



Department
of Energy &
Climate Change

Annual Energy Statement 2012

November 2012



Annual Energy Statement 2012

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

November 2012

Please note that this is not the original version of the document laid before Parliament, but it incorporates a correction to paragraph 1.10, which has been provided to Parliament after laying and original publication

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Annual Energy Statement 2012

1. Overview

- 1.1 Energy is fundamental to our way of life and it is fundamental to our economy – from powering our appliances and heating our homes to fuelling our transport and running our industries. The Government's vision is for a thriving, globally competitive, low carbon economy. Energy Policy is guided by the following objectives:
- energy security: to ensure that UK businesses and consumers have secure supplies of energy, for light and power, heat and transport;
 - climate change: to lead the UK Government's efforts to prevent dangerous climate change, both through international action and through cutting our own greenhouse gas emissions. We have legally binding targets to cut our emissions by at least 80% by 2050¹, and to source 15% of our energy from renewable sources by 2020;
 - affordability: deliver secure, low-carbon energy at least cost to consumers, taxpayers, and the economy as a whole;
 - support growth: deliver our policies in a way that maximises the benefits to the economy in terms of jobs, growth and investment, including by making the most of our existing oil and gas reserves and seizing the opportunities presented by the rise of the global green economy;
 - fairness: ensure that the costs and benefits of our policies are distributed fairly, so that we protect the most vulnerable and fuel poor households and address any competitiveness problems faced by energy intensive industries; and
 - to manage the UK's energy legacy safely, securely and cost effectively.
- 1.2 In the near term, the UK faces challenging economic circumstances, with uncertainty from the eurozone, consumers and businesses both feeling the squeeze, and a slow and cautious investment climate. In this context, there are two immediate priorities for UK energy policy: upgrading our energy infrastructure in order to rebuild our economy, and putting households back in control of their energy bills. Improving energy efficiency has a critical role to play in achieving these goals.
- Rebuilding our energy infrastructure**
- 1.3 Now is the right time to invest in the UK's ageing energy infrastructure and to replace it with a diverse low carbon, efficient, energy mix. Around a fifth of power stations operating in 2011 have to close over this decade, and investment is needed if we are to maintain the secure energy supplies that are critical to our economy and our way of life. This investment is also key to getting our economy moving. With consumers cutting back on spending, and international demand weak, this creates the right conditions to attract private sector investment in our national infrastructure offering a way to boost economic activity, and support supply chains, jobs and skills development.
- 1.4 At the same time, the need to invest in our energy infrastructure offers an opportunity to accelerate progress towards decarbonising our economy. There is a considerable investment opportunity for the UK in addressing the cost effective efficiency potential we

¹ The Climate Change Act 2008 established a legally binding target to reduce the UK's greenhouse gas emissions to at least 80% below 1990 base levels by 2050, and to achieve a 50% reduction in emissions over the 2023-27 period.

have identified in the recent Energy Efficiency Strategy². Current and planned energy efficiency policies help to limit the rise in overall consumption by 2020 but demand for electricity is likely to rise as sectors of the economy are electrified over time, such as heating, and transport. We should take the opportunity to lock in lower carbon emissions in the power sector, while reaping the benefit from infrastructure investment.

- 1.5 Energy projects represent the largest infrastructure investment opportunity in the UK and they make up nearly half the total infrastructure investment pipeline in the UK³. The energy industry also contributed 4.4% to UK GDP in 2011⁴. To replace the UK's ageing electricity infrastructure, the sector will need to make around £110 billion of capital investment over the next decade. Many projects are ready to be built, with planning approval in place, and expected to create jobs in the next year or two, with many more in the planning pipeline right across the country. For example, based on planned and confirmed figures published by the renewables industries, we saw around £12.7 billion of investment and 22,800 jobs announced in the sector in the UK from 1 April 2011 to 31 July 2012. If the relevant consents and regulatory approvals are granted, highlights of the next 12 months could include a multi-million pound investment by NNB GenCo in its proposed new nuclear development at Hinkley that at construction peak could support around 5,600 jobs⁵.
- 1.6 Securing the necessary investment will require reform, particularly if the Government is to do it without relying on big public spending which adds to the national debt. To ensure we attract the investment we need in the UK, the Government is putting in place reforms to the electricity market which will offer long term contracts for low carbon energy. Companies will in effect be given a guaranteed and secure price at which they can sell their electricity to consumers. This will allow investors to be confident about the returns on their capital in advance of investing billions into new infrastructure schemes. This, in turn, will help lower the cost of capital and lower costs for consumers.
- 1.7 Competition for long term clean energy contracts will drive innovation, raise productivity, and give new UK industries like manufacturing for offshore wind and Carbon Capture and Storage a lucrative market in the UK. A potential multi-billion pound market is simultaneously developing in technologies that save consumers money, spurred by the Green Deal and investment in smart meters. Overall, the UK's green business has continued to grow in real terms⁶, carving out a £122 billion share of the global market worth £3.3 trillion and employing close to a million people⁷.
- 1.8 At the same time, the Government continues to offer new licences and develop the fiscal regime to encourage investment in indigenous oil and gas production for the economy and security of supply. DECC will also support new ways of tapping our indigenous resources, where this proves economic, and subject to ensuring, through robust regulatory controls, that extraction can be carried out safely and with full regard for protection of the environment.

² The Energy Efficiency Strategy, DECC, 2012

³ National Infrastructure Plan 2011, HMT

⁴ UK Energy in Brief 2012, DECC

⁵ EDF, Draft Overview of HPC Construction, 2011

⁶ Low-carbon and environmental goods and services (LCEGS) Report for 2010/11

⁷ The Colour of Growth, CBI

- 1.9 The policy framework set out in this statement, and in the other key strategic documents we are publishing this Autumn, show how we will deliver a balanced energy policy acting to bring forward investment in every aspect of our energy infrastructure. That means more investment in renewables, nuclear and Carbon Capture and Storage, but also in new gas power plants, in maintaining UK oil and gas production, in energy efficiency, in heating infrastructure and gas infrastructure, and in lower carbon forms of transport.

Putting households in control of their bills

- 1.10 The Government recognises there are many pressures on the cost of living. Energy costs are a big factor in most households' expenses, and rising UK wholesale gas prices, which were 50% higher in the five years from 2007 to 2011 than in the previous five years, have contributed towards the increase in average gas and electricity bills over the last year.
- 1.11 We can and are acting to put consumers back in control: by helping consumers get the best value energy tariff for them, by helping them waste less energy and, in the long run, by reducing our reliance on imported fuels and increasing our energy security through building a diverse, low carbon and efficient energy mix.
- 1.12 The Government is taking action to help consumers find and switch to the best tariff and to improve customer choice by supporting smaller energy companies to enter the energy market. We are also providing targeted financial support to help consumers, especially the most vulnerable with their energy bills; and are implementing a new framework for supporting energy efficiency, so that people need less energy to keep their homes warm, pay less, and reduce greenhouse gas emissions into the bargain.
- 1.13 Our actions can have an impact now. Customers who switch their energy suppliers can save up to £200 a year⁸. That is why we are consulting on proposals to legislate in the Energy Bill to ensure that energy companies place consumers on the cheapest tariff that meets their preferences and provide them with clear personalised information to help them to shop around more easily for the best deals across the market. This is underpinned through the Energy Saving Advice Service, which provides year round advice for consumers on how to Check, Switch, Insulate and Save. Targeted awareness-raising events such as the recently held Big Energy Saving Week also aim to reach millions of households with help and advice. By clubbing together communities can get an even better deal. Which?'s Big Switch saved almost 37,000 consumers an average of £223. The Government is helping to spread this type of approach across the country.
- 1.14 To give consumers a real choice of suppliers, we are working with the independent regulator, Ofgem, to make sure that competition between suppliers is strong. We are also working with the major energy suppliers, with whom we have agreed a deal to help consumers find the best tariff for them.
- 1.15 The Government is committed to tackling fuel poverty. Through our fuel poverty policies we aim to help more of the most vulnerable low income households heat their homes to an adequate level. As such, we are making sure that more of these households get direct financial help from their supplier. Over 1 million of the lowest income pensioners will get £130 off their fuel bills this winter as part of the Warm Home Discount scheme. The

⁸ Ofgem's Retail Market Review 2011

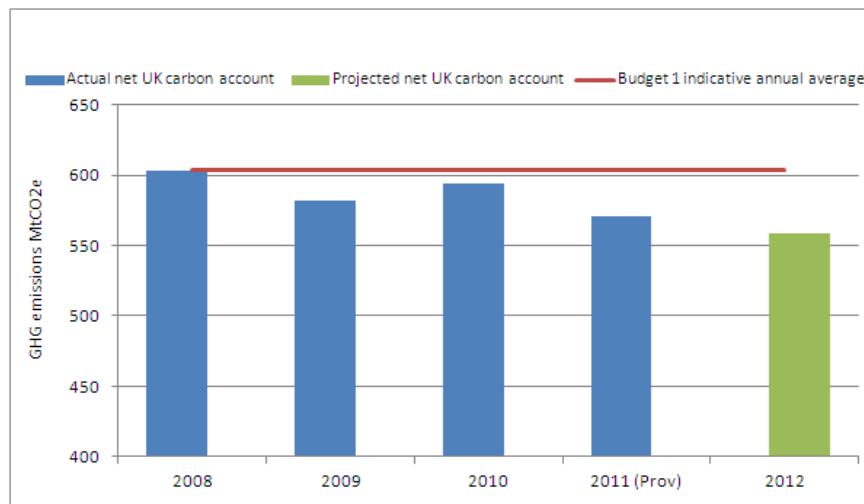
scheme will help around 2 million households in total this year. In addition, direct from the Government, all pensioner households aged up to 79 years will get £200 Winter Fuel Payment this winter and those over 80 years will get £300. These payments are paid to an estimated 12.7 million older people in more than 9 million homes.

- 1.16 Paying the right price for our energy is only part of the story. In order to take control of bills we also need to help consumers waste less energy, so they are not paying for energy they do not need to use in order to keep their homes warm and comfortable. In 2011, over half a million people insulated their cavity walls. On average, they are each saving around £135 a year off their heating bill and those who installed a condensing boiler saved about £100 a year. Every year, innovations in heating technologies improve the average efficiency in the use of fuel, and through a mixture of incentives and strengthening building standards the Government is helping more people install energy-efficient heating systems, both fossil-fuel and renewable. The Government is acting to make energy efficiency easy and hassle free, helping it become the norm, not the exception.
- 1.17 The Green Deal is the Coalition's radical new initiative to transform the UK energy efficiency market. From January 2013 it will let homes and businesses make energy efficiency improvements like insulation and pay for some or all of them through expected savings on their fuel bills. Alongside this, the Energy Company Obligation (ECO), will deliver support worth around £1.3 billion a year to provide extra help for those most in need and for properties that are harder to treat. At least £540 million of this will be allocated to fund energy saving home improvements for low income and vulnerable consumers, assisting around 230,000 households per year. This will help to tackle fuel poverty and to enable people keep their homes warm and comfortable.
- 1.18 The Green Deal will complement the other significant measures the Government is setting in place to help make energy efficiency the norm, not the exception. We are continuing to improve building regulations and product standards, so that when new homes are constructed, or when people buy a new fridge or boiler, energy efficiency standards mean consumers get better quality products, but lower energy bills.
- 1.19 The mass roll out of smart meters into homes across the country from 2014 will allow householders to manage their energy use more easily and cheaply. Some customers will have smart meters installed before then and will be able to start accessing the benefits of smart metering immediately.
- 1.20 The Energy Efficiency Strategy sets out the wide range of other activities that the Government has underway to help businesses improve their energy efficiency, including connecting demand with the supply chain and supporting innovative energy efficiency solutions. The strategy also sets the direction for energy efficiency policy for the coming decades. Our analysis of the energy efficiency potential in the UK suggests that through socially cost-effective investment in energy efficiency, we could be saving 196 TWh in 2020. UK commercial and industrial sectors have made good progress in improving their energy efficiency and in many cases lead the world. But there is still huge potential and the strategy signals renewed efforts to help all businesses improve their efficiency and cut their costs. We need to seize this opportunity.

