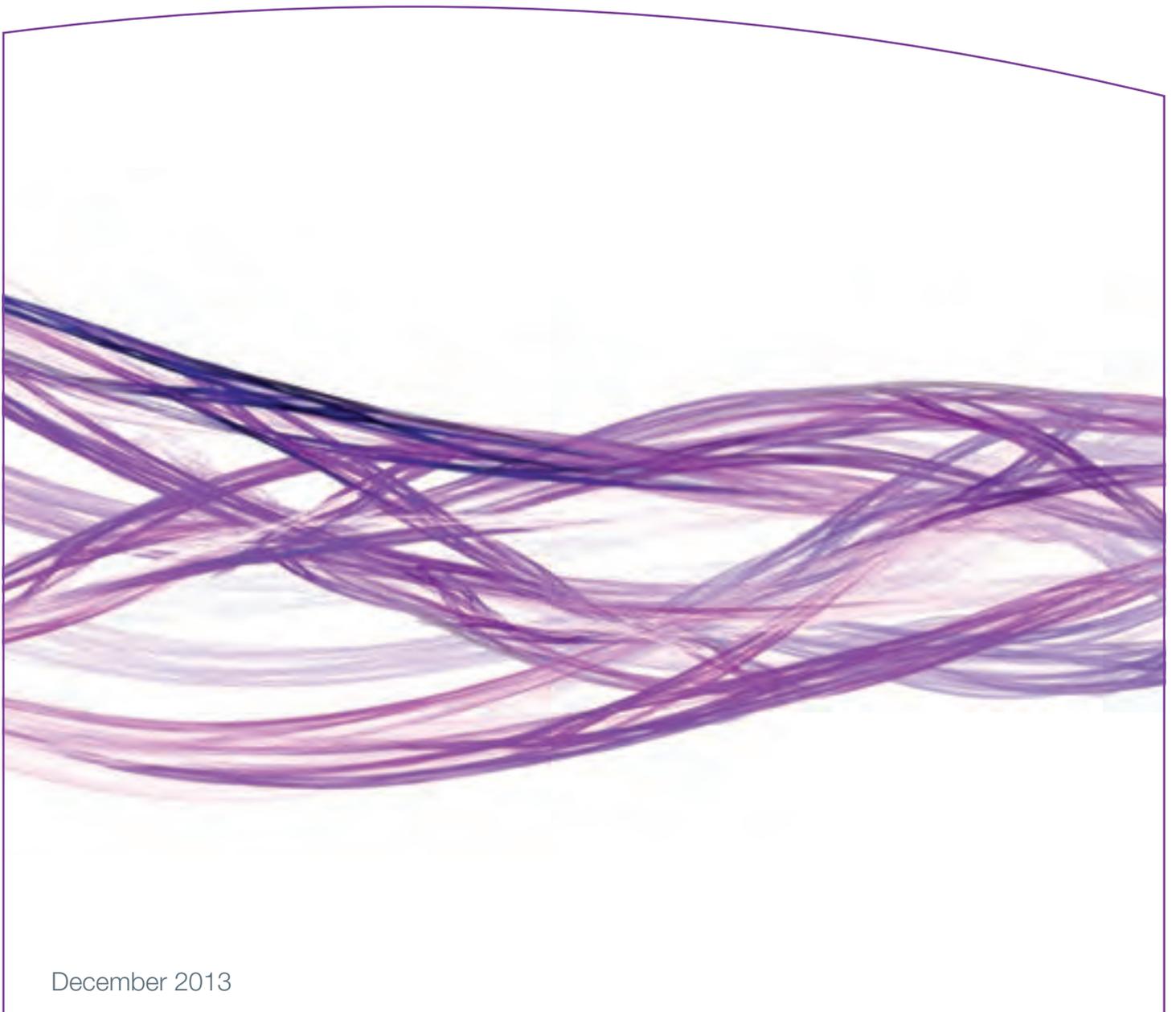




Department  
of Energy &  
Climate Change

# Energy Efficiency Strategy

2013 Update



December 2013

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the 1990s, the number of people in the world who are under 15 years of age is expected to increase from 1.1 billion to 1.5 billion.

As a result of the demographic changes, the number of people in the world who are aged 65 and over is expected to increase from 300 million in 1990 to 600 million in 2020. The number of people aged 75 and over is expected to increase from 100 million in 1990 to 250 million in 2020.

The number of people in the world who are aged 80 and over is expected to increase from 20 million in 1990 to 60 million in 2020.

The number of people in the world who are aged 85 and over is expected to increase from 5 million in 1990 to 15 million in 2020.

The number of people in the world who are aged 90 and over is expected to increase from 1 million in 1990 to 3 million in 2020.

The number of people in the world who are aged 95 and over is expected to increase from 0.2 million in 1990 to 0.6 million in 2020.

The number of people in the world who are aged 100 and over is expected to increase from 0.05 million in 1990 to 0.15 million in 2020.

The number of people in the world who are aged 105 and over is expected to increase from 0.01 million in 1990 to 0.03 million in 2020.

The number of people in the world who are aged 110 and over is expected to increase from 0.001 million in 1990 to 0.003 million in 2020.

The number of people in the world who are aged 115 and over is expected to increase from 0.0001 million in 1990 to 0.0003 million in 2020.

The number of people in the world who are aged 120 and over is expected to increase from 0.00001 million in 1990 to 0.00003 million in 2020.

The number of people in the world who are aged 125 and over is expected to increase from 0.000001 million in 1990 to 0.000003 million in 2020.

The number of people in the world who are aged 130 and over is expected to increase from 0.0000001 million in 1990 to 0.0000003 million in 2020.

The number of people in the world who are aged 135 and over is expected to increase from 0.00000001 million in 1990 to 0.00000003 million in 2020.

The number of people in the world who are aged 140 and over is expected to increase from 0.000000001 million in 1990 to 0.000000003 million in 2020.

The number of people in the world who are aged 145 and over is expected to increase from 0.0000000001 million in 1990 to 0.0000000003 million in 2020.

The number of people in the world who are aged 150 and over is expected to increase from 0.00000000001 million in 1990 to 0.00000000003 million in 2020.

The number of people in the world who are aged 155 and over is expected to increase from 0.000000000001 million in 1990 to 0.000000000003 million in 2020.

The number of people in the world who are aged 160 and over is expected to increase from 0.0000000000001 million in 1990 to 0.0000000000003 million in 2020.

The number of people in the world who are aged 165 and over is expected to increase from 0.00000000000001 million in 1990 to 0.00000000000003 million in 2020.

The number of people in the world who are aged 170 and over is expected to increase from 0.000000000000001 million in 1990 to 0.000000000000003 million in 2020.

The number of people in the world who are aged 175 and over is expected to increase from 0.0000000000000001 million in 1990 to 0.0000000000000003 million in 2020.

The number of people in the world who are aged 180 and over is expected to increase from 0.00000000000000001 million in 1990 to 0.00000000000000003 million in 2020.

The number of people in the world who are aged 185 and over is expected to increase from 0.000000000000000001 million in 1990 to 0.000000000000000003 million in 2020.

The number of people in the world who are aged 190 and over is expected to increase from 0.0000000000000000001 million in 1990 to 0.0000000000000000003 million in 2020.

The number of people in the world who are aged 195 and over is expected to increase from 0.00000000000000000001 million in 1990 to 0.00000000000000000003 million in 2020.

The number of people in the world who are aged 200 and over is expected to increase from 0.000000000000000000001 million in 1990 to 0.000000000000000000003 million in 2020.

## Ministerial Foreword



The Coalition Government has propelled energy efficiency to its rightful place at the forefront of energy policy. In last year's *Energy Efficiency Strategy* we set out our ambition to see the UK get closer to using only the energy it really needs. I am proud to say the last 12 months has seen giant steps towards delivering on that ambition.

Over the last year we have extended support to help households insulate their homes, by introducing the world first Green Deal and the Energy Company Obligation; and on 2 December 2013 we announced a package of measures that will cut consumers' bills, while retaining our ambitious carbon targets and safeguarding green jobs in the UK.

We have paved the way for innovation and infrastructure investment by establishing new financing routes, through setting up the UK Green Investment Bank; announced plans to launch, at least, a £20 million pilot to trial Electricity Demand Reduction within our Electricity Market Reforms; and concluded the procurement competitions for the provision of data and communication services needed to support the roll out of smart meters.

The UK is already one of the most energy efficient developed economies in the world, but in a global race for efficiency there is no room for complacency. If we stand still and congratulate ourselves we will soon be

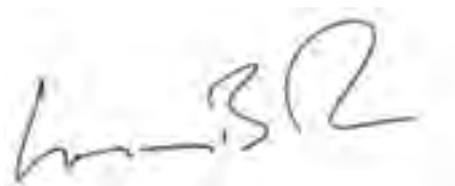
overtaken. As the Prime Minister has said "we are in a global race and the countries that succeed in that race, the economies in Europe that will prosper, are those that are the greenest and the most energy efficient."

Already our energy efficiency sector is worth more than £18 billion and supports 136,000 jobs. It drives efficiency improvements in our homes and businesses, and we export our expertise across the globe.

Energy efficiency is a key priority in supporting household and business energy consumers with rising costs. But it is also at the heart of action to decarbonise the UK in a cost-effective way, maintain secure energy supplies, and increase business productivity.

The UK is succeeding on energy efficiency. Energy consumption has fallen in seven of the last eight years. UK households will soon have unrivalled access to home energy management technologies, insulation and renewable heat measures. The Government has taken action to simplify existing business energy efficiency policies, substantially reducing administrative costs; and our new Energy Savings Opportunity Scheme will help large companies to save money on their energy bills, and could benefit the UK as a whole by £1.9 billion.

This Update sets out our rolling ambitious programme of action. There is still huge energy efficiency potential in the UK economy and to capture more of this the Government remains committed to catalysing demand for energy efficiency amongst households, businesses, and the public sector; and building on the momentum we have already established.

A handwritten signature in black ink, appearing to read 'Gregory Barker', is positioned above the printed name.

Rt Hon. Gregory Barker  
Minister of State

# Executive Summary

## Energy Efficiency – a key climate and energy priority

1. The Government is committed to realising the energy efficiency opportunity in the UK. Establishing an energy efficient economy is one of our key energy and climate change priorities.

2. Energy efficiency is an increasingly important resource in today's economic climate, and the Government wants to revolutionise the UK's approach to energy efficiency, putting it at the heart of the economy.

3. Our *Energy Efficiency Strategy* set out four key benefits of energy efficiency:

- It saves **households and businesses money** on their energy bills.
- It **promotes economic growth** and supports jobs in the economy.
- It supports activity to **revitalise** our **infrastructure**, contributing to a more secure and sustainable energy system and reducing our reliance on energy imports.
- It is often the **most cost-effective way to decarbonise**.

4. The Government's mission is to overcome the barriers (box 1) to energy efficiency take up and realise the energy efficiency opportunity in the UK.



“...we are in a global race and the countries that succeed in that race, the economies in Europe that will prosper, are those that are the greenest and the most energy efficient”

(Prime Minister, February 2013)

### Box 1: RECAP – The barriers to Energy Efficiency take-up

The *Energy Efficiency Strategy* identified four key barriers to the deployment of cost-effective energy efficiency investment in the UK economy.

**Embryonic markets:** The UK already has an energy efficiency market but it is small relative to the size of the opportunity. There are significant economic benefits to be realised from growing this market and making energy efficiency a mainstream activity.

**Information:** Accessing trusted and appropriate energy efficiency information has often proven difficult. Where information is available it is usually generic and not tailored to specific circumstances; or it is focused on particular opportunities, meaning that individuals and businesses are unable to fully assess the benefits of investment in energy efficiency measures.

**Misaligned financial incentives:** Those investing in energy efficiency measures are not always the ones receiving the direct benefit. For example, the wider benefits of energy efficiency investment, such as improved security of supply and reduced carbon emissions, are not fully realised by those making the investment.

