, Peru in December. The UK Government wants this COP to pave the way for countries to bring forward their contributions to the new agreement early next year, as agreed in Warsaw, and to agree the elements of a draft negotiating text for the new agreement. Both of these, along with significant progress towards initial capitalisation of the new Green Climate Fund, will demonstrate that the world remains firmly on track to agree the new global deal at the end of 2015.

4.3 Driving international action

281. Alongside the international negotiations, many countries are making progress in cutting emissions not only to tackle the worst impacts and costs of climate change, but to also to improve their quality of life, their environment, energy security, energy efficiency, health and capitalise on the growing low-carbon market.
282. The world's two largest emitters, China and the United States, for example, are taking action. President Obama's Climate Action Plan published in 2013 set out a wide range of domestic actions designed to set the United States on a pathway to hit its 2020 target, including the regulation of coal power plants. China has committed to reduce the carbon intensity of its economy by 40-45% by 2020 compared to 2005 levels, has capped the use of coal in four provinces (Beijing, Tianjin, Hebei and Shandong) and set targets for three major regions to reach peak coal use by 2017 and then decline.
283. Other countries are also taking action. GLOBE International's Climate legislation Study released earlier this year, reported that 61 of the 66 countries studied had passed laws to promote domestic, clean sources of energy and 54 had legislated to increase energy efficiency.¹⁷⁴ Alongside the UK, climate change related legislation has either been implemented or is being progressed in 32 major economies, including Brazil, China, India, Mexico and South Africa. Over 40 national and over 20 sub-national jurisdictions are now putting a price on carbon and the number of national and regional markets is increasing

¹⁷⁴ *GLOBE Climate Legislation Study: 4th Edition*, GLOBE International, Feb 2014

steadily. This includes China, South Korea and US schemes in nine north eastern states and California – which has now linked with Quebec.

284. Changing political conditions in other countries is also essential – and the UK is working hard on this through the Foreign and Commonwealth Office’s overseas network. The UK Government is engaging with other countries to share expertise gained from developing and implementing domestic energy and climate change policies. This is to help encourage greater domestic emissions reductions from large emitters such as the United States, China, India and other emerging economies, whose ambition is crucial for limiting global temperature rises to an average of no more than 2°C above pre-industrial levels. For example, over the last few years, the UK Government has assisted China in the development of its seven pilot emissions trading schemes and run policy sharing projects on topics ranging from energy efficiency governance to low carbon urbanisation. Similarly, the UK has worked closely with Washington State, to share policy expertise on carbon markets, green transport and clean technology investment. The UK Government will continue to take advantage of opportunities such as these to make the case that the shift to low carbon can be good for prosperity, security and growth.
285. DECC’s Secretary of State, Ed Davey, visited Washington DC, USA, on 1-2 July to meet senior Administration figures to discuss and support progress on climate change and emissions reductions, as set out by the President’s Climate Action Plan. The Secretary of State also met White House and business representatives, energy experts, think tanks and other stakeholders to understand their views on these topics and implementation of the Plan.
286. On 21-25 July, the Secretary of State visited China and India (the world’s first and third largest emitters) to discuss their respective positions on climate change and emissions reductions. In Beijing, he discussed deepening low carbon collaboration as well as progress towards an agreement in 2015 with the Chinese government, whilst meeting with finance, business and academic experts to understand China’s domestic action to reduce emissions. In India, the Secretary of State first visited Prime Minister Narendra Modi’s former state of Gujarat to see first-hand how Modi’s wide-ranging economic and policy reforms have resulted in impressive low carbon growth. In Delhi, he met the three Ministers collectively responsible for India’s policy on energy and climate change to understand the new government’s views on low carbon development and climate change, alongside businesses, NGOs and academics.