Progress made

1.21 In October, we published our Response to the Committee on Climate Change's Annual Progress Report⁹. The Response sets out the progress made by the Government towards introducing several key policy initiatives which will set us on the right course for meeting emissions targets over the fourth carbon budget period and beyond. It focused on key areas of the economy including power, buildings, industry, transport and waste sectors; drawing on initiatives such as the Electricity Market Reform, new nuclear, CCS, the Green Deal, and Renewable Heat Incentive. Chart 1 shows progress against the first carbon budget.

Chart 1: Progress against the first carbon budget



Source: DECC

Box 1: The Government has made significant progress in many areas in the past year:

- renewables contribution increased to 3.8% of energy consumed in 2011 from 3.2% in 2010, with electricity generation capacity from renewables having increased by 33%;
- we estimate there were around £12.7 billion confirmed and planned investments in the renewables sector and 22,800 jobs between April 2011 and July 2012;
- the Green Deal Framework launched on 1 October, with companies able to offer Green Deal Plans from the end of January 2013;
- through the Energy Bill we are putting in place the key aspects of our reform of the electricity market;
- a new offshore oil and gas licensing round was launched this year, receiving the highest number of applications since licensing began in 1964;
- field allowance regime changes were announced to promote investment in marginal oil and gas projects and we committed to give companies greater certainty on decommissioning tax relief;
- eight major new electricity projects have been consented since November 2011;
- a strategic framework for low carbon heat was published and the world's first renewable heat incentive launched to drive the deployment of renewable heat technologies;

⁹ Government response to the Fourth Annual Progress Report of the Committee on Climate Change, DECC

- helpful in securing agreement on an EU Energy Efficiency Directive to drive forward energy efficiency across the EU;
- instrumental in securing global agreement on the future of the international climate change regime at the UN Climate Change Conference in Durban; and
- investment in low carbon innovation continued - DECC estimates UK public sector energy research, development and demonstration spend to be £511 million for 2010-11.

1.22 This year's Annual Energy Statement sets out the progress the Government has made, how the Government is implementing its energy and climate change strategy and how we will develop our approach further through a number of significant documents published this Autumn. It explains how we will deliver both our near term priorities and set the UK on a long term path towards secure, affordable low carbon energy by:

- I. Re-building the UK's energy infrastructure
- II. Putting householders and businesses in control of their energy bills
- III. Driving international action on climate change
- IV. Managing our energy legacy

1.23 This Statement fulfils the commitment in the Coalition Programme for Government to present an annual statement of our energy policy to Parliament¹⁰.

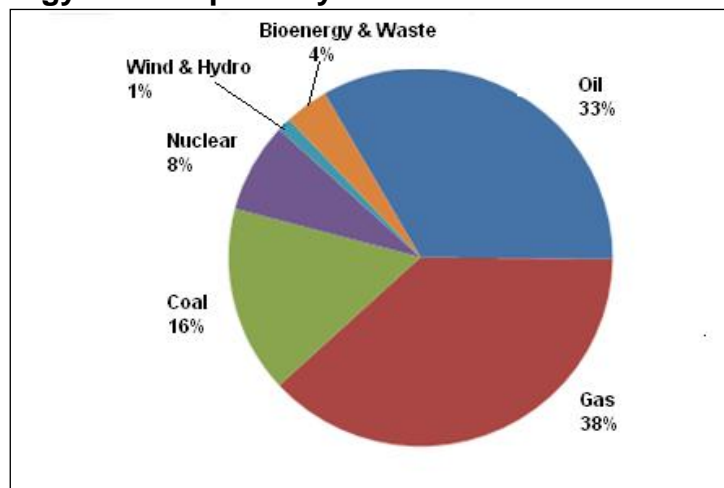
¹⁰ [The Coalition: our programme for government, HMG, 2010](#)

2. Rebuilding our energy infrastructure

Energy security

- 2.1 Energy Security is fundamental to delivering national prosperity and quality of life to people across the UK and creating a positive investment environment for businesses. The combination of our liberalised energy markets, principles of good regulation and extensive UK Continental Shelf oil and gas resources have helped deliver strong energy security to date. However, our system faces ongoing security threats which cannot be fully mitigated. To reduce the likelihood and impact of these threats we are performing essential ongoing resilience work.
- 2.2 Over the coming decades, the energy system faces additional challenges, including: the need to decarbonise; the fact that around a fifth of our 2011 generating capacity has to close over this decade; and declining domestic fossil fuel production in the context of rising energy demand.
- 2.3 Demand will always be split between power, heating and transport. The Carbon Plan¹¹ sets out that over time our energy mix will change and we can expect a different mix of energy sources for each of these sectors in the future. Chart 2 shows the inland energy consumption by fuel type in 2011. The Carbon Plan also sets out the range of possible low carbon futures that could develop in the UK, all underpinned through a renewed emphasis on energy efficiency. Work is being undertaken across Government to ensure that whichever path the market takes our energy system in the UK will remain secure. It is in this context that the Government has published an Energy Security Strategy¹².

Chart 2: Inland energy consumption by fuel 2011



Source: UK energy in brief 2012

Electricity infrastructure

- 2.4 Electricity demand is likely to increase significantly over time due to the electrification of heat and transport. Recent DECC analysis shows that electricity demand is likely to increase by between 30% and 100% by 2050. We aim to set the framework through which technologies can compete to deliver secure and low carbon electricity supplies. We

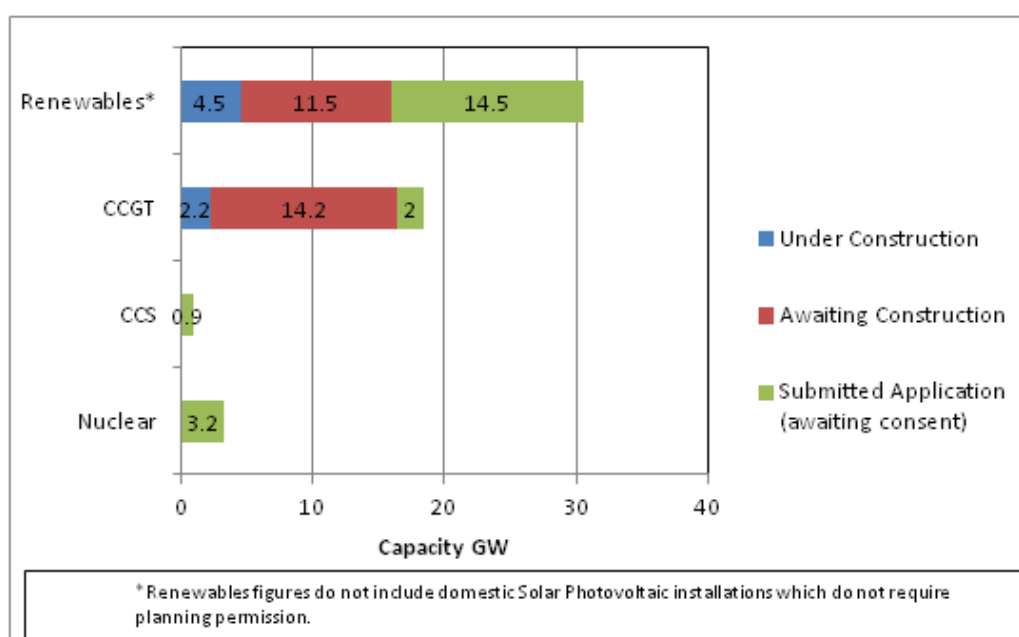
¹¹ The Carbon Plan 2011, DECC

¹² Energy Security Strategy DECC, 2012

therefore need to maintain secure and affordable supplies of gas, oil and coal in the near term, and over time increasingly focus on how a mix of low carbon generation technologies can help us ensure secure and affordable electricity while ensuring that there is sufficient reliable capacity on the system to keep the lights on.

- 2.5 To provide certainty to investors and ensure we are taking the least cost approach to the UK's binding 2050 carbon target, the Government will take a power amending the forthcoming Energy Bill during its passage, to set a decarbonisation range for the power sector in 2030 in secondary legislation. The power will not be exercised until the Committee on Climate Change has provided advice on the fifth carbon budget (which covers the corresponding period) and the budget is set.
- 2.6 In the last year DECC has given national consent for 8 major new electricity projects, which is just over 2 GW of capacity - enough to produce electricity for over two million homes. Applications for new plants are now working their way through the new planning regime for major infrastructure introduced in 2010. The scale of the opportunity is set out in the Government's National Infrastructure Plan (see chart 3 for the current planning pipeline for power stations).

Chart 3: Pipeline of planning applications for electricity power stations November 2012



Source: DECC

Electricity Market Reform & guiding investment

- 2.7 Our long term vision is an electricity market where low carbon generators compete on a level playing field under a robust and stable carbon price. Given that many low carbon technologies are at different stages of development, this long term vision remains at least 10-15 years away. Reforming our electricity market so it delivers secure, affordable and low-carbon electricity is one of the most important pieces of work in this whole Parliament.
- 2.8 We are introducing an Energy Bill to implement the key aspects of Electricity Market Reform (EMR), and are also announcing further details on EMR policy¹³. The Bill tackles

¹³ Electricity Market Reform (EMR) Policy Overview, November 2012, DECC

the need to attract around £110 billion of investment in the electricity sector by 2020, by introducing major reforms that will result in greater stability and certainty for investors in our energy infrastructure. EMR reforms could help support as many as 250,000 jobs in the energy sector.

- 2.9 The Energy Bill takes powers to introduce Feed-in Tariffs with **Contracts for Difference** (FiT CfDs) to incentivise the deployment of new low carbon generation in a cost-effective way. CfDs sit at the heart of the EMR framework and will facilitate investment in low carbon generation through removing these generators' long term exposure to electricity price volatility, and lowering the cost of capital of the necessary investment. CfDs stabilise returns for generators at a fixed level known as the strike price. Generators receive revenue from selling their electricity into the market as usual. In addition, when the market price is below the strike price they will also receive a top-up payment from suppliers for the additional amount. Conversely if the market price is above the strike price, the generator must pay back the difference.
- 2.10 The changing nature of the electricity market means we face significant risks to security of electricity supply in the medium term. As such, the Government will take powers in the Energy Bill to run a **Capacity Market**. The Capacity Market, if required, will incentivise sufficient reliable capacity (both supply and demand side) to ensure a secure electricity supply even at times of peak demand. The Government is minded to run the first auction in 2014, for delivery of capacity in the year beginning in the winter of 2018/19. A final decision will be taken subject to evidence of need. This will be informed by updated advice from Ofgem and National Grid which will consider economic growth, recent investment decisions, and the role of interconnection and energy efficiency as well as consideration of the outcome of the review of the fourth carbon budget.
- 2.11 Supporting these measures are key elements that will drive investment in low-carbon power generation: the **Carbon Price Floor** and the Emissions Performance Standard. We will introduce a Carbon Price Floor in 2013 to help us strengthen the carbon price signal to investors. The Carbon Price Floor will provide a credible early signal to encourage investment in low-carbon technology now. The **Emissions Performance Standard** (EPS) will provide a regulatory back stop on the amount of emissions that a new fossil fuel power station can emit. This will help to deliver the Government's commitment to preventing coal-fired power stations being built unless they are equipped with Carbon Capture and Storage. The EPS will initially be set at a level equivalent to 450g CO₂/kWh¹⁴ for all new fossil fuel plants, and will be grandfathered until 2045.
- 2.12 A robust, transparent and credible institutional framework is crucial to the success of EMR, and it is important to provide investors with the confidence they need to invest. We have set out further details on the respective roles and responsibilities of the Government, the System Operator (National Grid), which will be the delivery body for EMR, and Ofgem; all of whom will have clear and distinct roles to ensure effective delivery of EMR. The EMR reforms will not only be better for the environment, better for consumers and better for our

¹⁴ Average carbon intensity of electricity generated in the UK in 2011 was 443gCO₂/kWh in 2011 (Dukes 2012).

energy security, but also better for the economy. Whilst maintaining the country's energy security is a huge challenge it is also a significant opportunity for growth and jobs.