**Undervaluing energy efficiency:** The long term financial and wider benefits of improved energy efficiency are often regarded as less certain, partly because of the lack of trusted information in the market. Consequently, energy efficiency has traditionally been undervalued relative to other investment options, and not prioritised as it might have otherwise been.<sup>1</sup>

## Key areas of Government progress

5. The Government is now well into delivering a rolling programme of action to address the four barriers to energy efficiency take up. The first year of implementing the Energy Efficiency Strategy has seen significant progress.

6. Over the last 12 months the UK's final energy consumption (on a temperature corrected basis) fell by nearly 1%.<sup>2</sup> Energy consumption in the UK has now fallen for seven of the last eight years.

7. Since the publication of the Energy Efficiency Strategy the Government has introduced new policies and simplified existing ones. We have:

- Expanded choice and support for households through the introduction of the Green Deal and the Energy Company Obligation (ECO). Since their introduction these two schemes have been steadily gaining momentum. On 2 December 2013 we announced plans to extend ECO to 2017; increase the funding for the Green Deal Communities scheme; and provide people buying a house with support to make energy efficiency improvements, by giving them up to £1,000 to spend on important energy-saving measures, or up to £4,000 for particularly expensive measures. We have also established access to impartial advice through the Energy Saving Advice Service.
- Simplified and extended support for businesses and the public sector by

<sup>1</sup> DECC, *Energy Efficiency Strategy: The Energy Efficiency Opportunity in the UK* (November 2012).

<sup>2</sup> DECC, *Energy Trends* (September 2013). Note: includes data up to June 2013.

removing overlaps between the EU Emissions Trading Scheme, the CRC Energy Efficiency Scheme, and Climate Change Agreements; and bringing forward the Mandatory Greenhouse Gas Reporting Scheme, which will enable investors to see which companies are effectively managing the long-term costs of greenhouse gas emissions. In 2014 we will introduce the new Energy Savings Opportunity Scheme (ESOS), which helps companies to save money on their bills by identifying cost-effective energy efficiency opportunities; and pilot Electricity Demand Reduction (EDR), to drive permanent reductions in demand for electricity.

- Connected access to energy efficiency measures with finance, and taken action to improve understanding and raise awareness of the benefits of energy efficiency. The introduction of the UK Green Investment Bank has mobilised investment in the green economy. Set up in October 2012, investment in energy efficiency is a key priority for the Bank and it has been active in supporting energy efficiency projects over the last twelve months. We have increased the support available through public sector finance schemes, like Salix, and announced plans to invest an additional £30 million a year over three years in public sector renovation; and we have raised awareness of the benefits of energy efficiency through the sponsorship of three new energy efficiency awards at the Green Economy Awards.

8. The rest of this Update sets out the significant progress that has been made over the last twelve months and focuses on the following key themes:

- Government action to support growth in the energy efficiency market.
- UK leadership on energy efficiency.
- Government action to expand support and choice for households, and help them cut their bills.
- Progress towards simplifying and extending support for businesses and the public sector.
- Action to connect energy efficiency measures with finance, improve understanding and raise awareness of energy efficiency.
- The Government's upcoming energy efficiency priorities.

“...plenty of businesses are approaching energy efficiency as a business growth opportunity, seeking to increase their competitiveness, grow their customer base and capitalise on new markets, both at home and abroad.”

(CBI, September 2013)



# Chapter 1: Supporting economic growth

## 136,000

people employed in the  
UK energy efficiency sector

## £18bn sales

generated by the UK  
energy efficiency sector

### Energy efficiency – it's a global race

1.1 Investment in energy efficiency can support long term growth in the UK. For domestic energy consumers lower energy bills can lead to higher disposable incomes that can be spent elsewhere in the economy. There are also clear benefits for businesses, beyond cutting their costs, arising from investment in energy efficiency.

1.2 The Government has investigated the links between energy efficiency and business productivity, and the evidence demonstrates that improvements in energy efficiency drive productivity gains for businesses. Beyond energy savings delivered through energy efficiency investment, businesses stand to benefit from reduced maintenance costs, improved working conditions, and potential for expanded markets. As firms benefit from higher productivity, this contributes to higher economic growth.

1.3 The importance of energy efficiency is recognised globally. Governments around the world are increasingly deploying energy efficiency policies, and its growing importance is reflected in the priorities of the global investment community.

1.4 In October 2013, the International Energy Agency (IEA) published its first *Energy Efficiency Market Report*, which estimates total global investment in energy efficiency measures in 2011 was between **\$147 and \$300 billion**<sup>3</sup>. The report concludes that energy efficiency should be considered a fuel alongside oil, gas, coal and renewables; and that the trend towards investment in energy efficiency is set to continue, driven by a growing recognition of the effectiveness of policies and high energy prices.

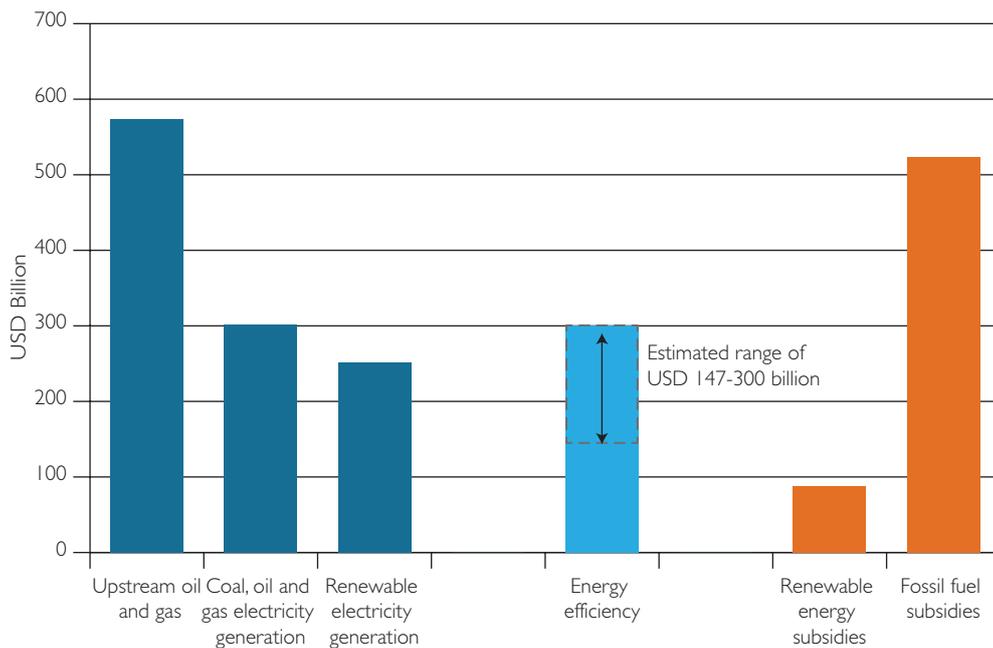
The Next Manufacturing Revolution programme recently estimated that the potential benefits of non-labour resource productivity, including energy efficiency, to the UK manufacturing industry could be:

- **£10 billion** p.a. in profits for manufacturers – a 12% increase in average annual profits.
- **314,000** new manufacturing jobs – a 12% increase in manufacturing employment.
- **27 million tonnes** reduction in greenhouse gas emissions p.a. – 4.5% of the UK's total greenhouse gas emissions in 2010.

(Next Manufacturing Revolution, July 2013)

3 International Energy Agency, *Energy Efficiency Market Report* (October 2013).

Figure 1: Global levels of investment and subsidy in selected areas of energy system (2011)



Source: International Energy Agency

1.5 In 2011/12, the UK’s energy efficiency market accounted for around **136,000 jobs** and sales of over **£18 billion**<sup>4</sup>. Still, there remains room for this market to grow, as significant energy efficiency potential remains in the economy. The *Energy Efficiency Strategy* found that we could be saving 196 TWh in 2020, equivalent to the output of 22 power stations, through socially cost-effective investment in energy efficiency<sup>5</sup>.

1.6 The UK is well positioned to become a global leader in energy efficiency technology and implementation. And our relatively cool climate and established infrastructure, combined with our proud tradition of innovation and established advanced capital markets, mean that we are ready to realise the opportunity now.

### Government action to boost the market

1.7 The Government’s energy efficiency policies are designed to play an important role

in supporting the development of the energy efficiency market, and economic growth more widely. Policies such as the Green Deal and ECO, smart meters, and the Renewable Heat Incentive (RHI) are spurring the development of new markets and technologies, and are there to help consumers cut the cost of their energy bills.

1.8 Since their introduction in January 2013 the **Green Deal** and **ECO** have been gaining momentum. More than 100,000 Green Deal assessments had been carried out by the end of October (up from 85,000 at the end of September), and the supply chain is growing<sup>6</sup>. In support of these companies, the Government has made £3.5 million available to fund training programmes for assessors and solid wall insulation installers. We plan to reduce the deployment costs of ECO and streamline the Green Deal, making it easier for consumers and businesses to take it up (see chapter 3).

1.9 Once up and running the domestic **RHI** will support industry growth by facilitating the installation of around **750,000** renewable

4 BIS, *Low carbon and environmental goods and services (LCEGS) report for 2011 to 2012* (July 2013). Note: energy efficiency sector defined as Building Technologies & Energy Management.  
 5 DECC, *Energy Efficiency Strategy: The Energy Efficiency Opportunity in the UK* (November 2012).  
 6 DECC, *Green Deal and Energy Company Obligation (ECO): monthly statistics* (November 2013).

heating systems by 2020/21<sup>7</sup>. It will also require participants to meet minimum energy efficiency criteria, in the form of loft and cavity wall insulation, where appropriate, strengthening its contribution to energy efficiency markets.

1.10 The roll out of **smart meters** across Great Britain, which will start in earnest from autumn 2015, is expected to deliver a positive net present benefit of over **£6 billion**<sup>8</sup> over the next 20 years. Smart meters will provide a platform for further investment in smart electricity grids and the development of a smarter energy market, one in which more consumers will benefit from flexible time-of-use tariffs. Over the last twelve months significant progress has been made, including awarding a licence to the Data and Communications Company, which has signed contracts with three companies worth **£2.2 billion** for the provision of data and communication services.

1.11 The Government has taken action to help organisations get access to the finance they need to invest in energy efficiency. We set up the **UK Green Investment Bank**, which has energy efficiency as one of its key priorities. Established in October 2012, the Bank has £3.8 billion available to invest until March 2016, and over the last twelve months it has committed **£150 million** to three specialist funds to make energy efficiency investments in the non-domestic sector. The **Energy Entrepreneurs Fund**, worth £35 million, is supporting 31 companies to develop innovative technologies within the energy efficiency, building technologies, power generation and energy storage sectors. The

first phase awarded grants of £16 million to 31 companies, two thirds of whom are developing energy efficiency products.

1.12 Looking forward, from 2014 **ESOS** will stimulate demand amongst UK businesses for energy efficiency measures, through its role in addressing the information barrier, and establish new opportunities for energy efficiency installers. Our current analysis suggests that ESOS has the potential to deliver **£1.9 billion**<sup>9</sup> of net benefits to the UK and reduce business energy bills by £300 million in its first year. Our **EDR** pilot, which will receive at least **£20 million** in funding, will inform future policy development targeted at increasing electrical efficiency in the UK to cut energy bills, reduce costs for businesses and bring down the UK's emissions.

1.13 The Government and industry recently published a joint strategy, *Construction 2025: strategy*, which set out the vision for where the UK construction industry will be in 2025. At the heart of this is a sustainable, efficient, and technologically advanced industry that leads the way in low-carbon and green construction exports. With global growth in green and sustainable building construction forecast to be, on average, more than 22%, per year, between 2012 and 2017<sup>10</sup> the scale of opportunity in this sector is significant. Our energy efficiency policies are designed to stimulate demand for building retrofit and facilitate the realisation of this opportunity. A 2012 Deutsche Bank report on the market size of energy efficiency retrofits in the United States estimated the size of the opportunity in building retrofit – for every \$1 invested it could yield a return of more than \$3<sup>11</sup>.