4.4 EU leadership

287. Working with the EU, and demonstrating leadership at an EU level, is critical to achieving the UK Government’s international energy and climate change objectives. EU leaders have committed to transforming Europe into a highly energy efficient and low carbon economy. With the agreement of the 2030 climate and energy policy framework, the EU now has an ambitious target to reduce domestic greenhouse gas emissions by at least 40% on 1990 levels.¹⁷⁵ Heading into global climate talks, the EU currently has the most ambitious climate pledge of any major economy. The UK Government will continue to work closely with the European Commission and other EU Member States in implementing this framework and negotiating internationally for a global deal on climate change.
288. The UK Government also believes that the EU should not stop at a 20% emissions reduction target for 2020 but should go further, adopting a 30% cut in emissions by 2020 (against 1990 levels). To this aim the Government continues to support measures that will

¹⁷⁵ *Conclusions – 23/24 October 2014*, European Council, October 2014

deliver enhanced emission savings in the EU, including implementation of the EU Energy Performance of Buildings Directive, the EU Energy Efficiency Directive and reforming the EU Emissions Trading System (EU ETS), where we have welcomed the proposal for a Market Stability Reserve, but called for the mechanism to be strengthened.

289. The UK Government played a leading role in the development of the EU 2030 Climate and Energy Framework, achieving an outcome that will facilitate the investment needed to ensure the EU remains on a cost-effective path to its long term emissions objectives, whilst maintaining energy security and affordability for commercial and domestic customers. The UK Government successfully argued for the EU to adopt a unilateral EU-wide domestic greenhouse gas target for 2030 of at least 40%. The UK will now push for the EU to use the flexibility built into this goal to offer increased reductions up to 50% in the context of an ambitious and comprehensive global climate agreement for the period beyond 2020.
290. The EU 2030 framework includes a renewables target of at least 27%, which is binding at an EU level. The UK secured a guarantee in the framework that this will be not be translated into nationally-binding targets. This sends a strong signal on the future role for renewables in Europe, whilst still leaving flexibility for Member States to meet their decarbonisation objectives in the most cost effective way.
291. UK influence and engagement substantially shaped the development of the package. The UK was instrumental in creating and coordinating the 'Green Growth Group' of environment, energy and climate ministers from 14 like-minded member states to make the economic and strategic case for urgent agreement to an ambitious 2030 package. The UK worked consistently to build a coalition of allies and to understand the challenges facing key countries through a range of constructive bilateral relationships, with the Secretary of State travelling to 13 Member States in the two years prior to the agreement. UK engagement with businesses and wider civil society helped further to build a strong movement campaigning in Brussels and across national capitals for ambition and reform.
292. In order to decarbonise cost-effectively and to get the best deal for business and consumers, EU energy and climate change policy must be underpinned by a strong, integrated internal energy market and a robust, reformed EU ETS. The UK was a strong voice behind the reforms to the ETS announced in the 2030 framework, where European leaders once again highlighted the ETS as the main instrument for reducing greenhouse gas emissions cost-effectively across the EU. The Council's endorsement of an instrument to stabilise the market provides timely momentum for the on-going reform debate. The UK's position, published on 20 October, supports the introduction of a strengthened Market Stability Reserve, including by bringing it forward to 2017 and placing backloaded allowances into the reserve. At the same time, the UK remains committed to preserving the competitiveness of energy intensive industries and we welcome the Council's pledge to maintain but improve and focus EU ETS carbon leakage provisions in the post-2020 period.
293. As part of a functioning internal energy market, it is important that the EU maintains a state aid regime that ensures a level playing field across the EU. The UK actively engaged in the Commission's State Aid Modernisation Programme, supporting the objectives of a faster, streamlined process for state aid decisions. This has resulted in the adoption of the 2014 Guidelines on state aid for environmental protection and energy. The 2014 Guidelines build on the previous 2008 Environment Aid Guidelines and now also address key energy issues including energy security and competitiveness of energy intensive industries. Already this year UK has achieved state aid approval for compensation to energy intensive industries from the indirect costs of the Carbon Price Floor, the Capacity Market, Contracts for Difference for Renewables and five "Final Investment Decision enabling for Renewables" offshore wind projects. Most recently, on 8th October, the European

Commission announced that it had approved the Hinkley Point C State aid case, enabling the first new nuclear power station in a generation to move a significant step closer.