- 2.13 To provide investor certainty, the Government has now agreed a levy control framework¹⁵ to 2020, consistent with the EMR White Paper. The levy will be set at £7.6 billion total in 2020/21 (in real 2012 prices). This is a tripling of support in real terms compared to the LCF budget for 2012/13 (£2.4 billion).

Strategy and Policy Statement

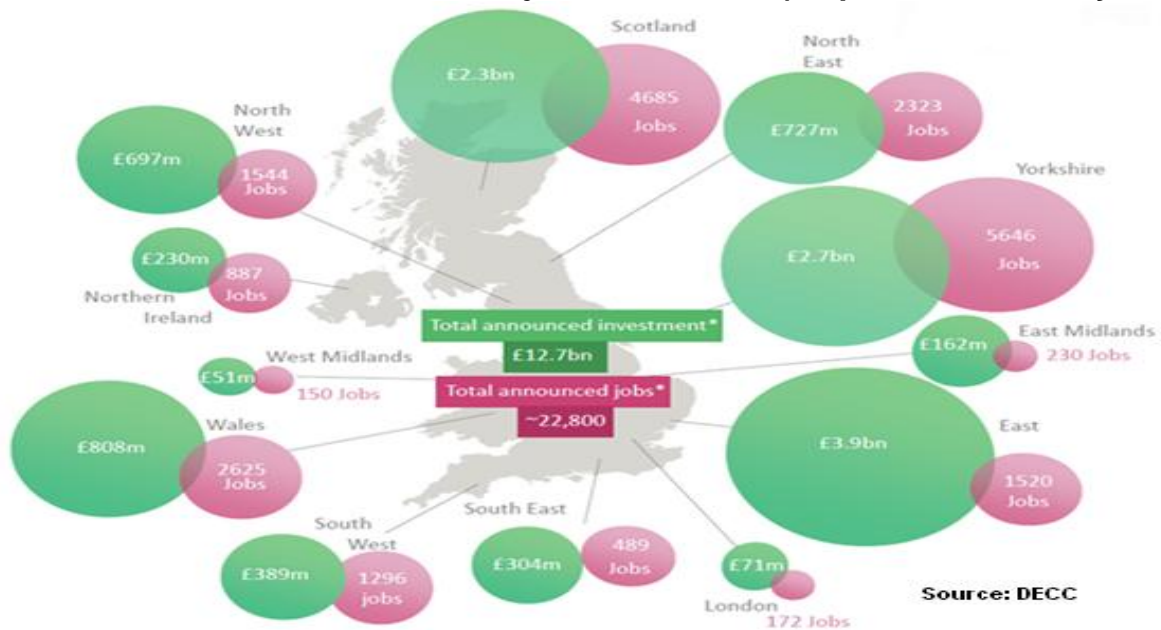
- 2.14 The Energy Bill will introduce provisions for a new statutory Strategy and Policy Statement (SPS). The SPS results from the Government's commitment to independent economic regulation and to the importance of stable and predictable regulatory frameworks in the interests of investment and growth across the infrastructure sectors. The provisions implement the 2011 Ofgem Review recommendation to bring greater clarity and coherence to the roles of the Government and the regulator and will improve alignment of energy policy and regulation. The Secretary of State will have powers to designate a SPS setting out the Government's strategic priorities for energy policy and its (unchanged) roles and responsibilities and defining policy outcomes that Government considers Ofgem to have an important role in delivering. Ofgem will be required to have regard to these priorities, carry out regulatory functions in a manner best calculated to achieve the policy outcomes and to report on its proposed strategy to do so. The SPS will replace the Social and Environmental Guidance.

Renewable energy

- 2.15 The Government's policy framework for renewables is helping drive investment in new jobs and businesses in the renewable energy sector. The UK renewable energy industry represents an attractive market for investors; it already supports tens of thousands of jobs throughout the supply chain and is helping to boost many sectors of the economy. DECC estimate between April 2011 and July 2012 there were renewables investments worth £12.7 billion and around 22,800 jobs across all technologies in the renewables industry¹⁶ (see figure 1). In addition, the UK renewables market is the second most attractive in the world for offshore wind investment, fifth most attractive in the overall wind index and ranked fifth most attractive for all renewables out of 40 countries considered in Ernst & Young's quarterly renewables attractiveness index (August 2012).

¹⁵ Some policies entail an obligation on energy companies, which is financed through consumer bills (a levy). The Levies Control Framework is a control mechanism designed to ensure that these levies are kept below a maximum amount.

¹⁶ This is not a definitive list of the renewables market activity for this period, but indicates the continuing realisation of growth and investment opportunities in the UK renewables sector.

Figure 1: Renewables investment and jobs announced (1 April 2011 – 31 July 2012)

*Total announced investment and jobs between April 2011 and July 2012 include some UK-wide figures which are not attached to a specific region

2.16 Increasing the amount of renewable energy deployed in the UK will diversify our energy supply and improve our energy security by reducing our exposure to fossil price fluctuations. This will help to protect consumers against the price spikes in oil and gas prices that we have seen in the past. An increasing supply of renewable energy is also critical to keeping us on a low carbon pathway, helping to meet our legally binding carbon targets and our EU legal commitment to source 15% of our energy from renewable sources by 2020.

2.17 The Government has made clear progress since the first UK Renewable Energy Roadmap was published in July 2011. The Roadmap sets out a comprehensive set of actions to further accelerate the UK's deployment and use of renewable energy and put us on the path to achieve our 2020 target under the Renewable Energy Directive, while driving down their cost over time. An update to the Roadmap will be published in due course.

2.18 We are working to remove current constraints and to increase deployment of all renewables:

- providing long-term, stable and predictable incentive frameworks;
- removing non-financial barriers including improving existing grid arrangements;
- improving the supply chain and promoting business opportunities in UK renewables; and
- working to reduce costs of technologies, for example through the Offshore Wind Cost Reduction Task Force.

2.19 In particular, in March this year the Government published the new National Planning Policy Framework, which confirms planning's important role in tackling climate change and making the transition to a low carbon economy. It looks to local planning authorities, who have responsibility for considering proposals for renewable energy infrastructure of 50 MW or less, to have a positive strategy to promote energy from renewable and low carbon

sources in their local plans. They are also expected to approve applications if the impacts are (or can be made) acceptable. In the period January 2012 to September 2012, 97 applications for renewable projects of this scale were approved in England.

- 2.20 The rate of renewable energy deployment and generation increased significantly in 2011. Renewable energy increased from 3.2% to 3.8% of energy consumption, which is in line with meeting the first interim target on our path towards the 2020 target (4% over the average of 2011 and 2012). In particular renewable electricity capacity increased by 33% to 12.3 GW (excluding co-firing) in 2011.
- 2.21 The Renewables Obligation (RO) Banding Review Government Response¹⁷ was published in July 2012. By 2017 the revised RO package could deliver as much as 79 TWh of renewable electricity per annum in the UK - around three-quarters of the electricity share in the lead scenario projecting how we will meet the UK's 2020 renewable energy target. The new proposals for the RO are expected to bring forward 11 TWh more renewable energy in 2016/17 than current bandings, and stimulate between £20 billion and £25 billion of new investment in the renewables sector.
- 2.22 The Government has also published decisions, following consultation on the comprehensive review of the Feed-in Tariffs (FiTs) scheme for small scale renewable electricity. The announcements represent the final stages of the review, begun in February 2011, that has reformed the FiTs scheme to provide both greater certainty for investors and greater budgetary control for the Government.
- 2.23 Renewable heat is also making progress. The Renewable Heat Incentive (RHI) was launched in November 2011 to provide support to the non-domestic sector. A second phase of the Renewable Heat Premium Payment was launched in April 2012 and will run until March 2013. This provides upfront money for the installation of renewable heating technologies in the domestic sector. The Government is currently consulting on proposals for longer term support to households in the form of a domestic RHI and also proposals for expanding the existing non-domestic scheme. We anticipate that both the domestic scheme and the additional support for the non-domestic scheme will be available in Summer 2013.
- 2.24 Renewable transport continues to make advances towards delivering genuine greenhouse gas savings in the sector, with the Renewable Transport Fuels Obligation setting mandatory sustainability criteria for biofuels and an obligation on fuel suppliers to provide 5%¹⁸ of transport fuels from renewable sources in 2013/14 with the contribution from wastes counting double. Following the European Commission's recent proposal on indirect land use change, which seeks to cap the contribution made by first generation crop-based biofuels to the 2020 renewable energy target, the UK Government will continue to work to ensure biofuels used are sustainable.
- 2.25 The DECC innovation programme has launched two offshore wind competitions with a potential total value of £15m, and a £20m marine array demonstrator competition. DECC

¹⁷ [The Renewables Obligation \(RO\), DECC](#)

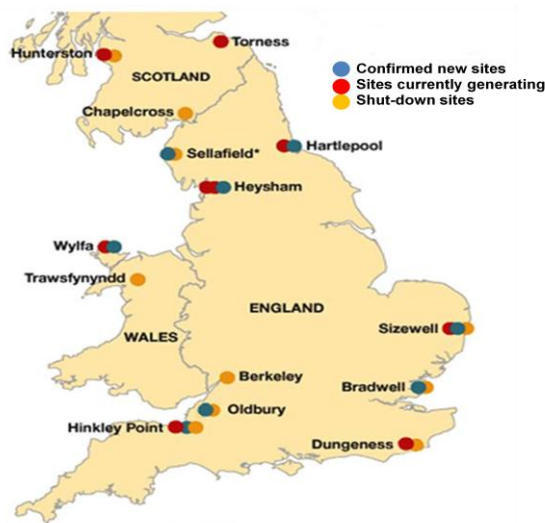
¹⁸ The Government has proposed to amend the obligation target for biofuel (by volume) in transport fuel supplied from 5% to around 4.7%, for the obligation year 2013/14 and subsequent years, with the aim of keeping the absolute volume of biofuel supplied at the level currently provided for under the RTFO. This is part of the proposed expansion of the RTFO scheme to include fuels used in Non-Road Mobile Machinery (as defined in the Fuel Quality Directive). These legislative changes are subject to the introduction of legislation and the parliamentary process.

has also gained European Commission support for a EU wide bio-energy demonstrator programme that will be launched later in the year.

Nuclear power

- 2.26 Three consortia are looking to build new nuclear plants in the UK: NNB GenCo, Horizon, and NuGen. NNB GenCo is well advanced with its plans to build at Hinkley, Somerset; Horizon, recently acquired by Hitachi, has confirmed plans for two to three reactors each at Wylfa and Oldbury; and NuGen has begun site characterisation work at Moorside (Sellafield). This demonstrates confidence in the EMR proposals, which combined with the framework set up to deliver new nuclear power without public subsidy¹⁹ are attractive to investors. New nuclear without public subsidy can provide a low carbon, affordable, and dependable supply of electricity. Looking further ahead, it is envisaged that each new nuclear plant could support around 5,000 construction jobs at the peak of activity and employ around 1,000 people in operational roles, in addition to significant long-term manufacturing opportunities for the UK nuclear supply chain. The 16 GW of new nuclear generation planned by industry equates to investment of around £60 billion²⁰.
- 2.27 The UK Government has a vision of a globally recognised UK nuclear industry, with key companies forming an integral part of the domestic civil nuclear market and a large and diverse supporting supply chain. The Government will be publishing a Nuclear Supply Chain Action to set out how we will work with industry to capture these benefits.

Figure 2: Sites of existing and proposed nuclear power stations in the UK



*Shut-down site known as Calder Hall

Source: DECC

- 2.28 Nuclear safety and resilience remains paramount and Chapter 5 has more details on this. The Energy Bill will put the Office for Nuclear Regulation (ONR), currently an agency of the Health and Safety Executive, on a statutory footing. The provisions in the Bill provide the

¹⁹ This means that there will be no levy, direct payment or market support for electricity supplied or capacity provided by a private sector new nuclear operator, unless similar support is also made available more widely to other types of generation.

²⁰ Estimate of around £60 billion is based on capital cost estimates from PB Power (2012), assuming a transition from First of a Kind to Nth of a Kind costs. PB Power, Electricity Generation Cost Model – 2012 Update of Non-Renewable Technologies, DECC, 2012.

means to establish and sustain a modern independent nuclear regulator based on the better regulation principles of transparency, accountability, proportionality, targeting, and consistency.