7 DECC, *Domestic Renewable Heat Incentive Impact Assessment* (July 2013).

8 DECC, *Smart meter roll-out for the domestic and small and medium non-domestic sectors (GB): Impact Assessment* (January 2013).

9 DECC, *Energy Saving Opportunities Scheme Consultation Impact Assessment* (July 2013).

10 BIS, *Construction 2025: industrial strategy for construction – government and industry in partnership* (July 2013).

11 Deutsche Bank Climate Change Advisers and The Rockefeller Foundation, *United States Building Energy Efficiency Retrofits Market Sizing and Financing Model* (March 2012).

the 1990s, the number of people in the UK who are employed in the public sector has increased from 10.5 million to 13.5 million, and the number of people in the public sector who are employed in health care has increased from 2.5 million to 3.5 million (Department of Health 2000).

There are a number of reasons for the increase in the number of people employed in the public sector. One reason is that the public sector has become a more important part of the economy. Another reason is that the public sector has become a more attractive place to work. A third reason is that the public sector has become a more important part of the welfare state.

The increase in the number of people employed in the public sector has led to a number of changes in the way that the public sector is organized. One change is that the public sector has become more decentralized. Another change is that the public sector has become more market-oriented. A third change is that the public sector has become more customer-oriented.

The increase in the number of people employed in the public sector has also led to a number of changes in the way that the public sector is funded. One change is that the public sector has become more dependent on government funding. Another change is that the public sector has become more dependent on private funding. A third change is that the public sector has become more dependent on user fees.

The increase in the number of people employed in the public sector has also led to a number of changes in the way that the public sector is managed. One change is that the public sector has become more professionalized. Another change is that the public sector has become more bureaucratic. A third change is that the public sector has become more hierarchical.

The increase in the number of people employed in the public sector has also led to a number of changes in the way that the public sector is evaluated. One change is that the public sector has become more subject to external evaluation. Another change is that the public sector has become more subject to internal evaluation. A third change is that the public sector has become more subject to self-evaluation.

The increase in the number of people employed in the public sector has also led to a number of changes in the way that the public sector is perceived. One change is that the public sector has become more respected. Another change is that the public sector has become more valued. A third change is that the public sector has become more appreciated.

The increase in the number of people employed in the public sector has also led to a number of changes in the way that the public sector is viewed. One change is that the public sector has become more visible. Another change is that the public sector has become more accessible. A third change is that the public sector has become more transparent.

## Chapter 2: UK leadership on energy efficiency

**£1.85bn**

generated in exports from  
UK energy efficiency sector

**154 TWh**

to be saved by 2020 through  
Government policies

### Progress towards UK targets

2.1 In the UK we have one of the least energy intensive economies in the world, and since 2006 we have had the least energy intensive economy in the G8<sup>12</sup>. But there remains significant energy efficiency potential in the economy and the Government is committed to taking further action to ensure the UK stays ahead.

2.2 The Government's 2013 *Energy and Emissions Projections*, published in September, estimate that the UK's energy consumption will be 2% lower in 2020 and 5% lower in 2030 than last year's projections<sup>13</sup>, continuing the trend of falling energy consumption in the UK.

2.3 The projections suggest that the existing policy package will reduce UK final energy consumption by 154 TWh by 2020 (against business as usual projections).

2.4 Figure 4 shows a breakdown of sectors by their projected policy savings until 2030. In 2020, based on current policies, the residential sector contributes 38% of the savings, a further 30% from transport and 24% from public and commercial services. By 2030, the transport sector will contribute 51% of the savings, with a further 32% from the residential sector, and 12% from public and commercial services.

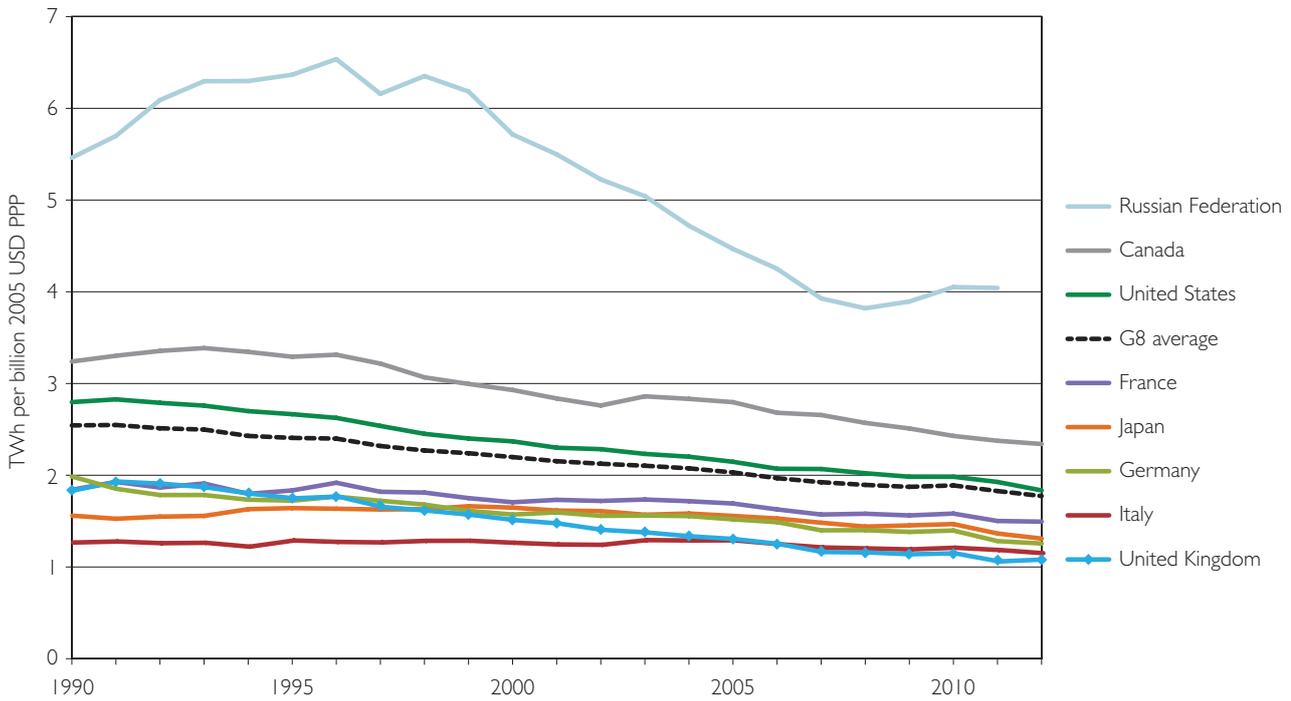
2.5 In the *Energy Efficiency Strategy* we made clear our commitment to maximising the performance of the existing policy framework and to going further, acting on the barriers to energy efficiency. In June 2014 we will legislate to introduce ESOS, which will require all large enterprises in the UK to undertake an energy audit by 2015 and every four years thereafter. The Impact Assessment, published alongside the consultation, estimates that ESOS could deliver 3.3 TWh of energy savings in its first year and cumulative savings of around 50 TWh by 2030<sup>14</sup>.

<sup>12</sup> DECC, *Energy Efficiency Statistical Summary* (November 2013).

<sup>13</sup> DECC, *Energy & Emissions Projections* (September 2013).

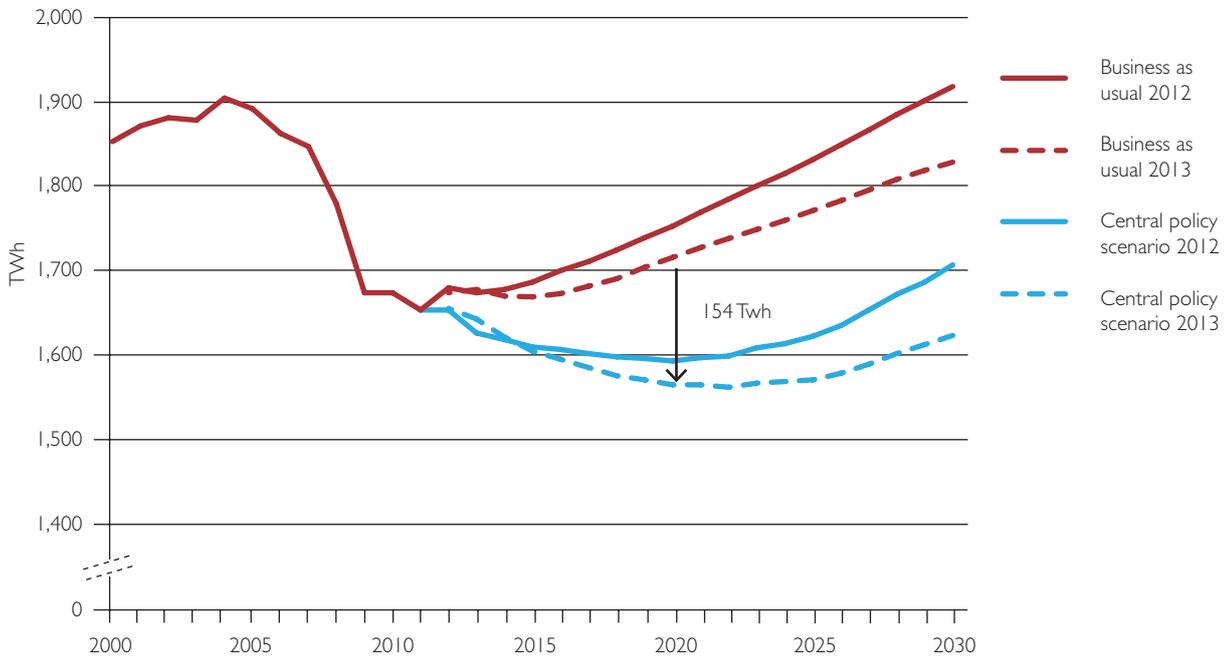
<sup>14</sup> DECC, *Energy Saving Opportunities Scheme Consultation Impact Assessment* (July 2013).

Figure 2: Primary energy consumption per unit of GDP

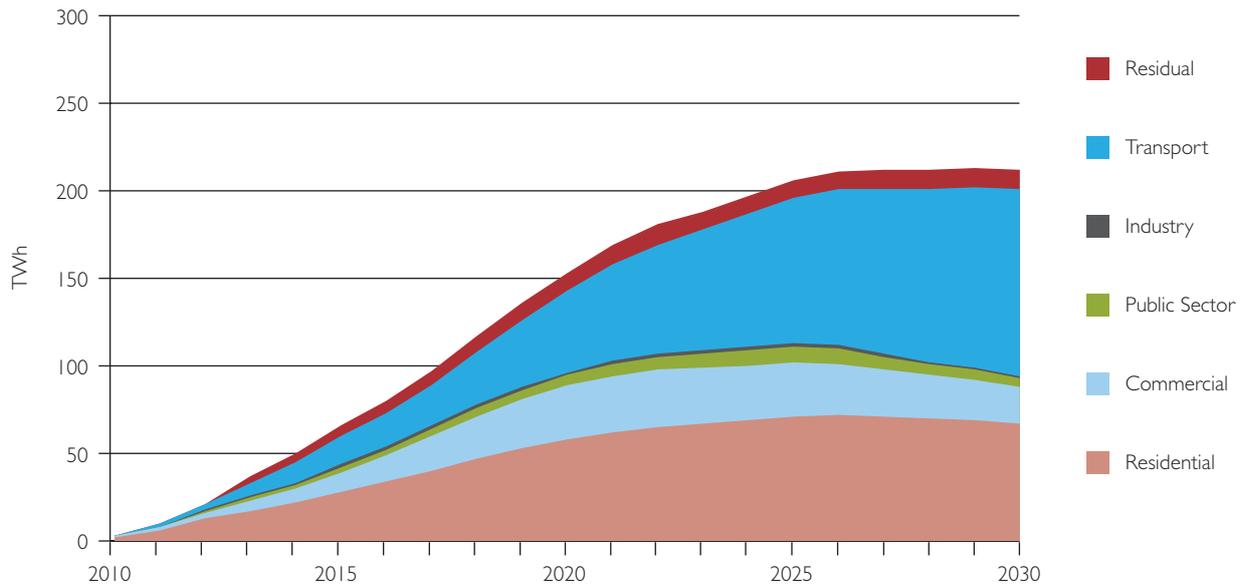


Source: International Energy Agency

Figure 3: Final Energy Consumption – projections and observed statistics<sup>15</sup>



15 DECC, Energy Efficiency Statistical Summary (November 2013).

Figure 4: Projected UK policy savings for final energy consumption<sup>16</sup>: 2010-2030

Source: DECC Energy & Emission Projections 2013

2.6 On 30 April 2013, the UK notified the European Commission of its Article 3 target, which was set at the level of 129.2 million tonnes of oil equivalent (MTOE) for final energy consumption on a net calorific value basis<sup>17</sup>. This represents an 18% reduction in final energy consumption, relative to the 2007 business as usual projection<sup>18</sup>. The 2013 *Energy and Emissions Projections* suggest the UK is currently on track to meet its target, with final energy consumption in 2020 projected to be **20% below the baseline**.