4.5 Supporting low carbon, resilient economies

294. Helping developing countries to take action to reduce poverty by assisting them to take up low carbon development, protect forests and to adapt to the impacts of climate change remains an important focus. The UK Government has allocated £3.87 billion between 2011/12 and 2015/16. Between April 2011 and April 2014 the UK Government spent £1.76 billion of this allocation.
295. The UK Government is using the International Climate Fund (ICF) to invest in transformational approaches that can deliver value for money and be scaled up and replicated by others to enable longer term shifts in low carbon, climate resistant investment. The Department of Energy and Climate Change is testing a range of interventions that aim to:
- drive private investment into low carbon
 - support the deployment of technologies that are critical to closing the gap to 2°C, but which are not on track globally
 - improve the architecture for climate finance to enable effective delivery at scale
 - build capacity in priority countries to support their ability to access climate finance and to deliver results at scale in the future
296. The ICF demonstrates the Government's commitment to scaling up climate finance beyond the Fast Start period (2010-2012) to meet a fair share of mobilising \$100 billion of public and private international finance per year from 2020 as set out in the Copenhagen Accord. The Government also fully supports the development of the Green Climate Fund. The UK is considering its contribution and will be actively participating in the resource mobilisation process.
297. The Government is encouraging other countries and actors to scale up their international climate finance. To help deliver on this commitment and scale up private flows of climate finance, the Capital Markets Climate Initiative has been established. This is a platform for public-private engagement that informs policy thinking and the design and implementation of practical solutions to mobilise private finance being sought for support through the ICF.
298. The UK Government is also working to establish public-private dialogue and collaboration at a global level. For example, the UK is working with the United States, Germany and other countries on the 'Global Innovation Lab Climate Finance'. This is a senior body of finance and development experts which will develop the next generation of finance instruments to unlock private investment into low carbon development at scale. In June this year, the UK hosted the Clean Energy Finance Summit, bringing together over 140 delegates from across the clean energy investment chain – including project developers, financiers and ministers from developing countries - to stimulate action in clean energy investment.
299. The UK is building on the success of its 2050 Calculator, which can outline, in minutes, months of work from technical experts; providing answers to the fundamental questions of how far you can reduce emissions and meet energy needs. It is doing this by providing support through the ICF to build similar tools in Brazil, Indonesia, Mexico, Nigeria, Vietnam, Algeria, Bangladesh, Colombia and Thailand. India, South Africa, China, Taiwan and Japan have all published their own version of a 2050 Calculator online, which offers a transparent

way of exploring their low emissions pathways over the coming decades.¹⁷⁶ DECC is also part of an international consortium building a Global Calculator. The first version was published online on 21 July 2014 for feedback from stakeholders, with the full launch scheduled for December 2014.¹⁷⁷ It allows the user to explore the impact of different standards of living on global emissions, and the subsequent climate impacts of these choices.

¹⁷⁶ The UK 2050 Calculator, Department of Energy and Climate Change. Available at: <https://www.gov.uk/2050-pathways-analysis>

¹⁷⁷ Available at: <http://www.globalcalculator.org>

Annex A: DECC's consumer funded policies

A.1 Introduction and scope

1. A number of DECC's policies place obligations on energy suppliers. Energy suppliers are not obliged to pass the cost of fulfilling these obligations on to consumers, but it is expected that suppliers will reflect the cost of compliance with these policies in the energy tariffs they offer.
2. This report sets out the actual expenditure and outcomes of DECC's consumer funded policies for recent financial years, and their projected expenditure over the planning horizon for each individual policy. Its purpose is to collate the gross costs and outcomes of these policies in a single, easily accessible document to provide even greater transparency than is currently possible. The intention is that this report will be published annually. Where final outturn figures for 2013/14 are not yet available, provisional figures are provided below and these will be updated in 2015.
3. It is important to note that this report on consumer funded policies does not set out the net impact of all policies on consumer bills. DECC analysis shows that the bill savings delivered through energy efficiency policies and the Warm Home Discount are estimated on average to more than offset the cost of policies on household energy bills – household energy bills are estimated to be, on average, £90 (6%, 2014 prices) lower in 2014 compared with what they would have been in the absence of policies.
4. Business energy bills are estimated to be higher in 2014 as a result of energy and climate change policies. For the majority of business, energy costs form a small proportion of total operating costs (around 3% overall), and the impact of policies is estimated to contribute to around 1% higher operating costs overall. For energy-intensive industries (EII), the Government has introduced a number of measures to help limit the impact of policies on their competitiveness.
5. This report does not cover the core energy company costs of delivering energy to consumers and associated initiatives to reform and modernise the energy system such as settlement reform (i.e. updating the way the costs of purchasing and settling electricity on a half-hourly basis are allocated between energy suppliers), the modernisation of the metering system (i.e. smart metering), or the work to enable faster switching processes or simplification of tariffs.