- 2.29 These plans all build on the actions Government has taken to enable investment in new nuclear power by:
- reforming the planning system for major energy infrastructure;
 - identifying the sites that Government believes are potentially suitable for deployment;
 - putting in place a system to ensure that operators of new nuclear power stations put aside sufficient funds to pay for the future decommissioning of nuclear power stations and the disposal of any wastes they produce; and
 - publishing a decision that new reactor designs are justified, following completion of the planned generic assessment of those designs by the ONR and Environment Agency.
- 2.30 The Government will continue to work with new nuclear developers to identify and remove barriers to investment where appropriate.

Carbon Capture and Storage

- 2.31 Carbon Capture and Storage (CCS) can reduce carbon dioxide emissions from fossil fuel plants by as much as 90%, playing a crucial role in both our climate and energy security objectives. The Government is committed to working with industry to create a new cost-competitive UK CCS industry in the 2020s. The UK is poised to be a world leader in this new industry which could be worth billions of pounds a year to the UK economy by the late 2020s. We want to maximise opportunities for jobs and growth from this innovative technology.
- 2.32 In April 2012 DECC launched the CCS Roadmap²¹ which set out a new programme to support deployment of the technology. The new programme represents one of the most comprehensive offers for CCS anywhere in the world. It includes:
- The CCS Commercialisation Competition to drive down costs by supporting practical experience in the design, construction and operation of commercial scale CCS with £1 billion capital funding and additional support through low carbon Contracts for Difference;
 - A £125m, 4-year, co-ordinated R&D and innovation programme;
 - Development of a market for low carbon electricity through EMR;
 - Intervention to address key barriers to the deployment of CCS including work to support the CCS supply chain, develop transport and storage networks, prepare for the deployment of CCS on industrial applications and ensure the right regulatory framework is in place; and
 - International engagement focused on sharing the knowledge we have generated through our programme and learning from other projects around the world to help accelerate cost reduction.
- 2.33 The Commercialisation Competition closed for bids in July 2012 and eight bids were received. Following a detailed analysis, four bids are now being taken forward in a short intensive phase of negotiations. Decisions on which projects to support further will be taken in early 2013. This is likely to include some further design and engineering work before entering into full project contracts. Final Investment Decisions will be taken by the end of 2014.

²¹ Carbon Capture and Storage (CCS) Roadmap: Supporting deployment of Carbon Capture and Storage in the UK

- 2.34 Over the past year, as part of our £125 million R&D programme, with our partners we have established the UK CCS Research Centre²², officially launched the 5 MW carbon capture pilot at Ferrybridge power station²³, and awarded £20 million²⁴ to a consortium of 3 UK-based companies to develop next-generation CCS for gas power stations. On 21 November, DECC announced a further set of projects funded under the Programme, with £18.3m awarded to 13 projects²⁵ involving a range of UK universities and world leading energy and technology companies.
- 2.35 To further encourage deployment of CCS, the Government asked the Carbon Capture and Storage Association (CCSA) to establish a Cost Reduction Task Force that would advise Government and industry on reducing the cost of CCS. The Task Force published its interim report²⁶ on 21 November confirming that fossil fuel power generation with carbon capture and storage (CCS) has the potential to compete cost-effectively with other low-carbon forms of energy in the 2020s. The Task Force will present their final report, with actions for industry and Government, in Spring 2013.

Gas generation

- 2.36 In 2011, gas power stations were the biggest contributor to meeting electricity demand, accounting for nearly 40% of generation²⁷. The Government will shortly publish the Gas Generation Strategy. It will show that gas currently forms an integral part of the UK's generation mix and is a reliable, flexible source of electricity. The Government expects that gas will continue to play a major role in our electricity mix over the coming decades, alongside low-carbon technologies as we decarbonise our electricity system. The role gas plays will be determined by the market, whilst keeping emissions within the limits set out in the carbon budgets.
- 2.37 Support for other forms of generation could undermine certainty for gas investors. The Government is therefore seeking to provide certainty in both low carbon energy sources and gas. To this end we are setting a sustainable and affordable cap on the levy control framework out to 2020 and reiterating that our approach to decarbonisation trajectories will continue to stay in step with other EU countries throughout the 2020s. Modelling suggests significant new gas plant investment could be required by 2030 in part to replace older coal and nuclear plant as it retires from the system, and that in 2030 we could need more overall gas capacity than we have today. The modelling also shows that gas could play a more extensive role, with higher load factors, should the fourth carbon budget be revised upwards. The modelling will be based on an indicative range of emissions/decarbonisation scenarios consistent with the least cost approach to the UK's binding 2050 carbon target and reflecting both the existing fourth carbon budget and a scenario reflecting an upwards revision of the fourth carbon budget allowed emissions.
- 2.38 Unabated gas will continue to play a crucial role in our generation mix for many years to come and the amount of gas capacity we will need to call on at time of peak demand will

²² [UK CCS Research Centre](#)

²³ [Carbon capture trial at Ferrybridge power station](#)

²⁴ [Announcement of new £20 million ETI project set to advance carbon capture technologies](#)

²⁵ [Winners of £18.3m innovation funding](#)

²⁶ [CCS Cost Reduction Task Force Interim Report](#)

²⁷ [Energy Trends 2012, DECC](#)

remain high. In the long term, the development of cost competitive CCS should ensure gas (and coal) can continue to play a full role in a decarbonised electricity sector.

- 2.39 Maintaining gas in the mix not only ensures security of supply, it is good for our economy. The precise level of investment associated with the new gas generation capacity we expect to come online will depend on both the size and the number of projects that come forward. The new jobs associated with the construction and long-term operation of these plants will be important to maintaining employment levels in areas of the country where coal, oil and nuclear plants are set to close. Moreover, gas has been and continues to be an important UK resource. Making efficient use of the resources we have available is vital to ensuring the Government meets its goal of delivering a low-carbon agenda in a way that minimises cost and maximises benefits.

Coal generation

- 2.40 Coal is currently an important part of the electricity mix and in 2011 accounted for 30% of overall electricity generated²⁸, a proportion that can increase at peak periods. However, coal is more carbon intensive than other forms of fossil generation (its emissions being around double that of gas), so it is clear that the UK cannot sustain investment in new unabated coal plants if it is to meet its decarbonisation objectives. The National Policy Statements for Energy²⁹ issued under the Planning Act 2008, reflect the policy position in respect of the future sustainability of coal, and require that any new coal plant be equipped with at least 300 MW (net) of CCS. This will be reinforced by the introduction of an Emissions Performance Standard in the Energy Bill.
- 2.41 However, the use of CCS alongside coal generation is an attractive proposition that will allow coal to continue to make a significant contribution towards security of supply and affordability of our electricity supplies while being consistent with our decarbonisation objectives. Coal generation is flexible and able to provide 'baseload' output as well as respond to short term fluctuations in electricity demand. It also provides an additional fuel option and means we are not overly reliant on one particular fossil fuel, such as gas. This contributes to the diversity of our energy supply and enables generators to fuel switch in response to fuel prices, providing efficiencies in the cost of electricity.
- 2.42 There are currently 17 coal power stations operational in Great Britain with a combined capacity of around 28 GW, with UK sourced coal accounting for two-fifths of power station usage. Of the current 28 GW of coal plant, 8 GW has opted-out of the Large Combustion Plant Directive (LCPD), an air quality Directive which places limits on emissions of sulphur dioxide and nitrogen oxides. These opted-out plants are required to close by the end of 2015 at the latest, with 5 GW having already notified their closure by the end of March 2013. The remaining fleet will need to decide whether or not to make the significant investment in upgrades needed to comply with the Industrial Emissions Directive (IED), which replaces the LCPD and sets more stringent limits from 1 January 2016. Operators which choose not to make the necessary investment may opt-out of the IED and take a Limited-Lifetime Derogation (LLD) of 17,500 hours between January 2016 and the end of 2023, closing when the allocated hours are exhausted or by end 2023, whichever is reached first.

²⁸ DUKES 2012: Chapter 5 electricity, DECC

²⁹ National Policy Statements for Energy (NPS), DECC

Electricity networks

- 2.43 Significant progress has been made during the past year in ensuring the timely delivery of new transmission network infrastructure to support new low carbon electricity generation and maintain security of supply. Ofgem has agreed up to £6.1 billion³⁰ of investment in Scotland and its initial proposals in July 2012 were to allow investment of up to £11.6 billion³¹ in England and Wales (with final proposals expected in December), to be delivered between 2013 and 2021.
- 2.44 For the offshore transmission network Ofgem has granted two transmission licences (for assets worth £213.7 million) since the last Annual Energy Statement and expects to grant five more licences over the coming year. To date Ofgem has granted a total of six licences. In March 2012 the Government and Ofgem also published the conclusions of the joint Offshore Transmission Coordination Project. Potential cost savings from coordination of up to £3.5 billion were identified, along with measures to achieve this which are now being implemented. The Government will continue to monitor progress.
- 2.45 To ensure timely grid connections for new generation projects the Government introduced an enduring 'Connect and Manage' grid access regime in August 2010. This allows new generation projects to connect to the network as soon as their local connection works are completed rather than waiting, as under previous arrangements, for wider network reinforcements to take place. 'Connect and Manage' has so far reduced the connection timescales for 125 large generation projects (total capacity of 30.1 GW) by an average of six years. A further 104 small-scale generators have also benefitted.
- 2.46 Planned upgrades to the transmission network will reduce the need for National Grid to call on generators at short notice to change their generation patterns and make constraint payments to balance the network. Until these upgrades can take effect, DECC has developed the Transmission Constraint Licence Condition (TCLC) to help ensure that generators are not able to take advantage of transmission constraints by offering balancing services at prices higher than usual market conditions. The TCLC came into force on 29 October 2012 and is estimated to save consumers between £115 million and £300 million³² over a five year period.
- 2.47 A number of interconnection projects are currently being investigated by developers. The Government is developing an evidence base to better understand the impacts of investment in interconnection, taking into account the costs, benefits and risks to welfare, prices and security of supply. Indeed the EU as a whole is facing enormous infrastructure challenges with the Commission estimating that €1 trillion of investment will be required up to 2020, nearly €500 billion of this would be in networks. The Commission has therefore proposed legislation aimed at facilitating this investment by addressing the regulatory barriers and streamlining consenting procedures for 'strategic' cross-border electricity and gas interconnections in particular.
- 2.48 Ofgem has reviewed the transmission charging regime through Project TransmiT. As a result changes will be made to ensure that each generator's charges for using the transmission network better reflects the burden that a generator puts on the network.

³⁰ 2009-10 prices. See [RIIO-T1: Final Proposals for SP Transmission Ltd and Scottish Hydro Electric Transmission Ltd](#)

³¹ 2009-10 prices. See [RIIO-T1: Initial Proposals for National Grid Electricity Transmission and National Grid Gas – Overview](#)

³² [Impact Assessment of the Transmission Constraint Licence Condition \(TCLC\)](#)

Implementing these changes will provide greater certainty to users of the network. They are likely to be implemented at the start of the 2014 charging year.

- 2.49 The distribution network will also need significant investment to support the connection of new generation and deployment of technologies, such as heat pumps and electric vehicles. The next distribution price control (RIIO ED1) that sets out an investment allowance for distribution network operators will run from 2013 to 2023. In November, Ofgem closed its consultation on its strategy for RIIO ED1.

Intelligent networks

- 2.50 Increasingly, smarter networks and non-generation technologies (such as demand side response, storage and interconnection) are likely to be of increasing value in matching the supply and demand of electricity cost-effectively under the changing generation and demand profiles highlighted above. We published the *Electricity System: Assessment of Future Challenges* in August this year³³. In October 2012, we launched a scheme worth up to £20 million to encourage innovation in grid-scale electricity storage.
- 2.51 We have also worked with Ofgem and industry through the Smart Grid Forum to assess the value of 'smart' technology which has the potential to reduce the cost of network reinforcement without compromising security of supply. Initial findings³⁴ suggest that they could offer savings of £5 billion to £11 billion up to 2050. DECC's rollout of smart meters will provide a platform to support the development of smarter networks.