2.7 The UK recently submitted its Article 7 notification to the European Commission, and the Government will report on progress in our National Energy Efficiency Action Plan (NEEAP), which will be published by 30 April 2014.

## International collaboration

2.8 Reflecting the UK's leading role on energy efficiency, the Government has been active in sharing our domestic experiences internationally and encouraging others to do more.

2.9 We are working closely with the Russian Government to share our experiences of implementing energy efficiency policy, and together we have set up the **UK Russia Consultative Committee on Energy Efficiency and Renewables**. The first part of this information sharing exercise took place in October 2013, bringing together the UK and Russian Governments, Russian businesses and representatives of the UK Energy Services Technology Association.

<sup>16</sup> Industrial savings are very low since most industrial policies are in the baseline. Residual savings include the impact of demand response to changes in the electricity price change due to changes in the generation mix in the policy scenario.

<sup>17</sup> This was the projected level of final energy consumption from the 2012 projections and, with that fuel mix projection, is equivalent to 1,586 TWh on the gross calorific value based used in UK National Statistics and projections.

<sup>18</sup> This equates to a 20% reduction in primary energy consumption against 2007 business as usual projections and a 26% reduction in final energy intensity.

## EU Energy Efficiency target and the Energy Efficiency Directive

### Box 2: targets and aspirations explained

#### EU energy efficiency target

In 2007 EU Member States agreed a non-binding target to reduce primary energy consumption by 20% by 2020, against a 2007 business-as-usual projection. This forms part of a wider package of targets – known as the “20-20-20 targets” – which make up the EU’s 2020 climate and energy package, which includes binding greenhouse gas emissions and renewable energy targets.

#### EU Energy Efficiency Directive

The EU Energy Efficiency Directive<sup>19</sup> (2012/27/EU) represents a major step forward for energy efficiency in the UK, establishing a common framework of measures to promote energy efficiency across different sectors of the economy throughout the EU.

The Directive introduced two new targets for Member States:

- A non-binding national energy efficiency target for 2020, to be set by Member States taking into account the EU’s overarching non-binding 2020 energy efficiency target (Article 3).
- A legally binding target to save 1.5% of final energy annually, year on year, between January 2014 and December 2020 (Article 7)<sup>20</sup>.

#### Energy Efficiency Deployment Office’s (EEDO) ambition for improving energy efficiency

The *Energy Efficiency Strategy* set out the ambition for EEDO, delivering energy demand reduction beyond that which existing energy efficiency policies are projected to deliver<sup>21</sup>. We remain committed to securing permanent energy reductions and ensuring the successful delivery of our policies. The 2013 *Energy and Emissions Projections* suggest that existing policy measures will reduce final energy demand by 154 TWh in 2020. New policies, like ESOS, should help deliver energy savings beyond this level.

<sup>19</sup> European Commission, *Energy Efficiency Directive* (October 2012).

<sup>20</sup> The Directive specifies that the Article 7 target is to be met through the deployment of an energy supplier obligation and/or equivalent policy measures.

<sup>21</sup> Note: at the time of publishing energy efficiency policies were projected to deliver final energy demand savings of 163 TWh in 2020.

2.10 Through the World Bank's **Clean Technology Fund**, the Government is supporting take up of energy efficiency measures in developing countries. To date, the UK has contributed **£610 million**. The Fund has already had some early energy efficiency successes, with over 6,800 GWh of annual energy savings secured as a result of its interventions.

2.11 The UK's role as an international leader on energy efficiency creates opportunities for our businesses to exploit demand for energy efficiency products and expertise in overseas markets. Exports from the UK's energy efficiency sector were worth nearly **£1.85 billion** in 2011/12, and a significant share of this went to the emerging BRIC companies – case study 1 is a good example of the potential in this area.

2.12 Over the next 12 months the Government will continue to work closely, as a member of the **Major Economies Forum** (MEF), on an Action Agenda to examine how all member countries might deliver ambitious buildings retrofit programmes. MEF countries will work together to establish a long term energy efficiency goal. The Government is committed to ensuring the initiative is ambitious for all MEF countries and that it supports global action to reduce carbon emissions.

### Case study 1: UK Building Research Establishment (BRE) collaboration with Franshion Properties Ltd in China

UK suppliers are being given the opportunity to showcase their innovative and sustainable technologies in Franshion's Sustainable Building Exhibition Centre, in the Meixi Lake Eco-City in China. The exhibition centre will be an exemplar of sustainability and low carbon construction, and is designed to both BREEAM<sup>22</sup> and China's 3 Star green building standard.



The exhibition has been organised to communicate excellence in sustainable buildings to a wide audience, and Franshion Properties have been working closely with BRE and partners in the UK to set it up, in recognition of the UK's international leadership in this field. The exhibition will provide a significant opportunity for UK low carbon construction and energy related technology manufacturers to expand into new markets<sup>23</sup>.

22 <http://www.breeam.org/about.jsp?id=66>

23 <http://www.bre.co.uk/news/Chinese-developer-seeks-best-innovations-for-20m-flagship-building-in-new-6bn-ecocity---871.html>



## Chapter 3: Supporting households, cutting bills

### Established Access

to impartial advice for  
homes and businesses

3.1 In the UK we have some of the oldest and most inefficient housing stock in Europe. Since the publication of the *Energy Efficiency Strategy* the Government has initiated a rolling programme of action aimed at revolutionising the domestic energy efficiency market, and has taken steps to address the barriers to energy efficiency take up in households. We want to help people keep warm and spend less on their energy bills, and installing cost-effective energy efficiency measures is one of the best ways to do this.

3.2 The measures we have introduced are aimed at:

- **Helping households to insulate their homes** so that they use only the energy they need to, and can reduce their bills over time.
- **Empowering households to take control of their energy use.** Smart meters are already being installed in consumers' homes and over the last twelve months the Government has taken steps to prepare for the roll out of smart meters to most consumers. Smart meters will provide households with near-real time information, and help them to better understand how their behaviour impacts on their energy usage and the cost of their bills.

### £2.2bn

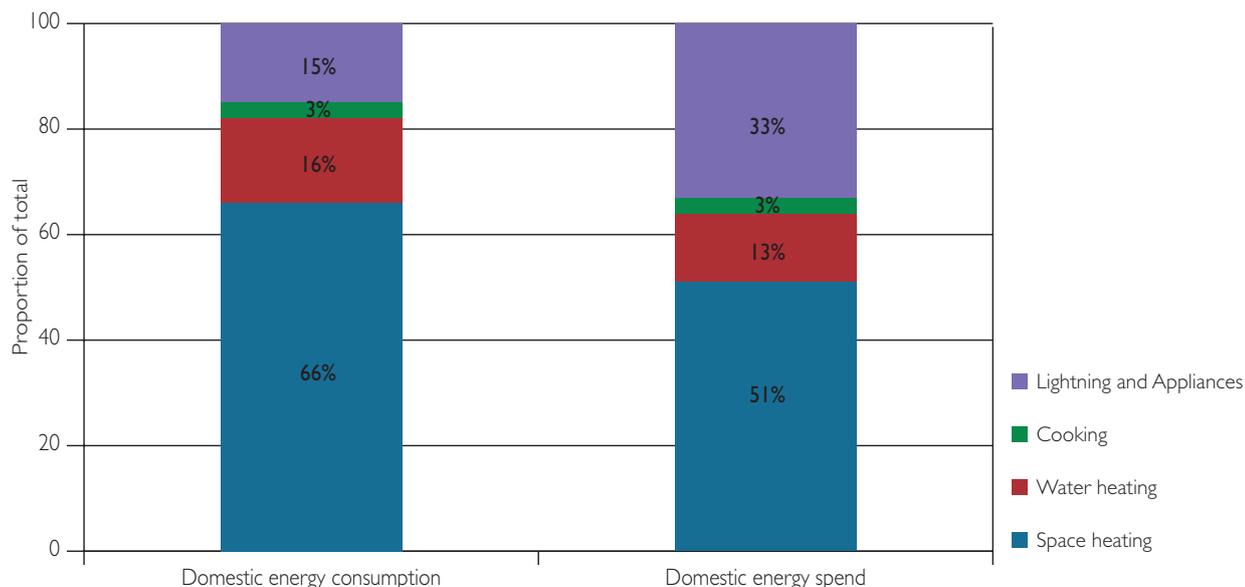
contracts signed for  
smart meter services

- **Providing households with access to trusted information,** advice and standards so that they can choose the right energy efficiency measures for their home, based on their individual circumstances.

3.3 With over 80% of the energy we consume in our homes being used for heating (space and water), the importance of Government policies that support the take up of insulation measures cannot be underestimated. Home insulation can be one of the most cost-effective steps that households can take to manage their energy demand and keep the costs of their bills down. Figure 5 shows the proportion of household energy demand for heating and spend relative to other household energy needs. Our energy efficiency programmes are designed to help consumers to realise long-term energy savings on their bills, by supporting them to take up cost-effective energy efficiency measures.

3.4 In addition to improving the fabric of homes, there are a number of quick and easy measures that households can take to manage their energy use and the costs of their bills. In November 2013, DECC published a brochure, *Helping consumers with their energy*, that explains the range of support and help available to householders, and where to

Figure 5: Breakdown of domestic energy consumption and domestic energy expenditure by end use (2012)



go for more information and advice. The brochure, which included a number of money saving measures, is available on GOV.UK.

### Green Deal and the Energy Company Obligation: Helping keep homes warm

3.5 In January 2013 the Government introduced the Green Deal, a world first in energy efficiency programmes. The Green Deal is designed to help households insulate their homes, cut energy waste and bills, while reducing their carbon emissions. It is a long-term programme and these are early days. But, as of October 2013, over 100,000 homes had had a Green Deal assessment, and research has shown that over 80% of these



households have installed, or intend to install, at least one energy saving measure<sup>24</sup>.

3.6 We know from early market experience and consumer research that the Green Deal must be made more straightforward and less time-consuming for households who want to improve their homes and benefit from lower fuel bills.

3.7 On 2 December 2013 the Government announced plans to change the Green Deal, to make it more straightforward for householders as well as stripping out time and cost for industry, while ensuring consumers are properly protected under the scheme. These changes will make the Green Deal easier and more accessible to consumers through improved information and signposting; make it easier for firms to operate in the market; and make sure that the Green Deal finance offer gives consumers what they need.