A.2 Supporting renewable and low carbon electricity generation within the Levy Control Framework

6. Expenditure on policies to support renewable and low carbon electricity generation is governed by the Levy Control Framework (LCF). The LCF allows Government to control public expenditure paid for through consumers' energy bills, and reflects the importance Government places both on keeping bills affordable and supporting renewable and low carbon electricity generation.

7. Annual caps for the total projected costs of schemes within the LCF have been set to 2020/21. In effect, the LCF is the spending envelope within which renewable and low carbon electricity policy is made.

A.3 Levy expenditure and outcomes: 2011/12 – 2014/15

8. Table 1 opposite shows the actual expenditure under the existing levy schemes, the Renewables Obligation (RO) and the Feed-in Tariff (FIT) scheme, and their outcomes in terms of generating capacity installed and renewable electricity generated (with forecasts where actual figures are not yet available).¹ The final row shows the increasing proportion of total electricity generated from supported renewable sources.

¹ The intention of the FIT scheme is to encourage deployment of small-scale, low-carbon electricity generation, particularly by organisations, businesses, communities and individuals that have not traditionally engaged in the electricity market.

	2011/12	2012/13	2013/14	2014/15
	Actual			Forecast
RO spend (£m)	1,460	1,895	2,395 ²	2,795
RO GW ³	11.6	14.0	15.9	18.1
RO TWh ⁴	30.7	35.5	48.0 ⁵	52.4
	Actual		Forecast	
FIT scheme spend (£m) ⁶	150	480	590	700
FIT scheme GW ⁷	1.1	1.8	2.7	3.6
FIT scheme TWh ⁸	0.5	1.7	2.6	3.6
Supported renewable electricity generation as a share of overall generation ⁹ (%)	8.6	10.2	14.4 ¹⁰	15.3 ¹¹
Total expenditure (£m, 2011/12 prices)	1,610	2,375	2,985	3,495

Table 1: Expenditure and outcomes for existing renewable electricity generation levy schemes¹²

² This is the outturn spend based on the outturn obligation for 2013/14 published by Ofgem on 2 Sep 2014. Please see: <https://www.ofgem.gov.uk/publications-and-updates/renewables-obligation-total-obligation-2013-14>.

³ All actual total capacity installed (GW) figures were first published in Ofgem's Renewables Obligation Annual Reports except the capacity for 2013/14, which is currently a forecast based on the RO setting exercise for that year.

⁴ All actual electricity generation figures under the RO were first published in Ofgem's RO Annual Reports. These generation figures are based on ROCs presented/redeemed by suppliers for that financial year and so are consistent with RO spend. However, some of these ROCs may have been banked from previous years, and equally some ROCs issued for generation in that financial year may be banked for future years. There is therefore an inconsistency with the overall generation figure, which is entirely for generation that has taken place in that financial year.

⁵ The generation figure for 2013/14 is based on ROCs redeemed for that year as published by Ofgem on 10 Sep 2014: <https://www.ofgem.gov.uk/publications-and-updates/renewables-obligation-number-rocs-presented-towards-2013-14-obligation>.

⁶ All actual spend figures (2010/11-2012/13) were first published in nominal terms in Ofgem's FIT Annual Reports. The actual for 2013/14 will be available in Ofgem's FIT Annual Report for 2013/14, due to be published in December 2014.

⁷ All actual total installed capacity figures were first published in Ofgem's FIT Annual Reports. Total installed capacity in 2013/14 will be published in Ofgem's FIT Annual Report for 2013/14.

⁸ All actual electricity generation figures were first published in Ofgem's FIT Annual Reports. Electricity generation in 2013/14 will be published in Ofgem's FIT Annual Report for 2013/14.

⁹ Not all renewable electricity generation is supported through the FIT or RO schemes. For example, most large-scale hydro and energy from waste schemes are not eligible for support.

¹⁰ The FITs component of this proportion is currently a forecast. Actual generation under the FIT scheme will be published in Ofgem's FIT Annual Report in December 2014.

¹¹ This forecast is based on a forecast of overall gross supply generation, as published in Annex J to DECC's *Updated energy and emissions projections – 'Total electricity generation by source'*. Available at: <https://www.gov.uk/government/publications/updated-energy-and-emissions-projections-2014>.