Heat supply infrastructure

- 2.52 In 2011, heat accounted for almost half (44%) of final energy consumed in the UK, and most of this was used for space and hot water heating in buildings, making this the single largest sector of energy use in the country. The remainder of heat was used by industry in various manufacturing, refining, separating and drying processes. This year the UK will spend around £33 billion on heat across our economy. Around 80% of all the heat we use in the UK is provided by natural gas, a fossil fuel. We therefore face a significant challenge to reduce the demand for heat and to decarbonise the heat supply to meet our renewable and emissions reduction targets, while maintaining comfort at home and commercial competitiveness.
- 2.53 We set out a strategic framework for meeting this challenge in *The Future of Heating – a Strategic Framework for Low Carbon Heat*³⁵ published in March 2012. This explained that current evidence suggests that to meet our long term target, we will need to reduce emissions from buildings to near zero by 2050 and achieve up to a 70% reduction in emissions from industry, the majority of which are heat related. De-carbonising heat therefore remains a key priority of the Government.
- 2.54 *The Future of Heating* explained that we expect the use of natural gas for heating to still be the dominant fuel in supplying heat for buildings, both domestic and commercial, until at least 2030. Over time, however, heat for buildings is likely to move away from gas to a mix of building-level heat such as heat pumps and, particularly in our cities, networks of low carbon heat (for instance heat from renewable sources or heat recovered from industrial processes) delivered through district heating. Industrial heat cost-effective measures such

³³ [Electricity System Policy, DECC](#)

³⁴ [Assessing the Impact of Low Carbon Technologies on GB's Distribution Networks Report](#)

³⁵ [The future of heating: A strategic framework for low carbon heat, DECC](#)

as energy efficiency should continue as a priority. In the medium to long term we will need to decarbonise the supply of heat by switching to low carbon alternatives such as biomass, where this is appropriate. Fuel switching is something already being promoted through the Renewable Heat Incentive. In the longer term, advanced technologies such as the industrial deployment of CCS will play a key role, especially where fuel switching is not feasible, and there is potential for electrification of some processes.

- 2.55 One challenge is to bring renewable heat for homes into the mainstream alongside gas boilers, a market which currently sees around 1.5 million new boilers put into homes every year. We set out our proposals for a domestic Renewable Heat Incentive (RHI) in September. The RHI, working in concert with Green Deal and smart meters, will make a contribution to the development of a renewable and low carbon heating future. The Green Deal and smart electricity and gas meters will help consumers control and reduce their energy use and save money. The RHI aims to help drive uptake of renewable technologies and develop the supply chain. We expect to see costs of renewable technologies such as heat pumps, biomass boilers and solar thermal fall over the longer term, making these technologies more affordable and accessible to consumers, communities and business.
- 2.56 An important feature of energy used for heat is that the various uses require heat at different temperatures, all the way from heating bathwater to melting iron. So heat has a “quality” as well as a “quantity”. It is hard to transport heat over long distances without losing this quality. This means that unlike electricity, we have to consider the value of heat in terms of how hot (or cold) it is, what it is needed for, where, and when.
- 2.57 The transformation of heat generation and heat use will create new markets and new opportunities. We want to ensure that the UK gets a big share of the market making the most of its knowhow and expertise. In the EU last year, around three-quarters of a million heat pumps were sold but few of these were in the UK. There is potential for the UK to capture more of this market as we make the change to low carbon heat.
- 2.58 Moving away from our current forms of heating will require substantial changes across our economy and there will be a role for local and central Government, for consumers and for suppliers, for small businesses and for large industrial concerns. For this reason we plan to follow up this year’s Strategic Framework document with a set of policy proposals for formal consultation in early 2013.

Transport infrastructure

- 2.59 Transport is likely to remain predominantly fossil fuel based for some time. We therefore need to ensure continued secure supplies of affordable oil, in parallel with a shift to increasing the fuel efficiency of vehicles and the use of alternative, low carbon sources of energy, including sustainable renewable fuels, plug-in vehicles and hydrogen. Over time, there will be a change in the mix, as CO₂ regulations drive stricter emissions targets across all key global markets. It is expected that ultra-low emission vehicles (ULEVs) will reach mass deployment levels over the course of the 2020s and 2030s. If we are to deliver our long term aims to decarbonise the UK, virtually all new cars and vans sold are likely to need to be low carbon by 2050, meaning that almost all new cars and vans will need to be ultra-low carbon by the end of the 2030s.

- 2.60 The move to ULEVs is a significant and one-off strategic opportunity for the UK economy. The Government is committed to establishing the UK as a dominant market for plug-in vehicles to secure the growth, inward investment and carbon benefits that will flow from this. The Nissan Leaf factory and battery plant in Sunderland is a good example of this, bringing with it hundreds of millions of pounds worth of supply chain contracts. The Government is therefore taking action to support the development of a flourishing early market with a path to mass market:
- **Infrastructure:** Eight Plugged-In Places schemes are trialling different business models and technologies to inform the roll-out of the recharging infrastructure nationally. Over 2,200 charge points have been provided through the schemes (to end June 2012), and of these approximately 70% are publicly accessible. We estimate that the private sector has also installed an additional 4,000 charging points nationwide.
 - **Consumer Incentives:** As of 30 September 2012, over 2,300 claims have been made through the Plug-in Car Grant scheme (receiving a grant of 25% of the vehicle price, up to a value of £5,000) and 140 claims through the Plug-in Van Grant scheme (receiving a grant of 20% of the vehicle price, up to a value of £8,000).
 - **Research and Development:** £8 million of support is provided for R&D through the Technology Strategy Board, focussing on: improvements to internal combustion engines; energy storage and energy management; lightweight vehicles and power train structures; development of power electronics and electric machines; and developing and applying Intelligent Transport Systems.
 - **Industry:** The automotive industry has invested £6 billion in the UK economy over the last two years and the Government encourages UK businesses' efforts to seize commercial opportunities in the ULEV sector by working with key stakeholders to raise awareness and to develop and strengthen the capability of ULEV manufacturing and its associated supply chain in the UK.
 - **Hydrogen:** The Government launched UKH2Mobility in January 2012, a joint undertaking with key industry stakeholders to evaluate the potential of hydrogen for road transport in the UK, and to develop a road-map for a roll-out of hydrogen fuel cell electric vehicles from 2015.
- 2.61 Energy efficiency in the transport sector can also be increased through improved logistics, better driving behaviours and techniques and, most significantly, through continued improvements in vehicle fuel efficiency. The efficiency of new cars in the UK improved by over 29% between 2001 and 2011³⁶, allowing new car owners in 2011 to drive on average an additional 12 miles per gallon compared with new car owners in 2001. Such returns are becoming more important to motorists as fuel prices continue to increase, so presenting opportunities to industry in this highly competitive and skilled sector. The direct link between CO₂ emissions and conventional vehicles fuel efficiency means that as manufacturers are forced to meet the tough EU legislation targets set for cars and vans, users will benefit from higher fuel economies.
- 2.62 Further electrification of the rail network will bring energy efficiency benefits as well as reducing rail journey times, operating costs and dependency on fossil fuels, particularly as low carbon electricity generation increases. The Government is committed to electrification of Midland Mainline, various lines in the North West of England, the Great Western Main Line and the Welsh Valleys. Further investment in electrification was announced in July

³⁶ [New Car CO₂ Report 2012: The Society of Motor Manufacturers and Traders \(SMMT\) Limited](#)

2012 as part of the High Level Output Specification (HLOS) that set out the intention to create an 'Electric Spine' for passengers and freight stretching from Southampton, to the Midlands and Yorkshire. In December, the rail industry will publish the 2012 version of the Rail Technical Strategy. This will set out longer term strategies to improve rail's energy and carbon performance through the development and application of novel technology.

Maximising the benefits from UK oil and gas production

- 2.63 It is clear that even as we move towards a less carbon intensive future, oil and gas are set to remain a vital part of our energy system for years to come. In this context the Government is committed to ensuring that we maximise the cost effective extraction of UK hydrocarbon resources – both offshore and onshore, consistent with safety and environmental protection.
- 2.64 It is in the UK's interests that as much as possible of our demand for oil and gas is met from indigenous supply. This supports our energy security - UK oil and gas still provide around half of the UK's primary energy needs and bring major economic benefits. DECC therefore aims to maximise economic recovery of our indigenous hydrocarbon resources. The UK's policies, including licensing, have ensured that exploitation of the UK Continental Shelf (UKCS) has been a major success. Some 40 billion barrels of oil and gas have been produced so far - but as much as 20 billion more might still remain which could be produced. This year saw the announcement of the largest new gas development in the Southern Basin for a decade, proving that there is still plenty of potential.
- 2.65 The oil and gas industry is the biggest sector of industrial investment in the UK. It is estimated to support around 350,000 jobs directly and indirectly plus another 100,000 in exporting goods and services. In 2011-12 direct tax receipts from oil and gas production were around £11 billion. Total investment committed or already in progress was £31 billion at the end of 2011. We are therefore continuing to work on maximising new investment and exploration. We launched a new offshore round this year in May, which received the highest number of applications (244) since licensing began in 1964, and have just announced a first tranche of awards of 167 new licences. The UKCS remains an attractive target for global investment.
- 2.66 In 2011, the Government appointed Geoffrey Maitland, Professor of Energy Engineering at Imperial College London, to chair a review panel to consider the findings from official reports into the Macondo incident and the relevance to the offshore oil and gas industry in the UK. The final report ("the Maitland Review") was published in December 2011³⁷. The Department has worked with the Health and Safety Executive, Maritime and Coastguard Agency and Oil and Gas UK on responses to the review's recommendations and a progress report was provided to the Energy Minister in July 2012. The Department will publish a response to the review later in the year.
- 2.67 Onshore fields today supply only a very small part of our oil and gas production – around 1% of the total. The growth of unconventional gas supplies in the US, particularly from shale gas, has been one of the most salient shifts in energy markets in recent years and there is great interest in establishing what the prospects for the UK may be. Exploration for

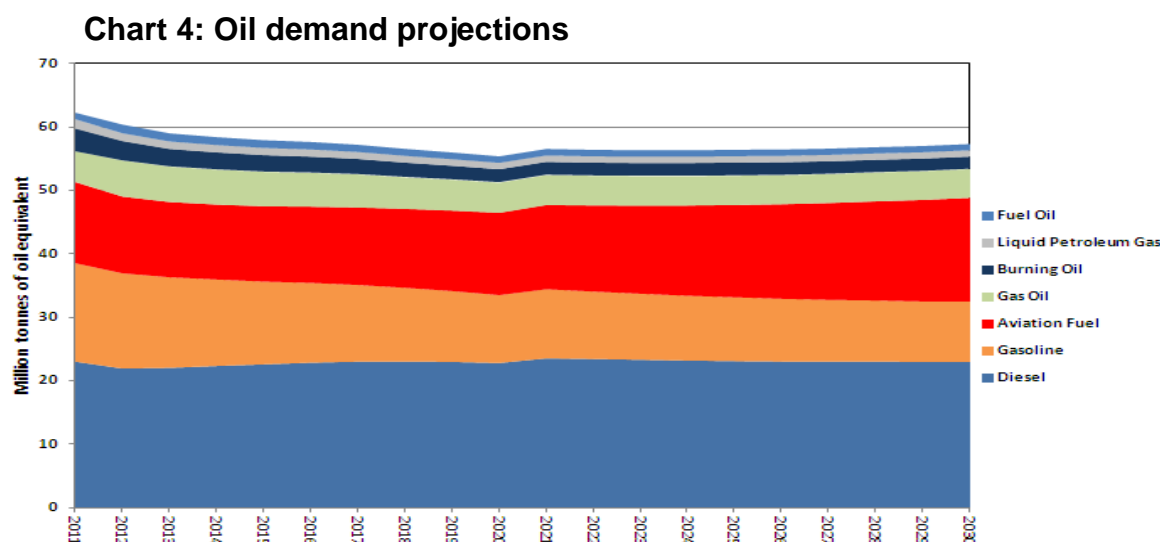
³⁷ [Offshore Oil and Gas in the UK - an independent review of the regulatory regime](#)

shale gas in the UK remains at a very early stage and the production potential is not yet known, but DECC will support new ways of tapping our indigenous resources, where this proves economic, and subject to ensuring, through robust regulatory controls, that extraction can be carried out safely and with full regard for the protection of the environment. DECC is supporting new work by the British Geological Survey to better delineate the extent of the resource – a more detailed estimate of the Bowland shale resource will be published later this year. The Department is still considering, in the light of responses to a consultation earlier this year on an independent report on seismic risks and their mitigation, whether fracking for shale gas may be resumed.