3.8 Working hand in hand with the Green Deal, the current ECO<sup>25</sup> has been providing support to tackle ‘hard to treat’ properties, like those with non-standard cavity or solid walls, and supporting installations in the homes of low income and vulnerable people. ECO is an essential part of the Government’s package to tackle fuel poverty, and for many of the most

24 DECC, *Green Deal assessment survey wave 2: summary report* (September 2013).

25 Note: ECO replaced the previous Carbon Emission Reduction Target (CERT), Community Energy Saving Programme (CESP) and Warm Front schemes.

vulnerable households it helps alleviate the impacts of rising bills. Since ECO's introduction, around 304,000 measures have been installed, with more than 266,000 households benefitting from one or more measures<sup>26</sup>.

3.9 The Government's proposed changes to ECO<sup>27</sup> would see the whole scheme extended from 2015 to 2017. We want to maintain the current levels of ambition for the elements of ECO directed at low income and vulnerable households to 2015, and to extend them thereafter, at the same scale, to 2017.

3.10 It is right that the Government reviews the impact of its policies on household costs. By changing ECO our aim is to ensure that it targets those areas where it can make most impact. Our proposals would also extend the ECO Carbon Saving Obligation to 2017, but at a reduced level, and help households install cheaper energy efficiency measures such as loft and standard cavity wall insulation. We estimate that the proposed changes to ECO will result in a £30-35 reduction in energy bills, on average, next year. The Government will consult on these changes in early 2014.

3.11 Our proposed reforms to Green Deal and ECO are part of a wider package of proposals that will deliver, on average, a £50 reduction on household energy bills. To ensure that the UK remains on track to achieve its legally binding carbon targets, the Government also plans to introduce measures that will boost energy efficiency even further by introducing new schemes for home-movers, landlords and public sector buildings, worth £540 million over three years (see chapter 6).

3.12 To support the development of the Green Deal and ECO market the Government contracted the **Energy Saving Advice Service**<sup>28</sup> to provide households with access to impartial advice. The Advice Service, available on: 0300 123 1234, is there to

support and advise households about the best energy efficiency measures for them. It also provides advice on the Government's Feed-In Tariff Scheme and will provide advice on the domestic RHI from spring 2014, ensuring that households have access to joined up advice on the range of energy management options available to them. Households can also receive impartial advice about the range of energy efficiency options suitable for their property through a **Green Deal Assessment**.

### Box 3: Government research shows that energy efficiency improvements can increase property value

A Government study has shown that the benefits of energy efficiency extend beyond lowering the cost of bills and cutting carbon emissions. The study found that having a more energy efficient rating can increase a property's value, demonstrating that house buyers and estate agents are beginning to recognise the value of energy efficiency measures. For an average home in England, improving its Energy Performance Certificate rating from band G to E, or from band D to B, could add more than **£16,000** to the sale price of the property<sup>29</sup>. This represents a significant development, particularly in the context of the misaligned financial incentives barrier identified in last year's *Energy Efficiency Strategy*.

### Ensuring support for fuel poor households

3.13 In July 2013, the Government announced a significant overhaul of the framework for tackling fuel poverty in England. At the heart of this is a decision to adopt a new definition of fuel poverty, so that we understand a household to be fuel poor if it has both low income and higher than typical fuel costs.

26 Note: Provisional ECO figures are subject to review by Ofgem.

27 Announced 2 December 2013.

28 <http://www.energysavingtrust.org.uk/Organisations/Government-and-local-programmes/Programmes-we-deliver/Energy-Saving-Advice-Service>

29 DECC, *An investigation of the effect of EPC ratings on house prices* (June 2013). Note: The sample size of this study was large enough to mitigate the impact of other characteristics, such as aesthetics, on the average price differential.

3.14 Amendments were introduced to the Energy Bill to set a new target for fuel poverty, focussed on ensuring that fuel poor households achieve a certain standard of energy efficiency in their homes. The definition informs a set of guiding principles for future policy design and delivery, allowing for a greater degree of prioritisation of support to those who are suffering the very worst fuel poverty; these were set out in the *Fuel Poverty: Framework for future action*<sup>30</sup>. Following Royal Assent to the Energy Bill, the Government will bring forward regulations to set a new fuel poverty target backed by a new fuel poverty strategy.

## Greening construction through new zero carbon homes

3.15 The 2013 Budget committed the Government to ensuring all new homes are zero carbon from 2016. In July, we announced a further strengthening of Part L of the Building Regulations. These changes, which come into effect on 6 April 2014, will ensure that new homes will be 6%, and non-domestic buildings 9%, more energy efficient across their respective new build mixes, relative to 2010 standards. The Government also ran a consultation (on proposals for Allowable Solutions<sup>31</sup>), between August and October 2013, which will support progress towards delivering zero carbon homes, and may also help to improve the energy efficiency of the existing housing stock.

3.16 The Government has also commissioned the **Zero Carbon Hub** to review the difference between design performance and build performance in new housing, in order to maximise the energy efficiency performance of new build homes. The report from this review will be published in March 2014.

## Smart meters: empowering consumers to take control of home energy use

3.17 Insulating our homes helps to keep them warm and use less energy. But not all homes are the same, and the people who live in them often have different requirements. Understanding how you use energy in your home is the first step to understanding where there are possible savings to be made.

3.18 The Government is improving the information that people get about their energy use through the roll out of **smart meters**, which will bring an end to estimated billing, helping people to budget better and make switching energy supplier smoother. As well as smart meters, consumers will get an In Home Display which shows them how much energy is being used and how much it is costing in near real time. The display can also show information about the amount of energy used over the past day, week, month and year.

3.19 The smart meter programme has made significant progress over the last twelve months:

- A licence was awarded to operate the **Data and Communications Company**, which will coordinate communications between smart metering equipment in households, energy suppliers, and other authorised smart metering data users.
- The first tranche of the **Smart Energy Code** entered into force. This sets out the contractual relationship between the DCC and the industry parties that use smart metering equipment and the information it provides.
- A **Central Delivery Body** (CDB) has been set up to support the consumer engagement activities of energy suppliers. The Government will work with the CDB to ensure consumers understand and demand the benefits smart meters have to offer.

<sup>30</sup> DECC, *Fuel Poverty: Framework for future action* (July 2013).

<sup>31</sup> DCLG, *Next steps to zero carbon homes: allowable solutions* (August 2013).

## Energy using product standards

3.20 The **EU Energy Labelling Directive** enables consumers to make informed choices by identifying the most energy efficient products on the market, using the 'A-G' energy rating label; and the **EU Ecodesign Directive** sets minimum energy performance standards for products. The Government is exploring ways to drive further progress in this area and improve consumers' understanding of how much money efficient appliances can save on their energy bills, giving them more cost information to consider than purchase price alone.

3.21 In September 2013 the Government launched a joint trial with **John Lewis Partnership** to test the effectiveness of reporting the typical lifetime running costs of appliances on product labels. By providing this information to consumers we hope to raise their awareness of energy running costs and help them to make more informed product choices. The trial will run during 2014 and the results will be made publicly available, once concluded. A similar trial in Norway saw a 5% decrease in energy usage of tumble-driers compared to the energy usage of appliances sold by similar stores<sup>32</sup>.

3.22 The Government will shortly be consulting on implementation of Article 6 of the Energy Efficiency Directive, which is about using similar labels in Central Government and the wider public sector.

## Catalysing community action on energy efficiency

3.23 The Government's action to drive energy efficiency take up is not limited to supporting individual households. It also aims to get entire local communities involved in reducing energy use and in generating the energy they use, managing demand and collectively purchasing energy to get a better deal.

3.24 To give communities more opportunity to get involved in driving energy efficiency, in July 2013 the Government launched the £20



million **Green Deal Communities scheme**. The scheme is designed to encourage local authorities, working with community partners, to develop innovative area-based Green Deal schemes. On 2 December 2013, the Government announced that it will increase the funds available to local authorities through the Green Deal Communities scheme to **£80 million**, supporting street-by-street programmes for hard-to-treat homes in a cost-effective way. Demand for funding from the Green Deal Communities competition has been high. By increasing the support available through the scheme, more communities across England stand to benefit from increased investment in energy efficiency.

3.25 To maintain this momentum the Government will publish a **Community Energy Strategy** in early 2014. This will identify the potential of community energy projects in the UK to bring benefits to communities, help address climate change and maintain the UK's energy security, and will consider how to help community energy projects overcome the main barriers they face. The strategy will cover community action to purchase and manage energy demand, reduce energy use, and generate energy; and its proposals will be informed by a community outreach programme, **Groundwork UK**, which the Government has funded over the last twelve months.

3.26 Over the next twelve months the Government will focus on ensuring that existing policies work together and provide the right support for households, and we will continue to prepare for the roll out of smart meters.

<sup>32</sup> European Commission, *Science for Environment Policy: New product information system increases energy-efficient purchases* (February 2013).



## Chapter 4: Supporting business and the public sector

**£275m savings**

through CRC simplification

**12% emissions**

saved from Government buildings

4.1 Over the last twelve months the Government has taken action to ensure that both UK businesses and the public sector have access to the support and information they need to install cost-effective energy efficiency measures. This helps them to cut costs and improve their bottom line. The Government has also taken steps to remove unnecessary administrative burdens on business under existing schemes.

### Helping businesses to cut costs

4.2 The Government wants to help businesses cut the cost of their energy bills, and reduce their energy consumption and carbon emissions, through improved energy efficiency. To complement existing schemes, such as the non-domestic RHI and the CRC Energy Efficiency Scheme, the Government enacted the legal framework for the **non-domestic Green Deal** in January 2013.

### Removing administrative burdens

4.3 In spring 2013 the Government took action to remove the overlaps between the

**Climate Change Agreements (CCAs)**, the **EU Emissions Trading System**, and the **CRC Energy Efficiency Scheme (CRC)**, as well as simplifying the administration of the CRC. The savings to industry as a result of these changes are estimated to be around **£2.4 million** for CCAs (over the nine years from 2011 to 2020)<sup>33</sup> and a **55%** (or **£275 million**) reduction in CRC administration costs up to 2030<sup>34</sup>. In making these changes the Government has listened to the concerns of businesses and reduced some previous data requirements.

4.4 The Government believes the existing package of measures remain an effective way to tackle the barriers to energy efficiency take up amongst business and industry; but we will review the CRC and the CCA targets in 2016, once the recent changes to both schemes have had time to take effect and the benefits realised. To maximise synergies in the policy landscape the Government will also conduct an initial review of the effectiveness of ESOS in 2016, following the first phase which concludes in December 2015.

<sup>33</sup> DECC, *CCA Final Impact Assessment* (January 2012).

<sup>34</sup> DECC, *CRC Simplification Final Impact Assessment* (February 2013).

## Case Study 2: Marks & Spencer unveils 'Green Lease Policy'

Marks & Spencer (M&S) unveiled a new property lease policy – the 'Green Lease Policy' – at Ecobuild in March 2013. As part of the new lease all new M&S stores will have 'green' clauses as standard, enabling landlords and tenants to better manage a building's environmental performance.

M&S also reached an agreement with the Better Buildings Partnership<sup>35</sup> (a collaboration of the UK's major landlords working to improve the sustainability of existing commercial building stock) to introduce green clauses, by means of a Memorandum of Understanding to sit alongside the leases of existing M&S stores. The project will see the signing of some 70 agreements at sites across the UK owned by British Land, Canary Wharf Group, Hammerson, Hermes Real Estate, Henderson Global Investors, Land Securities, LaSalle Investment Management, Legal & General Property and M&G Real Estate.

The provision of green clauses, whether in new leases or signed memorandum agreements, will assist M&S and its landlords to better manage a building's environmental performance. The clauses facilitate the sharing of waste information and data such as gas, electricity and water usage in M&S occupied buildings, to encourage both landlord and tenant to make significant carbon reductions. It also encourages a joint approach to investment in eco-building technology such as biomass boilers, LED lighting and rainwater harvesting to further reduce building impacts and costs.