¹² All expenditure in Table 1 is in £ million, 2011/12 prices and rounded to the nearest £5m. All capacity figures are rounded to the nearest 0.1GW; all generation figures to the nearest 0.1TWh.

A.4 Estimated committed and projected levy expenditure from 2015/16 - 2020/21

9. Table 2 opposite sets out the estimated committed, or legacy, spend for renewable electricity generating plants that are already operating (or plant that is assumed to be operating by the end of 2014/2015) under the current levy schemes, until 2020/21. These legacy costs are relatively fixed, although they include the projected deployment of projects under the RO and FIT scheme by the end of 2014/15, and therefore could be higher or lower depending on the level of actual deployment in this financial year.
10. Table 2 also shows projections of spend for new build renewable electricity generation under the RO, the FIT scheme and the awarded investment contracts under the Final Investment Decision enabling for Renewables programme (FIDeR), or early CfDs. The table then shows the potentially remaining LCF funds available to spend on future renewables and carbon capture and storage projects, after the other scheme projections are subtracted from the LCF upper limits.
11. The final line shows the combined total of allocated (for 2014) or indicated (for 2015) budget for CfDs that DECC announced in the CfD budget notice and accompanying explanatory note on 2 October 2014.¹³ The CfD budgets shown below represent the *maximum* possible spend in each year. While DECC cannot predict the outcome of any auctions, we do not expect the full budget allocation will be spent in every year because of projects' different capacities and start dates.¹⁴ The actual outcome of any auctions will determine outturn spending under CfDs. DECC does not anticipate spending above the LCF cap in any year, including 2016/17, which is the first year budget is available for less established technologies.
12. The announced budget does not include any potential budget allocations for 'less established' technologies in a 2015 allocation round (as these will be decided in 2015), any future allocation rounds beyond that date and nor does it include the budget for CfDs that could be awarded through bilateral arrangements.
13. For the projections of the other schemes, these represent the Department's current best assessment of future expenditure. They are based on commercial intelligence on potential renewables deployment, and DECC's modelling outputs drawing on DECC's latest projections of electricity demand and fossil fuel prices. The future is inherently uncertain and no model is able to forecast the future perfectly. This is particularly true when models seek to understand novel and/or complex areas. The modelling DECC uses to produce these projections is sensitive to a number of input assumptions, and users of these projections must take this uncertainty into account when interpreting these projections.
14. In particular, the RO and the FIT scheme are demand-led schemes, meaning that updated projections and actual expenditure will depend on which projects do or do not deploy. Furthermore, until the end of 2016/17, projects of most technologies can seek support under either the RO or CfD schemes, resulting in further uncertainty over the projection for each individual scheme. Projections of spend on investment contracts (early CfDs) and CfDs following their award are also subject to uncertainty around future wholesale electricity price forecasts, commissioning dates and load factor assumptions.

¹³ Available at: <https://www.gov.uk/government/publications/cfd-budget-notice>

¹⁴ Actual spend in each year will depend on the capacities and start dates of the cheapest projects and the clearing price of any auctions. We do not anticipate that projects will generate for the full year in their first year of generation.

<i>£m 11/12 prices</i>	2015/16	2016/17	2017/18	2018/19	2019/20	2020/21
LCF upper limits	4,300	4,900	5,600	6,450	7,000	7,600
Estimated committed expenditure						
FIT scheme ¹⁵	760	760	760	760	760	760
RO ¹⁶	2,895	2,795	2,795	2,795	2,795	2,795
Projected expenditure on new build						
FIT scheme	40	125	200	260	315	365
RO	460	790	985	1,160	1,160	1,160
Early CfDs (FIDeR ICs) ¹⁷	30	280	355	780	1,040	1,155
LCCC operating costs ¹⁸	10	15	15	15	15	15
Potentially remaining budget against the LCF upper limits for new build, large-scale low carbon generation	105	135	490	680	915	1,350
Of which CfD budget announced to date	50	270	350	350	350	350

Table 2: Estimated committed expenditure on existing generating capacity and projected expenditure on new build renewable generation

The Capacity Market

15. The Capacity Market will be paid for through the Levy Control Framework, but Capacity Market spend will be in addition to existing £7.6 billion Levy Control Framework cap for low carbon electricity. The first payment for the main Capacity Market scheme will be made in 2018 – although payments under the transitional arrangements will commence in 2016.¹⁹ Updated Capacity Market budgets will be set for each capacity year following the outcome of the auctions for that year.