- 2.68 The Government is also committed to a fiscal regime that encourages further investment and innovation in the North Sea, while ensuring a fair return for UK taxpayers. This year, following extensive engagement with industry, the Government has announced changes to the field allowance regime to promote investment in commercially marginal fields and projects and has committed to introduce a contractual approach giving companies greater certainty on decommissioning tax relief. The Government will also engage with companies to develop a targeted tax regime for any future shale gas industry.

Oil supply

- 2.69 Demand for oil in the UK is set to decrease over the longer term in order for the UK to meet its climate change objectives and rebalance the economy towards more sustainable and secure energy supplies. However in the medium term, oil will continue to be the dominant fuel for transport. As shown in chart 4, demand for diesel road fuel and aviation fuel will remain strong in the UK and the EU, whilst demand for petrol will continue to decrease reflecting the continuing dieselisation of the car fleet. The use of oil for heating will continue to be important though declining and oil will also remain an important source of feedstock for petrochemical, industrial and construction products.



Source: DECC Updated Energy Projections (October 2012)

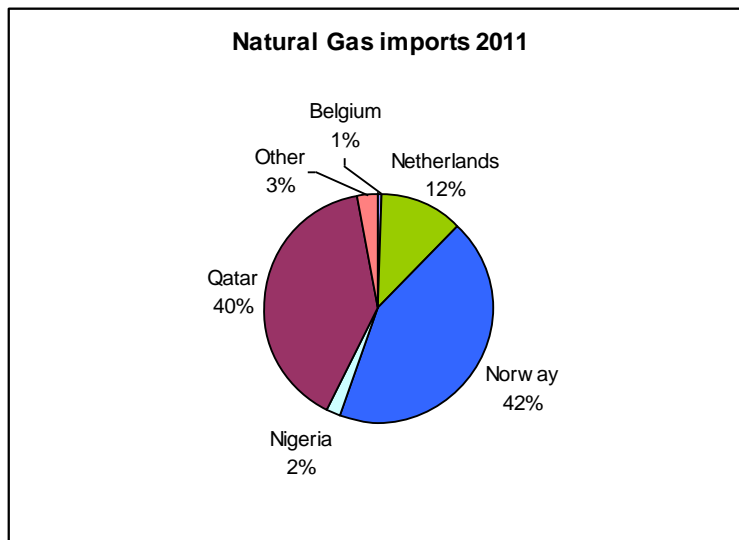
- 2.70 Refinery capacity in the UK is substantial with seven major operating refineries. However the UK refining industry is facing challenging commercial conditions through a combination of low financial returns, additional investment requirements to meet tightening environmental standards and product specifications, and increased competition from the growth in refinery production in Asia and the Middle East. This is why the Government is working in collaboration with the UK refining industry to analyse the challenges the industry faces, so that we can ensure that the UK's refineries attract the necessary investment to

enable them to remain competitive, whilst also ensuring that the UK is resilient to global or domestic supply disruptions. Imports, particularly of diesel and aviation fuel of which the UK is short, will also continue to play an important part in the energy mix. The Government is also exploring with the downstream oil industry how the UK meets its international obligations to hold emergency oil stocks and how this can be best managed in the future, minimising the burden on industry and ensuring the UK is resilient to supply disruptions.

Gas supply

2.71 As already highlighted, gas will retain a key role in electricity generation, as well as remaining a dominant fuel for domestic heating and providing a major fuel source for industry. The UK's continued reliance on gas is based on a broadly benign long term supply picture. While global gas demand is set to rise rapidly, the global outlook for gas supply is good. The IEA has described the global gas resource base as "vast and widely dispersed geographically", with remaining recoverable reserves of conventional gas estimated at 130 years of current consumption and those of unconventional gas could be equivalent to another 125 years.

Chart 5: Gas imports to the UK 2011



Source: DECC Energy Statistics

2.72 However, as UK production continues to decline we shall become increasingly dependent on imports to meet demand (chart 5 shows natural gas imports including Liquefied Natural gas to the UK last year). Given this and the continued importance of gas to our energy mix, DECC commissioned Ofgem to report on the future risks to our gas supplies and the case for measures to improve security.

2.73 Ofgem's report³⁸ echoes previous risk assessments carried out by the Department, showing that the UK's gas supply market is currently functioning well; bringing forward necessary investment to expand supply infrastructure; served by diverse supply sources and routes, offering consumers relatively low prices; and resilient to difficult market conditions. Ofgem's analysis presents a robust picture of the UK market's ability to continue to protect consumers from credible supply losses under a range of gas demand scenarios.

³⁸ Gas Security of Supply (Ofgem): November 2012.

- 2.74 However, Ofgem's report recognises that the security of our gas supplies will increasingly be dependent on reliable interactions with international and EU gas markets, and the market's continued ability to bring forward timely investment in the new supply infrastructure we will need. The Government notes that Ofgem has announced proposals to sharpen the incentives for gas market participants to avoid gas shortages through their Gas Significant Code Review reforms. Ofgem's modelling suggests that these proposals would help reduce the likelihood, duration and severity of potential future supply disruptions.
- 2.75 In addition, Ofgem has launched a call for evidence³⁹ in collaboration with the Belgian and Dutch regulators into the efficiency of flows across our gas interconnectors with mainland Europe. The Government is supportive of this action, which should help ensure barriers to trade between the UK and continental Europe are identified and resolved, supporting the creation of a single European gas market, and giving mutual security of supply benefits.
- 2.76 However, given the importance of gas to our energy mix and the need to maintain security of supply, the Government will be considering further whether there is a case for providing support for gas storage, and will publish our findings in Spring 2013'

International oil & gas markets

- 2.77 Internationally the Government is working to help ensure the UK benefits from transparent and secure global energy markets. The UK's dependence on international oil and gas markets mean that working to improve their reliability forms an important part of our energy security strategy. In Europe the Government is working with the Commission and other Member States to put in place well functioning and integrated gas and electricity markets, as a means of improving security of supply, increasing competitiveness and growth and supporting the transition to a low-carbon economy.
- 2.78 Government works with the EU, international partners and industry to:
- promote more reliable supply of oil through deepening bilateral relationships and encouraging the necessary transitional investment in oil production;
 - enhance price stability by increasing transparency, shared analysis of oil markets and deepening producer-consumer dialogue;
 - seek to restrain international demand for oil by supporting low carbon growth internationally, encouraging fuel efficiency policies, and the adoption of low carbon technologies; and
 - promote the use of fuels with lower greenhouse emissions associated with their production, for example through the Fuel Quality Directive.

³⁹ [Open Letter: Call for evidence on the use of gas interconnectors on GB's borders \(Ofgem, CREG, NMA\): October 2012](#)

3. Putting households and businesses in control of their energy bills

Energy efficiency

- 3.1 *The Energy Efficiency Strategy: the Energy Efficiency Opportunity for the UK*⁴⁰ sets out the Government's vision for saving energy and stimulating the uptake of energy efficiency measures, delivering a range of benefits including economic growth and cost effective reductions in carbon. This builds on what has already been achieved. For example, in the 12 months to June 2012 over 2 million insulation measures were installed.
- 3.2 The energy efficiency sector in the UK already accounts for about 136,000 jobs and had sales of £17.6 billion in 2010/11. Sales in this sector have grown by over 4% per year in the UK since 2007/08, and are projected to grow by around 5% per year between 2010/11 and 2014/15. However, there is more potential in the market⁴¹. Installing energy efficiency measures often requires local labour, and the investment has the potential to boost employment and economic growth. The business community see this as important in the current global economic climate. Economic studies show that improved energy efficiency can bolster productivity, increasing growth and reducing inflation. Developing our innovative capacity in technology, materials or business models for energy efficiency opens up the potential for increasingly significant export opportunities for the UK as the global effort to combat climate change ramps up. For example, analysis suggests that there is also the potential for cost effective energy efficiency investments in commercial buildings over and above that which we expect to be realised through existing policies.
- 3.3 The new Green Deal provides a major opportunity for consumers to improve the way they use energy and save money. In the last year we have set out the operating framework for this core policy to make homes and businesses less leaky and more energy efficient. The Green Deal Framework became operational with full systems testing and property assessments beginning in October. Companies will be able to offer Green Deal Plans from the end of January 2013. Seven cities have agreed to facilitate initial consumer demand and we are offering support to more Green Deal 'Pioneer Places' in the new year.
- 3.4 Alongside the Green Deal, the Energy Company Obligation (ECO) will provide extra help for those most in need and for properties that are harder to treat. The ECO Affordable Warmth target requires energy suppliers to deliver heating and insulation measures worth around £350 million per annum to low income and vulnerable private tenure households. The Carbon Saving Community element of ECO (worth around £190 million per annum) requires energy suppliers to deliver insulation measures and is targeted primarily at low income areas. The Carbon Saving Obligation target of ECO requires energy suppliers to deliver support worth around £760 million per annum to promote the installation of hard to treat cavity wall and solid wall insulation. The ECO comes into force on 1 January 2013, but energy companies have been able to deliver on their obligations since 1 October 2012. As we make the transition to the ECO, it has been important to take stock and make the most of the Carbon Emissions Reduction Target (CERT), Community Energy Savings Programme (CESP) and the Warm Front Scheme. These have all played their part in

⁴⁰ [The Energy Efficiency Strategy, DECC, November 2012](#)

⁴¹ [K-Matrix, Low Carbon and Environmental Goods and Services data \(2010-11\). The energy efficiency sector has been defined as the energy management and building technologies subsectors.](#)

recent years and, although they are now coming to an end, there are still opportunities for consumers until the end of 2012.

- 3.5 The Energy Efficiency Strategy outlines in more detail the various energy efficiency related policies that are already in place across all aspects of energy use, including buildings, products and transport, as well as how we plan to take forward the implementation of the new EU Energy Efficiency Directive. Key requirements in this Directive, which the UK supported and which will bring Europe in line with our ambition, include the need to set an indicative UK target for energy efficiency, bearing in mind the EU's objective to reduce its 2020 primary energy consumption by 20% compared to the EU's 2007 business as usual projections. During 2013 we will consult on implementing the Directive, including the options for introducing the required mandatory energy audits for non-small/medium enterprises.
- 3.6 The Energy Efficiency Strategy also outlines new actions the Government is taking in order to stimulate a self-sustaining energy efficiency market. The Government will work with key stakeholders (inside and outside Government) to deliver this energy efficiency, while ensuring a coherent policy landscape.
- 3.7 One of the areas for further consideration is now being consulted on alongside the Energy Efficiency Strategy. Reducing demand for electricity is likely to be a cost-effective intervention and, in the EMR White Paper⁴², we committed to assessing what could drive further electricity demand reduction and whether Government should do more. The *Electricity Demand Reduction consultation* explores options for further policy to realise this potential⁴³.
- 3.8 During 2012 we have also consulted on simplifying the CRC Energy Efficiency Scheme⁴⁴ and we intend to publish the Government response later this year. We have also consulted on Climate Change Agreements⁴⁵, and are currently negotiating with participating industries their energy efficiency targets to 2020 for the new Agreements which start next year.

Public sector

- 3.9 The Government recognises the public sector needs to lead by example in reducing its energy consumption. As part of the Greening Government Commitments central government has committed to reducing greenhouse gas emissions by 25% for 2014/15 from the 2009/10 baseline for the whole estate and business-related transport. The Government Procurement Service (GPS), an executive agency of the Cabinet Office, purchases energy on behalf of Central Government. GPS has established framework contracts with single suppliers for gas, non half hourly electricity and half hourly electricity to provide the billing, registration and other industry requirements to end customers. GPS are looking to purchase directly with renewable electricity providers in the next year.