The move is part of M&S' eco and ethical programme commitment to reduce energy use in M&S stores, offices and warehouses by 35% by 2015 (against a 2007 baseline). M&S has already achieved a 28% reduction but wants to go further<sup>36</sup>.

4.5 We recognise that there is more the Government can do to help businesses beyond introducing measures that reduce the cost of bills. Since the publication of the *Energy Efficiency Strategy* we have taken action to reduce the regulatory burden on businesses, by simplifying existing business energy efficiency policies. We will continue to look for opportunities to introduce new policies to help businesses manage their costs and take up cost-effective energy efficiency measures, and we will look do so in a way that minimises regulatory burden.

4.6 In October 2013 the Government's **Mandatory GHG Reporting Scheme** took effect. This new Scheme introduced a mandatory requirement for all UK quoted companies to report on their greenhouse gas emissions, including from energy use. The UK is the first country in the world to make it

compulsory for quoted companies to include emissions data for their entire organisation in their annual reports, and this new requirement will enable investors to see which companies are effectively managing the long-term costs of greenhouse gas emissions.

## Supporting business leadership on energy efficiency

4.7 It is the Government's responsibility to ensure that the right regulatory environment and support is in place, but it is businesses themselves that will need to decide how best to realise the benefits of greater energy efficiency. Though some UK businesses already recognise the benefits of using energy more efficiently, our analysis continues to suggest that there remains a great deal of untapped cost-effective potential in the UK.

<sup>35</sup> <http://www.betterbuildingspartnership.co.uk/>

<sup>36</sup> <http://corporate.marksandspencer.com/page.aspx?pointerid=8beddfecd4c24a04ac2d41728eb3dcd4>

### Case Study 3: British Land – Single Building Retrofit and Green Building Management

In February 2011, British Land, members of the Better Buildings Partnership, introduced an automatic meter reading (AMR) system and optimisation process at 338 Euston Road, following a successful pilot at its Head Office. Consumption is sub-metered for each floor and for significant types of usage, such as small power and lighting, and major equipment. In the first year of the remote monitoring service around 50 opportunities were raised, with more than 40 addressed by the building management team. Out-of-hours surveys helped British Land identify where lighting or equipment was operating unnecessarily.



#### The results:

As a result of the action undertaken by British Land at its Euston Road property, in 2011/12 (compared to 2008/9) landlord-influenced energy use was cut by 56% and occupier-controlled energy use by 9%. This followed a major refurbishment project, combined with rigorous ongoing energy management. Total building savings over the last three years include 6,900 tonnes of CO<sub>2</sub> and £875,300 on occupiers' energy bills<sup>37</sup>.

4.8 The Government is supportive of industry-led action targeted at stimulating greater resource efficiency and energy efficiency take up. One such initiative is the **Next Manufacturing Revolution programme**, a not-for-profit collaboration, which has the support of companies including Nestlé, Coca-Cola and GlaxoSmithKline. The initiative aims to help manufacturing companies realise greater profits, employment and sustainability through, among other measures, energy efficiency<sup>38</sup>.

4.9 Low Energy UK, the Energy Managers Association and Carbon Management Association (CMA) recently came together to develop the voluntary **Low Energy Company (LEC) initiative**. Companies wishing to obtain 'LEC' status will need to have trained a percentage (set by their industry) of their staff in CMA approved courses. The initiative has

been designed to dovetail with organisations' Corporate Social Responsibility agenda and its aim is to protect participating businesses from energy price rises. LEC awarded organisations will be audited every year to confirm that they meet the requirements of the initiative.

4.10 The transport sector has a key role to play in improving UK energy efficiency and supporting action to meet our domestic carbon targets. Already, as a result of Government action, the transport sector is seeing increasing take up of energy efficiency measures and fuel switching to alternative low carbon sources of energy. The efficiency of new cars in the UK improved by **27%** between 2002 and 2012<sup>39</sup>, allowing new car owners in 2012 to drive, on average, 14 miles per gallon more than new car owners in 2002.

37 [http://www.betterbuildingspartnership.co.uk/download/single-building-retrofit---british-land-\(euston\).pdf](http://www.betterbuildingspartnership.co.uk/download/single-building-retrofit---british-land-(euston).pdf).

38 Next Manufacturing Revolution, *The Next Manufacturing Revolution: Non-labour Resource Productivity and its Potential for UK Manufacturing* (July 2013).

39 DfT, *New car carbon dioxide emissions* (September 2013).

#### Case study 4: Camfil – ISO 50001 Energy Management System Implementation

Camfil develop air filters and clean air solutions, and operate globally. Already certified to the ISO 14001 environmental management standard, EN 16001 and the BSI Kitemark in Energy Reduction Verification, in 2011 Camfil decided to certify to ISO 50001.

Camfil has put energy management at the heart of its business model. It has initiated an energy reduction programme, the Camfil Energy Awareness Saves Environment (CEASE), and its key objective is to educate property and building managers about the financial and energy saving opportunities that can be made by replacing existing air filters with low energy air filters.

The introduction of ISO 50001, alongside its existing energy management processes, led to Camfil looking at its energy use in more detail and a focus on continual improvement of energy performance. This meant that previously unmonitored areas of energy use were identified and energy savings achieved that would otherwise have been overlooked.

#### Results:

As a result of the energy management steps that Camfil has taken, significant reductions in energy usage and improvements in energy efficiency have been achieved. These improvements resulted in Camfil saving over £200,000 on energy bills through minimal cost, self-funding opportunities<sup>40</sup>.



4.11 To maintain momentum in the **transport sector**, the Government recently announced a long-term, comprehensive package of support for the Ultra Low Emissions Vehicle (ULEV) sector. The 2013 Spending Round announced **£500 million** to support the development of the ULEV market from 2015-2020, building on the £400 million package of support already committed for the current Parliament. In September 2013, we published our ULEV Strategy, *Driving the future today*<sup>41</sup>, which sets out our ambition that by 2050 almost every car and van in the UK will be a ULEV, and a pathway for achieving this. We are working closely with industry to ensure that the right balance is

achieved as the rise of ULEVs creates growing demand for electricity for these vehicles. The Government is also working with the **Energy Saving Trust** to ensure that there is publicly available information on the potential financial benefits of **eco-driving**<sup>42</sup>, which is already included in the practical car driving test and is covered in the Government's National Standards for driver training.

4.12 In rail transport, further electrification of the network will bring energy efficiency benefits as well as reducing rail journey times, operating costs and dependency on fossil fuels. The Government is committed to the electrification of large parts of the existing

<sup>40</sup> <http://www.camfil.co.uk/>

<sup>41</sup> OLEV, *Driving the future today: a strategy for ultra low emission vehicles in the UK* (September 2013).

<sup>42</sup> <http://www.energysavingtrust.org.uk/Travel/Driving>

network and set out plans for further electrification in *High Level Output Specification 2012*<sup>43</sup>.

## Improving the skills base and supporting take up

4.13 Though UK businesses are increasingly integrating energy efficiency into their operating model, a continuing energy efficiency skills gap is, in some cases, preventing businesses from making energy efficiency improvements and undermining attempts to cut costs<sup>44</sup>. The Government has taken action in a number of areas to close this gap over the last twelve months. We have:

- Catalysed up-skilling by working closely with the relevant Sector Skills Councils to develop and implement **National Occupational Standards (NOS)** for Green Deal assessors and installers. We have also developed a new **PAS 2030 standard** for Green Deal installers, investing £3 million to train ‘go-early’ advisors and installers of solid wall insulation against these standards, and funded the development of NOS for buildings retrofit.
- Funded, working with Asset Skills, the development of **degree level apprenticeships** in facilities management through the Higher Apprenticeships Fund.

### Case study 5: GAIA – enhancing energy efficiency awareness and skills

After successfully securing grant funding from the Government, GAIA created their ‘Energy Management for Non-specialists’ training programme. The programme was created for individuals that have energy management as part of their remit, but are not energy managers.

The programme consisted of a one-day workshop and five subject-oriented webinars, as well as homework designed to ensure participants put the learning into practice. Topics covered included understanding energy data and bills, company engagement, and choosing and presenting capital investments. On successful completion of the programme, participants were awarded an EMA Level II certification.



GAIA was surprised by the success of the programme, which was attended by facilities, property, health and safety, environment, and energy managers. The training was successful in raising the profile of energy management within participants business, and speeding up energy reduction initiatives. Participants reported undertaking new projects in employee engagement, investment in new technologies, and engaging the boardroom to back tough reduction targets. Two participants actually changed jobs to become full time energy reduction specialists.

As a result of the success of the initial training programme, the GAIA is now offering the training programme again, UK-wide.

43 DfT, *High level output specification* (July 2012).

44 CBI, *Shining a light: Uncovering the business energy efficiency opportunity* (September 2013).

The Government is also working with Asset Skills to ensure that energy efficiency is integrated into the core modules of the NOS for facilities managers.

- Supported the **Build Up Skills UK** project, led by the Sector Skills Council. This project will identify skills gaps and implement long-lasting training infrastructure to improve the skills related to the installation and maintenance of building energy efficiency technologies.
- Run a funding competition for **energy efficiency training** in the non-domestic sector, and provided grants to 14 winners. The training provided was successful in raising awareness of the benefits of energy efficiency and the profile of energy management within participants' businesses; accelerating new energy efficiency projects; and engaging the boardroom in reduction targets. Case study 5 provides an illustration of the success of the training.

## Ensuring the public sector leads by example

4.14 To stimulate greater take up of energy efficiency measures in the UK, the Government recognises it is important that the public sector leads by example.

4.15 In 2010 the Prime Minister committed the Coalition Government to being the greenest government ever. To deliver on the Prime Minister's ambition, the Government introduced the **Greening Government Commitments** which, alongside other targets, require a 25% reduction in greenhouse gas emissions from the central government estate by 2015<sup>45</sup>; as well as committing the Government to sustainable procurement. In December 2012 the Government published a report setting out the progress made by central government departments and this showed that the Government has succeeded in reducing emissions by 12%. In addition, as part of the implementation of the *Energy Efficiency Strategy*, DECC has established an

### Case Study 6: Peterborough Council – energy efficiency savings for local authorities

In June 2013 Peterborough Council signed a new Energy Performance Contract (EPC) with Honeywell Building Solutions that will involve all council premises undergoing an energy review, after which a range of energy efficiency measures will be carried out.

The EPC is also open to other councils, schools or housing associations throughout the UK to use on their own premises without the expense of lengthy external OJEU procurement, while also guaranteeing energy performance improvements and allowing for third-party financing.

Like the Government's Green Deal, the EPC will mean councils and other organisations will not need to make an upfront investment for the works, instead they will pay for the works through the savings on their energy bill.

The aim will be to allow Peterborough to save money and energy and reduce its carbon footprint to the point that by the next CRC qualification period, Peterborough Council will no longer be liable for CRC payments. This strategy can also be adopted by other councils depending on their existing CRC obligations.

In Peterborough, a review will be completed at over 100 buildings, including schools, colleges, libraries and sports centres. It will also include the development of a district heating system<sup>46</sup>.

45 Note: To be achieved against a 2009/10 baseline.

46 [http://www.peterborough.gov.uk/news/latest\\_news/2013/june/a\\_new\\_era\\_of\\_innovative\\_energy.aspx](http://www.peterborough.gov.uk/news/latest_news/2013/june/a_new_era_of_innovative_energy.aspx)

energy management system and been certified to the ISO50001 standard.

4.16 Article 5 of the EU Energy Efficiency Directive requires Member States to demonstrate leadership on energy efficiency by renovating 3% of the total floor area of

heated or cooled buildings in the Central Government estate that do not meet minimum energy performance requirements<sup>47</sup>, or to take alternative measures to achieve an equivalent energy saving. As the Government works towards implementing this new requirement,

### Case Study 7: Bartholomew's (Barts) Health NHS Trust – creating an energy efficient hospital

Faced with the question of how to make the NHS more sustainable and help staff reduce their environmental impact, Barts Health NHS Trust enlisted the help of Global Action Plan, GE and Skanska. After working closely with staff at St. Barts Hospital and the Royal London Hospital, they found that the best way to encourage more sustainable action was to tie proposals to staff's immediate priorities, centred on patient care.