¹⁵ This is estimated legacy spending on projects that will have come forward by the end of 2014/15. It could be higher or lower depending on levels of actual deployment.

¹⁶ This is estimated legacy spending based on the Renewables Obligation set for 2015/16 but could be higher or lower depending on actual new generating plant that deploys in this financial year

¹⁷ This assumes that the early biomass CfD contracts receive State Aid approval. State Aid approval for the early offshore wind CfD contracts was granted on 23rd July 2014.

¹⁸ This is an early estimate of the Low Carbon Contracts Company's (LCCC) operating costs. An updated budget will be consulted on each autumn. For the 2015/16 costs, this consultation is expected to happen in November 2014.

¹⁹ These arrangements are intended to provide the emerging Demand Side Reduction sector and small-scale generation with a pathway to the Capacity Market.

A.5 Tackling fuel poverty: the Warm Home Discount scheme

16. The Warm Home Discount is also classified as a levy and as such is included in the Levy Control Framework. However it is not included in the limits for low carbon electricity shown above. The scheme provides a discount of up to £140 on the electricity bill of qualifying applicants in 2014/15.²⁰
17. In 2013/14, total spending on the Warm Home Discount by suppliers was £291 million. Of the total, £249 million was spent on direct rebates resulting in over 1.8 million households receiving £135 off their electricity bills. Overall, more than 2 million low income and vulnerable households received assistance under the scheme.
18. The scheme has a spending target of £320 million for 2015/16. There are no commitments beyond that year.

A.6 Improving energy efficiency: the Energy Company Obligation

19. The Energy Company Obligation (ECO) is a business regulation and does not form part of the Levy Control Framework. However it is ultimately funded by energy consumers, since the activity needed to meet the obligation imposes significant costs on energy suppliers which they will need to recoup from income from consumer bills. It is therefore appropriate to consider its costs in this report.
20. ECO falls on larger energy suppliers (those with more than 250,000 customer accounts), and its targets are expressed not as expenditure but as set levels of carbon emissions reductions, and nominal reductions in household heating bills, which the companies have to meet by funding energy efficiency improvements in homes across Great Britain.
21. As the targets are non-financial, compliance costs cannot be set out with certainty. The Department has worked closely with the obligated companies to create a degree of transparency on the actual incurred costs of the obligation, and this (historical) information is published quarterly alongside official statistics; but there are inevitable uncertainties around projected future costs and the figures should be treated with caution.
22. The Government has previously confirmed that ECO is intended to be both ambitious and long-term, extending through until at least 2022. However, as legally-binding targets have currently been set only for the period to March 2017, detailed estimates of ECO costs to the energy companies are only available for this period, and were published in the Impact Assessment alongside the Government's recent consultation response on ECO.²¹ These estimates are set out in the table below.

<i>£m 2013 prices</i>	Jan 2013 – March 2014	April 14 – March 15	April 15 – March 16	April 16 – March 17
ECO Costs	£1,475m	£787m	£787m	£787m

Table 3 – estimated spend on ECO compliance

23. Since the scheme commenced in January 2013, 900,000 measures have been installed, benefiting 740,000 homes (these are provisional figures). This is associated with energy

²⁰ Full details of the scheme can be found at: <https://www.gov.uk/the-warm-home-discount-scheme/overview>

²¹ Available at:

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/335098/20140721_The_Future_of_ECO_consultation_Final_IA.pdf

suppliers delivering 11.5 million lifetime tCO₂ savings, and £4 billion lifetime heating cost savings to low income and vulnerable households.

24. By March 2017, assuming energy suppliers meet their targets, they will have delivered 32.8 million lifetime tCO₂ savings under the carbon targets and £7.9 billion lifetime heating cost savings under the Affordable Warmth target. We estimated in our IA that, to meet these targets, 1.87 million households will be supported through the installation of around 1.6 million insulation measures and 0.5 million heating measures.

Department of Energy & Climate Change
3 Whitehall Place
London SW1A 2AW
www.gov.uk/decc
URN 14D/379