Smart meters

- 3.10 Consumers must have access to the information they need in order to control their consumption and get the best deal for them in our competitive energy market. In the short-term, help will come from the Government's voluntary agreement with energy suppliers and

⁴² EMR White Paper 2011, DECC

⁴³ Electricity Demand Reduction consultation, DECC, 2012

⁴⁴ Consultation document on simplifying the CRC Energy Efficiency Scheme, DECC

⁴⁵ Government response to consultation on simplification of Climate Change Agreements, DECC

from Ofgem's Retail Market Review proposals, which were published in October. However, it is the roll out of smart meters from 2014 that has the potential to revolutionise this market.

- 3.11 The Government's vision is for every home and the small and medium non-domestic sector to have smart meters. These will help consumers manage their energy consumption, end estimated billing, foster easier consumer switching between suppliers, and allow suppliers to reduce their costs. They will also support the market for smart energy services and the development of smart grids. Over the next 20 years, the rollout of smart meters is expected to deliver £7.2 billion in net benefits to the economy and will play an important role in the transition to a low-carbon economy and help us meet some of the long-term challenges we face in ensuring an affordable, secure and sustainable energy supply.
- 3.12 The Government has set out the overall strategy and timetable for the rollout of smart meters across Great Britain, with 53 million gas and electricity meters due to be installed by 2019. DECC is working with stakeholders to establish the detailed regulatory, commercial and technical framework ahead of a mass rollout which will commence in 2014. Most recently DECC has published a number of documents on the technological and regulatory framework, including consultations on a consumer engagement strategy, the policy framework for data access and privacy, a monitoring and evaluation strategy and the second version of the technical specifications for smart metering equipment.
- 3.13 Smart meters compliant with the first version of the smart metering equipment technical specifications, published in April, can now be installed against suppliers roll out targets, ensuring that suppliers can make early progress to their 2019 target. The process to award the licence for the Data and Communications Company and the procurement of the data and communications services is ongoing and will conclude in 2013⁴⁶.

Supporting the vulnerable

- 3.14 The Government is committed to tackling fuel poverty, aiming to help more of the most vulnerable lowest income households heat their homes to an adequate level. This includes meeting the statutory target to ensure no households in England live in fuel poverty, as far as reasonably practicable, by 2016⁴⁷. The Government's fuel poverty policies bring down the cost of achieving an adequate level of warmth for these households, which will reduce the likelihood of households being fuel poor. Policies do this in three ways: improving energy efficiency, directly supporting energy bills and supporting incomes.
- 3.15 The Warm Front Scheme was introduced in 2000 and has helped over 2.3 million low income households through the provision of a range of heating and insulation measures. In the future, the new Energy Company Obligation (ECO) – which, as already set out, is expected to deliver measures to around 230,000 low income households per year – will be the key measure for improving the thermal efficiency of fuel poor households.
- 3.16 The Warm Home Discount scheme provides direct energy bill support to low income and vulnerable customers. Energy suppliers provided £237.5 million of support under this Scheme in 2011/12, assisting around two million low income and vulnerable households.

⁴⁶ Smart Meters, DECC

⁴⁷ The statutory basis for the fuel poverty target is the Warm Homes and Energy Conservation Act 2000

This has included a particular focus on over 700,000 of the poorest pensioners who received a £120 discount on their energy bills in Winter 2011/12. In 2012/13, the value of the scheme will rise to £275 million and over one million low income pensioners are expected to benefit from a £130 discount.

- 3.17 The Winter Fuel Payment has been assisting the elderly with their heating costs. Worth £200 a year for those aged up to 79 years and £300 for those over 80, this has helped over 12.7 million older people in over 9 million households with their fuel bills. In addition, the Government provides Cold Weather Payments to low income and vulnerable households on certain benefits in areas experiencing periods of very cold weather.
- 3.18 During this period of rising energy prices there has been significant action to help consumers reduce their energy bills. The Government concluded a voluntary agreement with energy suppliers, which they have now implemented, to make it much easier for people to find and get their supplier's best tariff. Under this agreement, suppliers also funded the Big Energy Saving Week, which took place during the week of 22 October and connected consumers, particularly the vulnerable, with sources of help to reduce their energy bills. In addition, on 26 October Ofgem published proposals to ensure that consumers have clear information on their bills about the cheapest tariffs available to them and the savings they could make by switching⁴⁸ supplier. Ofgem's proposals also include restricting the number of tariffs suppliers may offer to four core tariffs for each fuel, banning poor value dead tariffs.
- 3.19 Building on Ofgem's proposals, the Government published on 20 November, a discussion document on its proposal to legislate in the Energy Bill to ensure that consumers are placed on the cheapest tariff that meets their preferences. The document, *Ensuring a Better Deal for Consumers*⁴⁹, also includes a range of proposed measures to enhance consumer protection and increase consumer engagement in the energy market.
- 3.20 Consumers should feel empowered to switch within the energy supply market. Around a third of people are considering switching but Government finds too few take action. Collective switching is one way that energy consumers can get a better deal while boosting competition. In September the Secretary of State announced a £5 million competition for the most innovative local authority or third sector schemes. He also announced new powers for Ofgem so that they can require companies who have breached licence conditions to compensate consumers directly, a voluntary agreement to allow prepayment meter customers with debts of up to £500 to switch suppliers, and an independent supplier summit to explore what more can be done to reduce barriers to entry and growth and increase competition.
- 3.21 As part of the continuing work to ensure Government support goes to those most in need, we launched a consultation in September setting out our intentions on the future of the fuel poverty measurement framework. The consultation builds on the recommendations of the Independent Hills Review (which was published in March of this year) to: set out proposals on how we should define and measure fuel poverty; open the debate around what a change in the definition will mean for our fuel poverty target; and, announce (in light of the revised fuel poverty definition) that the Government will set out a revised fuel poverty strategy in the new year.

⁴⁸ [The Retail Market Review – Updated domestic proposals. Ofgem, October 2012](#)

⁴⁹ [Ensuring a better deal for energy consumers: DECC discussion document. DECC, 2012](#)

Impact of energy & climate change policies on energy bills

- 3.22 Recent increases in energy prices have been driven by rises in international fossil fuel prices not Government policies, emphasising the need to improve our energy efficiency and diversify energy supplies. In November 2011 the Government published an assessment of the *estimated impacts of energy and climate change policies on energy prices and bills*⁵⁰. This estimated that by 2020 households will, on average, save 7% (or £94) on their energy bills compared to what they would have paid in the absence of policies.
- 3.23 This analysis already factored in an estimate of the impact of supporting low carbon technologies, including through Electricity Market Reform, which is expected to be more than offset by the impact of policies in helping people to save energy, or use it more efficiently. For example, by 2020 we expect policies to deliver around 3.7m cavity wall and loft insulations (2.3m cavity walls; 1.4m loft insulation top up), each saving around £135 (cavity walls) and £30 (loft insulation), while standards for more efficient electrical appliances will help households save an average of around £30 from fridges, freezers and TVs and around £25 from more efficient lighting. The analysis is currently being updated to reflect recent decisions and the Government will publish a full updated assessment of the impact of policies on energy prices and bills shortly.
- 3.24 The Government is mindful that the impact of policies on energy bills will vary across households depending on whether they take up or are eligible for policy measures and that lower-income households are typically hit hardest by rises in energy prices. As set out in the previous section, policies can help offset the impact of rising energy prices for eligible households on the lowest incomes. For example, the Warm Home Discount scheme and elements of the Energy Company Obligation are targeted at low income and vulnerable households or areas enabling more of the most vulnerable to heat their homes more affordably and to a more adequate level

Impact on business

- 3.25 On the business side, while energy costs represent a small proportion of total costs for the manufacturing sector, there is a section of manufacturing industries facing strong international competition where energy costs represent a significant proportion of their total costs. In last year's Autumn Statement, the Chancellor announced measures to reduce the transitional impact of policy on the costs of electricity for the most electricity-intensive industries, beginning in 2013 and worth around £250 million over the Spending Review period. The package of measures will offset the indirect costs of the EU Emissions Trading System (EU ETS) and the Carbon Price Floor from April 2013, subject to EU State Aid rules. There will also be an increase in the rate of relief from the Climate Change Levy (CCL) to 90%, benefitting electricity consumers of the 54 sectors which have made commitments under the Climate Change Agreements (CCA) scheme.
- 3.26 Following responses from industry to a call for evidence earlier in the year, a full consultation was launched on 5 October 2012 to enable all those interested in the package to comment on its proposals for eligibility criteria and package allocation⁵¹. We are working

⁵⁰ [Estimated impacts of energy and climate change policies on energy prices and bills DECC, 2011](#)

⁵¹ [Energy intensive industries compensation scheme, BIS](#)

with BIS (who lead on the package) throughout this process. In addition to these measures, and in order to maintain the competitiveness of the UK as a place to do business, the Government intends to exempt energy intensive industries from the cost of the Contracts for Difference set out under EMR and is minded to do so through the operation of the supplier obligation. BIS will lead work to define the scope of the exemption and will work closely with DECC to design the mechanics for delivering it. The work to deliver this exemption will be part of the EMR programme, delivering on the same timescale and subject to further consultation. Any exemption is also dependent on state aid clearance.

- 3.27 The Government is committed to being open and transparent about the impacts of energy and climate change policies on the cost of energy for consumers. Reflecting this commitment, an updated assessment of the estimated impacts of energy and climate change policies on energy prices and bills will be published in due course.

4. Driving international action on climate change

- 4.1 As this Statement makes clear, the UK is demonstrating that a move to a low carbon economy can be done. However, the UK accounts for only around 1.5% of global emissions so, if we are to address the challenge that climate change presents to our prosperity, security and resources, we must do so by acting in partnership with other countries to secure action to reduce emissions cost effectively. We can make the case for action in other countries more effectively through continuing action at home. To play our part in reducing global emissions and help meet our international and EU targets, the UK has set in place the first legally binding framework with a system of 'carbon budgets', aiming to cut UK emissions by at least 80% by 2050, through investment in energy efficiency and low carbon energy technologies.
- 4.2 The UK is not acting alone. As well as making progress in international negotiations, many countries are taking action to reduce their own emissions, alongside the UK:
- the EU Emissions Trading System (EU-ETS) is predicted to have delivered 170 MtCO₂ reductions during its Phase II (2008-2012);
 - countries accounting for 80% of global emissions have pledged mitigation commitments or actions;
 - every major economy has now enacted climate or energy related legislation⁵², including the large developing countries of Brazil, China, India, Mexico and South Africa; and
 - over 30 countries and a number of state level governments have, or are developing, carbon markets including Australia, China, South Korea and California and India is implementing an energy efficiency trading scheme.
- 4.3 The Government engages with other countries to share expertise gained from developing and implementing domestic energy and climate change policies; sharing experience on the Green Deal and smart meters with inward delegations, and cooperating over longer periods, for example through the FCO Prospects Funded Projects and UK-China Low Carbon Memorandum of Understanding⁵³ supporting development of emissions trading in China; and on development of 2050 pathways calculators to aid the planning of future energy strategies in 10 developing countries. The Government will continue to take advantage of such opportunities to make the case that the shift to low carbon can be good for prosperity, security and growth.

Building the case for global ambition

- 4.4 To limit global temperature increases to no more than 2°C and avoid the most dangerous effects of climate change, will require global emissions to start falling before 2020 and then reduce to at least 50% below 1990 levels by 2050. To secure action on a sufficient scale to make this possible requires the right political, policy and economic conditions for all countries to act, to meet their existing pledges, to increase their mitigation ambition and to agree to a new legally binding international agreement by 2015. To support action the UK Government is encouraging two major shifts:

⁵² 2nd GLOBE Climate Legislation Study

⁵³ Memorandum of Understanding Between The National Development and Reform Commission of the People's Republic of China and The Department for Environment, Food and Rural Affairs on Establishing a China-UK Climate Change Working Group

- political: encouraging national governments to prioritise low-carbon growth because they see it as contributing towards growth and as a security imperative;
- investment: encouraging private sector advocacy for, and decisive shifts towards, scaled up-investment in low carbon technology and infrastructure and resource efficiency.