As a result, Global Action Plan, GE, and Skanska focused their energy-saving recommendations on actions that also improved patient outcomes.

#### The staff was asked to:

- Turn off equipment when not in use, reducing excessive heat and noise.
- Switch off lights to help promote sleep and reduce light pollution.
- Close doors to improve patient safety and privacy, and help regulate room temperatures.

#### The results:

- Improved energy efficiency and patient experience.
- A 40% increase in lights out and 18% fewer open doors, after four months.
- Patients in wards where the pilot took place reported better sleep, including around a third fewer incidences of sleep disruption and 25% fewer privacy disruptions.
- Estimated savings of **£105,000** through reduced energy costs, representing a payback of investment over 12-18 months<sup>48</sup>.



47 European Commission, Energy Efficiency Directive (October 2012).

48 [http://www.sdu.nhs.uk/documents/news/Barts%20TLC%20Jun%202013/Barts\\_report\\_summary\\_TLC\\_Jun\\_2013.pdf](http://www.sdu.nhs.uk/documents/news/Barts%20TLC%20Jun%202013/Barts_report_summary_TLC_Jun_2013.pdf)

we have considered the contribution of the Greening Government Commitments and if any further measures are required. We will notify the European Commission of our approach by 31 December 2013.

4.17 Over the next twelve months the Government will legislate to introduce ESOS by June 2014. ESOS will target a gap in the existing policy landscape and help large enterprises to cut their energy costs, by providing targeted cost-effective recommendations to improve their energy efficiency. We will also pilot EDR towards the end of 2014; and this will help inform future policy design as we explore options for permanently reducing demand for electricity.



## Chapter 5: Connecting energy efficiency knowledge and finance

**£150m invested**

by Green Investment Bank  
in energy efficiency

**£18m**

invested in Salix

5.1 The *Energy Efficiency Strategy* identified a shortage of energy efficiency skills in the market, a lack of awareness of the benefits of investment in energy efficiency, and a disconnection between access to finance and the installation of energy efficiency measures and innovation.

5.2 Over the last twelve months the Government has taken action to improve access to finance for energy efficiency measures, connecting supply and demand for finance, and catalyse the market. The action we have taken has reduced investment costs and improved the cost-effectiveness of energy efficiency measures.

5.3 The trend for businesses and households to undervalue energy efficiency means that its wider benefits – beyond its role in cutting the cost of bills, which is often undervalued – are frequently ignored. The Government has taken action to promote best practice and celebrate the successes of those businesses that are putting energy efficiency at the heart of their operating model. We have also undertaken research to understand what more needs to be done to address the barriers to take up.

### Improved access to finance for business

5.4 In October 2012 the Government set up the **UK Green Investment Bank**, the first organisation of its kind. To date, the Bank has committed **£150 million** to specialist energy efficiency funds: £50 million each to Sustainable Development Capital (SDCL) and Equitix to make smaller scale non-domestic energy efficiency investments; and £50 million to a fund operated by Aviva to invest in construction of energy centres for hospitals.

5.5 To support the roll-out of the Green Deal, the Government helped set up the **Green Deal Finance Company**. The Company is a not-for-profit organisation that has secured investment from 16 industry participants, including the UK Green Investment Bank which has provided **£125 million** towards a senior debt facility. This will ensure finance is available to Green Deal Providers to draw on when they are ready to do so, and will minimise the cost of doing so.

5.6 We are also exploring options, as part of our reforms of the electricity market, to permanently reduce demand for electricity. Chapter 6 sets out our approach to

implementing EDR, on which we consulted in November 2012. Following the consultation we amended the Energy Bill so that a financial incentive to encourage permanent reductions in electricity demand could be delivered through the Capacity Market<sup>49</sup>. EDR will aim to incentivise businesses and other organisations to install measures that deliver verifiable reductions in demand by offering a financial incentive for them to do so.

## Improved access to finance in the public sector

5.7 The Government recognises that improving access to finance in the public sector is crucial to driving public sector leadership on energy efficiency. To support public sector take up of energy efficiency measures, DECC injected an additional £10 million into **Salix Finance Ltd** in 2012/13. The Department for Education also provided Salix with £8 million of ring-fenced funding for schools. And on 2 December 2013 the Government announced that it will spend an extra **£90 million** over the next three years to provide loans to improve the energy efficiency of hospitals, schools, and other public sector buildings.

5.8 Together with Local Partnerships, the Government is jointly funding the initial England-wide rollout of **RE:FIT** to the public sector. RE:FIT was pioneered by the Greater London Authority to deliver energy efficiency improvements to the public sector estate, through a simplified procurement framework under which public sector organisations are able to procure energy conservation measures installed by energy service companies. The initial funding, covering 2013/14 and 2014/15, is intended to support at least 50 public sector energy efficiency projects. In the last seven months, 60 projects have been registered to receive support. The Government's aim is that RE:FIT become entirely self-financing, and that as it expands it will help improve levels of energy efficiency across the public sector.

5.9 Following the publication of the *Energy Efficiency Strategy*, the Government established a working group to review the budgeting and accounting framework rules, and whether these act as a barrier to investment in public sector energy efficiency retrofit. Following a period of engagement with key external stakeholders, the group concluded that the existing set of rules does not act as a barrier to investment; but that the public sector would benefit from clear information on available energy service contracts, financial instruments, incentives, grants and loans to support energy efficiency projects. The Government will facilitate the provision of this information, in line with the requirements of the Energy Efficiency Directive, to support and encourage the public sector in taking up energy service offers.

## Celebrating success and sharing best practice

5.10 To reverse the trend towards undervaluing energy efficiency the Government has taken action over the last twelve months to raise awareness of the multiple benefits of energy efficiency, and promote and encourage the take up of energy efficiency measures.

5.11 On 21 November 2013 DECC sponsored three new awards at the **Green Economy Awards**. The Awards recognise excellence in environmental responsibility and reconfiguration of business models around sustainability principles, raising awareness of energy efficiency. DECC sponsored three new free to enter categories:

- SME energy efficiency innovation.
- building energy efficiency improvement.
- catalysing major energy efficiency improvement.

5.12 Awards were handed out to: Chimney Sheep Ltd, Controlled Power

<sup>49</sup> The Capacity Market will help secure the UK's energy supply by giving capacity providers financial incentives to provide reliable capacity – making sure the lights stay on at times of peak demand.

Technologies Ltd, KiWi Power (see case study 8), Sainsbury's Supermarkets Ltd, Adam Dudley Architects, Nestle UK Ltd, and Dorset Chamber of Commerce and Industry. The winning projects include a £1 billion investment programme that will see a supermarket curtail ongoing energy costs and

reduce greenhouse gas emissions by 30% (compared to 2005); an easy to use system that enables companies to reduce energy consumption by managing non-essential power efficiently; and a 100% Herdwick wool disc that stops heat escaping from homes through the chimney.

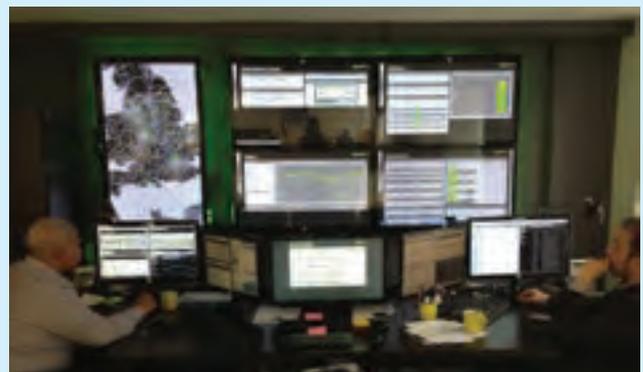


5.13 Sector guides have a role to play in raising awareness and spreading best practice. In March 2013 the Government published its Heat Strategy<sup>50</sup> and in this we committed to working with individual industrial sectors to explore long-term energy efficiency and decarbonisation pathways, to cut carbon across UK industry, accelerate the move to low carbon heating alternatives and maintain competitiveness. As part of this, the Government is working with industry to develop eight **Industrial 2050 Roadmaps** and these will be completed by spring 2015.

5.14 The Government also recently set up a **Retail Energy Efficiency Task Force**, which includes supermarkets and retailers, with the aim of facilitating further voluntary commitments to energy efficiency

### Case Study 8: KiWi Power – building energy efficiency service

KiWi Power works in partnership with the National Grid to help firms cut energy use and save money through a technique called demand response, which is a type of electricity management whereby participants temporarily switch off or turn down non-essential power, or use independent standby power generators. This cuts electricity use and helps the National Grid meet the country's needs at times of peak demand.



KiWi estimates that 300-700 tonnes of carbon dioxide are saved for every megawatt of power covered by demand response. If implemented on a wide scale, it could stop millions of tonnes of carbon dioxide from being emitted, save companies millions of pounds by cutting energy use, and help the National Grid run more efficiently. Demand response targets non-essential uses of power such as heating, ventilation and lighting. KiWi works with customers to ensure essential energy requirements are never affected<sup>51</sup>.

50 DECC, *The future of heating: meeting the challenge* (March 2013).

51 ENDS, *Green Economy Awards 2013: Special Report* (November 2013).

improvement from companies in the sector, building on the established leadership in this area. The Task Force will collaborate with related groups, including the Retail Energy Forum, an industry led group focusing on practical energy efficiency measures, and the Buildings Working Group, which is considering how to provide authoritative information regarding opportunities for refurbishment of existing buildings.

## Improving understanding and driving take up through evidence

5.15 In the *Energy Efficiency Strategy* the Government set out the need for a stronger evidence base to underpin and guide the development of future energy efficiency policies. Box 4 details some of the initiatives being undertaken to achieve this.

## Driving innovation

5.16 Investing in innovation is critical if the UK is to harness the potential of emerging technologies in ways that improve energy services, reduce energy bills, strengthen energy security and drive economic growth.

5.17 The *Energy Efficiency Strategy* highlighted the Energy Technologies Institute's (ETI) £100 million, 5 year **Smart Systems and Heat Programme**. In its first year the programme has assembled the capability to design, deliver and evaluate new heat technologies; begun to build key partnerships with Local Authorities around the UK; and initiated research to understand what drives heat demand, as well as the potential for technical innovations to meet these demands in better ways. Going forward, Government will continue to collaborate closely with the ETI to harvest insights from the programme and to build synergy in areas of mutual interest, including the potential of 'smarter' heating controls.

5.18 In March 2013 the Government contracted the Building Research Establishment (BRE) to run a **Solid Wall Insulation Research Project**. There are

7.7 million solid wall properties in the UK which could benefit from insulation. The project will improve our understanding of the cost-effectiveness of solid wall insulation (SWI) and heat losses from solid wall properties; so that we can better model and predict energy savings, and improve our understanding of the effectiveness of SWI for different types of property and the role of the occupant in realising potential energy savings. It will also support the Green Deal, as the outputs will help improve Green Deal assessors' prediction of savings from SWI, ensuring greater protection for consumers. Realising the potential in this area is important if we are to meet our domestic carbon targets.

5.19 The **Technology Strategy Board** and the **Research Councils UK Energy Programme** are investing up to £4 million in collaborative R&D projects to stimulate innovation in the field of energy management for existing buildings. The aim is to significantly advance the capabilities of UK businesses so that they can capture a greater share of growing UK and global markets.

5.20 The *Energy Efficiency Strategy* committed the Government to reviewing the barriers to assessment and accreditation of energy efficiency innovation. The Government recently ran an innovation seminar, attended by industry representatives and policy makers, which explored the barriers to innovation and the influence of existing policies on technological change. We are currently exploring the possibility of running additional seminars over the next twelve months.