4.5 The UK Government also continues to press the EU to show international leadership in moving to a low carbon economy, and take an active role in influencing other major emitters. There has been progress this year; for example 26 Member States in the Environment Council and the European Parliament endorsed the 2050 Low Carbon roadmap, the Energy Efficiency Directive was agreed and the Commission has published proposals to strengthen the EU ETS. The UK Government has actively engaged in these EU level negotiations. A move to a 30% emissions reduction target for 2020 remains a UK priority, and a number of member states have joined us over the last year in pushing for this increase in ambition. The UK will continue to work across the EU, to ensure greater ambition by 2020 and beyond.

Supporting low carbon, climate resilient economies

- 4.6 Government will continue to promote and facilitate action on the ground to support low carbon development, reduce emissions from deforestation and forest degradation (REDD+), and to adapt to the very real effects of climate change experienced now in many developing countries – pushing for scale up of international climate finance.
- 4.7 The UK Government is on course to deliver our Fast Start finance commitment of £1.5 billion by the end of 2012, contributing to nearly \$30 billion of commitments from developed countries. Looking ahead, the UK is working to encourage other donors to pledge international climate finance beyond the end of the Fast Start period, as we have done through International Climate Fund (ICF). The ICF is a £2.9 billion programme running to 2015, and funded by DECC, DFID, and Defra to help developing countries move to low carbon, climate resilient development pathways, in line with a 2°C trajectory⁵⁴. DECC's contribution alone is £1 billion focussed on mitigation activity, largely in the energy sector.
- 4.8 The ICF supports transformational approaches that can deliver value for money and be scaled up and replicated by others, to enable longer term shifts in low carbon investment. The investment portfolio will test a range of interventions by:
- creating market pull: unlocking private capital to support deployment of clean energy in developing countries; addressing non price barriers, and testing innovative business models to facilitate delivery of finance at scale;
 - bringing down the learning costs of technologies critical to achieving a 2°C path. For example, providing capacity building for CCS in developing countries, a key technology for addressing climate change cost effectively, aiming to speed up global deployment; and
 - providing £7 million to a \$100 million platform of support for the design of carbon market mechanisms in 15 developing countries, through the World Bank's Partnership for Market Readiness.

⁵⁴ International Climate Fund

4.9 The Government is seeking to leverage private finance through our Capital Markets Climate Initiative⁵⁵; a model attracting international interest which engages some of the most significant institutions in the finance and investment sectors and has progressed both policy thinking as well as practical solutions in mobilising private finance.

Ensuring progress in multilateral negotiations

4.10 The UN Climate Change Conference in Durban in late 2011 (COP17) proved again that progress on climate change can be made through multilateral negotiations, opening the door to a meaningful new global legal deal to come into force from 2020 and for the first time applicable to all nations. We have moved on from the idea that such a deal could be delivered in a decisive breakthrough moment; progress is necessarily measured. However, we should not ignore or underestimate the progress that is being made towards UK and EU goals, even in the face of the ongoing global financial crisis.

4.11 COP18 takes place in Doha from 26 November to 7 December, the first of three conferences on the path to securing a new legally binding agreement by the end of 2015, as agreed in Durban. Again the UK Government, negotiating as part of the EU, will be seeking step by step progress in the negotiations and the maintenance of the high ambition alliance that was so effective in Durban at preventing a retreat to lowest common denominator positions. The priority for Doha will be a balanced outcome which delivers on each element of the Durban agreements:

- confirming the second commitment period under the Kyoto Protocol;
- agreeing a high level work plan for negotiation of the post 2020 legal agreement, including the phasing of negotiations up to 2015 to ensure they proceed effectively, and starting to build a common understanding on principles;
- progress on a set of complementary initiatives to enhance pre 2020 mitigation ambition, encouraging countries to take practical action to unlock the emission reduction potential in areas such as forests, energy and private finance; and
- further development of the international climate regime including the Green Climate Fund, the Adaptation Committee and the Technology Mechanism.

⁵⁵Capital Markets Climate Initiative

5. Managing our energy legacy

Nuclear safety and resilience

- 5.1 The Government's work on nuclear safety, security, emergency planning, transport and safeguards, led by DECC, ensures all nuclear sites are safe and secure, including the legacy sites whilst remediation is continuing. This includes:
- ensuring a robust safety and security framework for nuclear sites;
 - ensuring the overall effectiveness of the UK regime and input to European and international policy;
 - coordinating the national response in the case of an emergency at a civil nuclear site in England and Wales;
 - ensuring a framework is in place for the safe transportation of nuclear materials in the UK by road and rail; and
 - working within the UK and overseas to reduce risks to national and global security and the UK reputation from the proliferation of nuclear and chemical weapons, materials and expertise.
- 5.2 The regulation of nuclear safety, security, emergency planning, transport and safeguards is carried out by the independent civil nuclear regulator, the Office for Nuclear Regulation (ONR). The ONR, which will be given statutory footing in the Energy Bill, recently published a 'one year on' progress report on the 2011 events at the Fukushima nuclear site⁵⁶. This report provided updates on the implementation of recommendations made in HM Chief Inspector Mike Weightman's full report, published in September 2011. The progress report confirmed that UK industry and other stakeholders have responded well to the lessons learned from Fukushima. It details the significant amount of work that has already taken place and demonstrates our ongoing commitment to the principle of continuous improvement and the maintenance of a strong safety culture.
- 5.3 The Government sets policy for nuclear decommissioning, safety, security, emergency planning (in England and Wales), the transport of nuclear materials and safeguards. Responsibility for delivering decommissioning and cleaning up the UK's nuclear legacy sites is with the Nuclear Decommissioning Authority (NDA), a Non Departmental Public Body sponsored by DECC. The NDA continues to make significant progress in decommissioning the UK's historic nuclear sites safely and securely. Detailed and fully costed plans are successfully driving progress on the high-hazard facilities at Sellafield, and a new contract is in place at Dounreay that will bring forward site closure by up to 16 years and save more than £1 billion in costs. Meanwhile, progress is being accelerated at the first generation of nuclear power stations, the Magnox fleet, with a new approach that focuses resources on two lead sites before deploying the techniques across the estate.
- 5.4 The NDA's mission is long term, providing employment and facilitating growth across the UK. Some 18,000 people are directly employed throughout the UK at the NDA sites. Due to their remote locations, the NDA sites are often the largest employer in the local area and sometimes the only one offering skilled industrial job opportunities. The NDA also supports a large supply chain, spending £1.36 billion in 2011/12. There are in excess of 4,000 companies in the NDA estate supply chain with direct contracts, just under a third of which

⁵⁶ Japanese Earthquake and Tsunami: Implementing the Lessons for the UK's Nuclear Industry. Office of Nuclear Regulation, 2012

are SMEs. The NDA also plays an important role in UK R&D, spending £130 million across its sites each year, which has led directly to successful Intellectual Property commercialisation.

Coal liabilities

- 5.5 DECC achieved a major milestone in June 2012 settling the last of the 591,768 registered claims in the British Coal Respiratory Disease Litigation Chronic Obstructive Pulmonary Disease Compensation (COPD) Scheme. DECC's latest assessment of outstanding coal mining health related liabilities now stands at around £200 million with noise related hearing loss being the most significant source of claims.
- 5.6 In October 2012 the Department received Court Judgments on two Group Litigation actions. The first related to cancer and respiratory claims from workers at the former Phurnacite production plant in South Wales. The Court ruled that the Department is liable to pay compensation for respiratory and lung cancer but not bladder or basal cell skin cancer. The eligible compensation claims will now be processed. The second case related to osteoarthritis of the knee amongst coal miners. Here the Court of Appeal confirmed the original 2011 Judgment and the eight lead claimants are not able to proceed. The claimants now have a further three months to establish if there are any registered claims able to proceed.
- 5.7 We have simplified contract arrangements from April 2013 to meet obligations to former British Coal employees under the National Concessionary Fuel Scheme. At the end of October 2012, the total number of Scheme beneficiaries was around 72,666 of which approximately 60,569 were taking their entitlement in cash and the balance 12,097 continuing to receive solid fuel. We expect this liability will continue for a further 50 years and cost around £450 million.
- 5.8 The Coal Authority, DECC's NDPB responsible for the licensing of coal and the meeting of the environmental and public safety liabilities arising from coal mining, has continued to meet its statutory and regulatory obligations. These include the treatment of contaminated water from former mines, which has extended to include non-coal projects for Defra and the Environment Agency, and the settlement of claims for subsidence damage arising from former coal workings. On public safety the Authority met its target of 18,000 mine entry inspections by the end of September 2012.

North Sea oil and gas decommissioning

- 5.9 DECC is also responsible for managing the decommissioning of offshore oil and gas installations. We aim 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 7% of the 500 installations and 35,000 kilometres of pipelines on the UK Continental Shelf but the work on the remaining infrastructure is expected to continue for 20 to 30 years. Decommissioning costs for the infrastructure currently on the UKCS are estimated at £30-40 billion. These decommissioning projects will provide a growing opportunity for the UK based supply chain during the forthcoming decades.

6. Ensuring Delivery

- 6.1 The Government's objectives for UK energy policy are ambitious but they provide great opportunities for boosting the economy, ensuring it is globally competitive, improving our energy security whilst working towards a low carbon future. We are creating the overall framework for energy and climate change that will put the institutional and market arrangements in place to secure the private sector investment needed to deliver a reliable low carbon energy mix. We will work closely with investors and businesses to ensure that there is the certainty and stability needed to drive the speed and scale of the transition we need through Electricity Market Reform, the Green Deal, the Green Investment Bank⁵⁷ and through the development of supply chains.
- 6.2 We work actively internationally both to drive progress on carbon reduction targets through the United Nations and to secure the energy supplies we need at stable and affordable prices. We will strengthen the existing regulatory framework for energy by improving the alignment of energy policy and regulation through establishing a statutory Strategy and Policy Statement. We also work collaboratively with the Devolved Administrations to ensure that we have coherent and complementary policies in place to deliver our shared goals and objectives.

Working within the EU

- 6.3 DECC and other Government Departments are working closely with the European Commission and EU Member States on energy and climate change issues. The EU's leaders have committed Europe to transforming itself into a highly energy-efficient and low carbon economy. The UK has been at the heart of the development of the EU's climate and energy agenda and is therefore well-placed to benefit from it. The UK is working hard within the EU to strengthen the EU Emissions Trading System so that it acts as a driver for low carbon investment across the EU. The UK is also playing a leading role in the development of a post-2020 EU climate and energy framework to ensure that the EU remains on the path to its long term emissions objectives. This supports the cost effective achievement of the UK's own climate and energy objectives. The Government is also working closely with the EU to design its domestic policies to be consistent with EU State Aid rules

Monitoring our progress

- 6.4 DECC monitors delivery of its policies through performance indicators published in its Business Plan. These include indicators that measure the impact of our policies: for example, DECC tracks the number of households in fuel poverty to understand how energy policies help those that need it most and it measures total emissions from greenhouse gases ensuring the UK is on track to meet our emissions targets. DECC also publishes input indicators which help track the value for money of our policies: for example, renewable financial incentive cost per unit of renewable energy generated. The DECC business plan and tracking of its delivery can be found on the DECC and No 10 websites⁵⁸.

⁵⁷ The UK Green Investment Bank is the world's first Green Investment Bank and will be a key component of the transition to a low carbon economy by providing financial solutions to accelerate private sector investment in the UK's transition to a green economy.

⁵⁸ DECC Business Plan 2012 - 2015

- 6.5 DECC's 2011/12 Capability Review was published in June 2012, assessing the Department's capability to meet current and future challenges in leadership, strategy and delivery. The review recognises that DECC has an ambitious and challenging portfolio despite being one of the smallest Departments in Whitehall. It acknowledges that DECC has come a long way since its creation in October 2008 and the previous Capability Review in 2009, moving from a policy-focused organisation to one with the ability to manage our large and complex delivery programme, but it also recognises that we still have work to do. In response we need to accelerate the growth of DECC's skills and systems and to develop ways of working to match the challenge of delivering our portfolio. These changes are being implemented through a change programme, with an expert programme director and top management support, and are focussed on developing: Leadership and Governance, People and Skills, and Delivery Culture.

Next steps

- 6.6 DECC will provide an update on progress with delivering our energy and climate change policies in the 2013 Annual Energy Statement.



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