5.21 Over the next twelve months we will continue to explore opportunities to drive innovation and growth in the energy efficiency market. The Green Deal will have a key role to play in this, as set out in Chapter 6.

#### Box 4: Initiatives to improve the evidence base and understanding

The Government has supported a number of initiatives over the last twelve months, and will continue to do so, in order to enhance the evidence base, improve our understanding, and tackle the information and undervaluing energy efficiency barriers. Since the publication of the *Energy Efficiency Strategy* the Government has:

- Funded the **International Energy Agency's Energy Efficiency Unit** to support its work on capturing the multiple benefits of energy efficiency. This project will bring together evidence on the co-benefits of energy efficiency, including supporting economic growth and business productivity and improving health outcomes. A Handbook for Policymakers and Evaluators setting out how to assess these multiple benefits will be published in 2014.
- Commissioned (September 2013) a Verco led consortium to undertake a major research project to **increase our understanding of how energy is used in non-domestic buildings**. The work will run until March 2015 and will update and enhance our understanding of energy use and the potential for abatement in non-domestic buildings. This work will support evaluation and development of current and future energy efficiency policies, as well as improving the quality of the Government's energy efficiency modelling.
- Initiated a project, working with **ENWORKS**<sup>52</sup>, to better understand the barriers to energy efficiency faced by small and medium sized enterprises (SMEs). The project will conclude in February 2014 and will provide insight into what motivates SMEs to implement energy efficiency measures, and how barriers could be overcome.
- Launched a **Heating Controls Trial** to study the impact of trusted advice on managing heating controls in homes. The objective of the trial is to test whether the provision of personalised in-home advice, provided by boiler engineers, on the main heating controls leads to householders changing their energy use over a six month period, and potentially reducing their energy bills. The pilot of the trial was run over the summer of 2013 and indicated that the trial can be implemented in practice. The main trial started in October 2013 and will be rolled out with 3,400 tenants. Results are expected in summer 2014.
- Published research into **smarter heating controls**, which covers what people want from their heating controls (October 2013)<sup>53</sup>. Also, alongside this *Update* we have published results from usability testing<sup>54</sup> of five smarter heating controls.
- Commissioned Cambridge Architectural Research, Loughborough University and Element Energy to analyse the **Household Electricity Survey** data collected from 2010 to 2011. The project will conclude in spring 2014 and we expect its findings to improve our understanding of how and why electricity is used in the home, changes in the size and efficiency of appliances, and how different segments of society use electricity. Initial findings about how much electricity is used during peak periods and how much of this could be switched to periods of lower electrical demand suggest that if all cold appliances were controllable then 10% of peak power could be shifted from the evening peak (6-7pm). An additional 8% could be shifted if washing machine, tumble drier and dishwasher use were shifted to non-peak times. On average over 5% of total electricity use in the home is for standby power<sup>55</sup>.

52 More information is available on ENWORKS at: [www.enworks.com](http://www.enworks.com)

53 DECC, *What people want from their heating controls: a qualitative study* (October 2013).

54 DECC, *Usability testing of smarter heating controls* (December 2013).

55 DECC, *Early Findings: Demand side management* (June 2013).

the fact that the *Journal of Applied Behavior Analysis* is the most widely read journal in the field of behavior analysis.

It is my hope that this special issue will be a useful addition to the literature on the use of behavior analysis in the field of education. I would like to thank the members of the editorial board for their support and assistance in the preparation of this special issue.

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## Chapter 6: Where next?

6.1 Over the next 12-24 months the Government will continue to take forward action to address the barriers to energy efficiency take-up.

6.2 Business energy efficiency potential in the UK remains high and we want to see this potential realised. We are bringing forward new schemes like ESOS and EDR to support businesses to implement the right cost-effective measures depending on their individual circumstances. To ensure that the public sector continues to lead by example, we have announced plans to expand the support available through public sector energy efficiency loan schemes, which will further stimulate demand for energy efficiency measures in the public sector.

6.3 We will also continue to expand the support available for households. The introduction of the Green Deal and ECO represented a step change in the level of support available; our plans for the future of these two programmes demonstrate our commitment to improve on this support to help consumers cut their bills. Our aim is to ensure that the different government schemes that support household energy and energy efficiency needs work effectively together.

6.4 This chapter sets out the Government's key energy efficiency priorities and areas of action over the next 12-24 months, categorising these under the four barriers to energy efficiency take up.

### Embryonic Markets

6.5 The introduction of the **UK Green Investment Bank** established a new finance route for energy efficiency, and over the last year the Bank has had a significant impact through its support for non-domestic energy efficiency initiatives. Over the next few years it will continue to support private investment in energy efficiency projects and stimulate take up. The Bank expects to commit several hundred million pounds to energy efficiency projects, as it works with industry partners to accelerate energy efficiency investment. In the immediate future it will focus on supporting:

- Large energy consumers in the industrial, commercial and public sector with a portfolio of energy efficiency projects.
- Energy efficiency service, technology or finance providers with a pipeline of projects that require financing.

Figure 6: Interaction between Government energy efficiency policies

Government policies including those concerning fuel poverty cover around 50 measures for energy efficiency and wider energy management.

**GREEN DEAL**

- External solid wall insulation
- Internal solid wall insulation
- Loft insulation
- Under-floor insulation
- Replacement glazing
- High-performance external doors
- Draught proofing

**RENEWABLE HEAT INCENTIVE\***

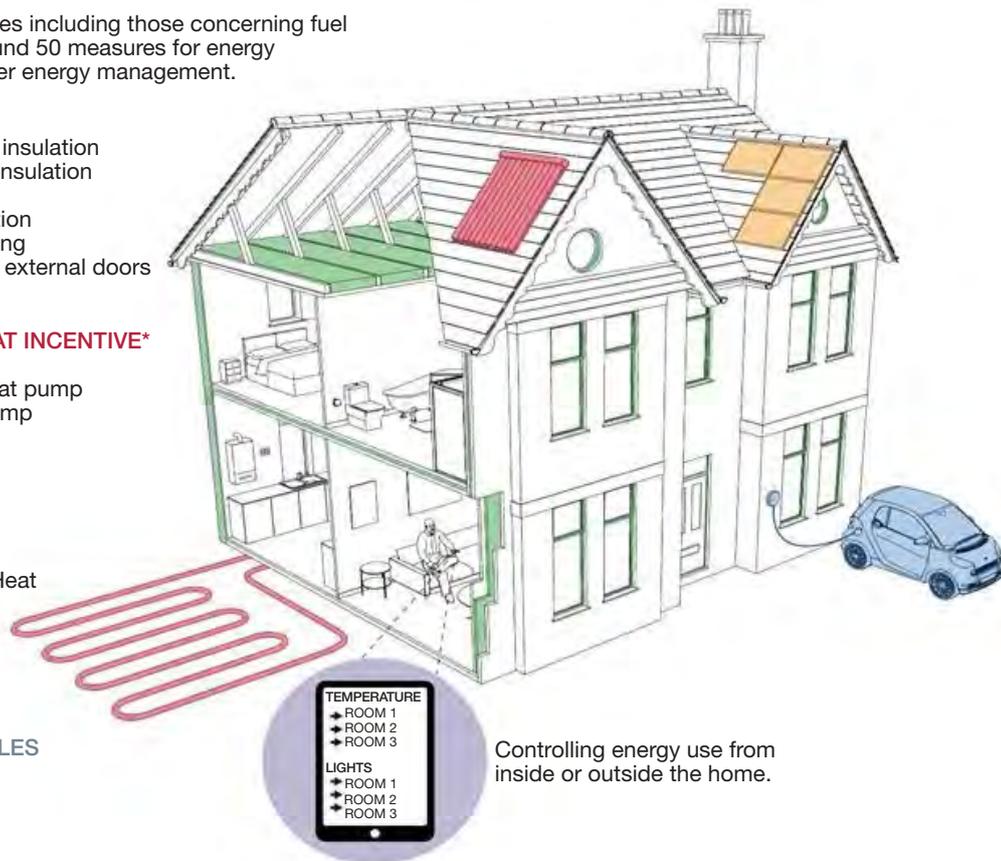
- Solar thermal
- Ground-source heat pump
- Air-source heat pump
- Biomass boiler

**FEED-IN TARIFFS**

- Micro Combined Heat and Power (Micro-CHP)
- Solar PV panels

**SMART METERS**

**ELECTRIC VEHICLES**



6.6 In addition, the Government and **UK Green Investment Bank** are exploring with local authorities the benefits of and barriers to investment in LED street lighting, and the options for facilitating the roll out of this technology across the UK. We recently held a workshop on LEDs with local authorities, where experiences of installing LED lighting were shared. The evidence suggests that LED street lighting can cut costs and improve the wellbeing of local residents, by driving a reduction in local crime rates<sup>56</sup>. This was echoed, at the workshop, by councils who had received positive feedback from their local police forces.

6.7 In November 2011 the Government introduced the non-domestic RHI, the world's first long-term financial support programme for renewable heat. We plan to open a similar

scheme for households in spring 2014. The **RHI**, like the Green Deal, encourages growth in key sectors and industries, and the domestic scheme is expected to support and grow the industry so that we have around 750,000 renewable heating systems by 2020/21.

6.8 To ensure that the **Green Deal** continues to support growth in the energy efficiency market, the Government has already begun to streamline the scheme and more improvements will be seen from January 2014. We want the Green Deal to drive innovation, which is why we also plan to boost the list of energy saving improvements available under Green Deal from 45 to 52; we will continue to work with industry to improve the process for adding new technologies to the list of qualifying improvements.

<sup>56</sup> Welsh, Brandon. Farrington, David, Effects of Improved Street Lighting on Crime (2008).

6.9 The Government plans to boost energy efficiency even further by introducing new schemes for home-movers, landlords and public sector buildings, worth **£540 million** over three years. In future, when people buy a new home, they could get up to £1000 from the Government to spend on important energy-saving measures – equivalent to half the stamp duty on the average house – or up to £4000 for particularly expensive measures. The scheme will be available to everyone buying a home, and we estimate that it will help improve 60,000 homes a year, over three years.

6.10 We plan to introduce a scheme to support private landlords in improving the energy efficiency of their properties, which will improve around 15,000 of the least energy efficient rental properties each year for three years. Together, the homebuyers' and private rental schemes will be worth £450 million over three years<sup>57</sup>. And we will invest £90 million over three years on improving the energy efficiency of schools, hospitals and other public sector buildings.

6.11 The potential of heating controls to reduce the energy consumed by households is an area that the Government will continue to explore. The **Heating Controls Trial** will provide evidence on whether advice or information help consumers reduce wasted energy. The recently published report on the usability of **smarter heating controls** provides evidence of the challenges that remain; the Government will work with stakeholders to learn from and respond to these findings, address remaining evidence gaps, and encourage industry to innovate and develop more user-friendly controls. This is an emergent and dynamic market, and the introduction of the Green Deal and smart meters will ensure it continues to evolve.

## Information

6.12 In July 2013, the Government launched its consultation on **ESOS**. ESOS will be introduced to meet the requirement, set out in Article 8 of the Energy Efficiency Directive, for large enterprises to undertake energy audits by 5 December 2015 and every 4 years thereafter. The Government will introduce legislation implementing ESOS by June 2014. It will require organisations to measure their overall energy use, including from buildings, transport, and industrial processes, and identify cost-effective energy efficiency recommendations. ESOS assessments will need to be undertaken by suitably qualified individuals, whether in-house experts or external consultants. The Government recognises the potential role of energy management systems in supporting the energy audit process and as part of the consultation we invited views on potential exemptions for organisations with such management systems.

6.13 There will be no requirement to implement the energy savings identified from an ESOS assessment, as organisations are best placed to decide on how to prioritise investment. What ESOS will ensure is that organisations are better informed before making energy efficiency investment decisions, by highlighting cost-effective opportunities.

6.14 The Government's Energy Efficiency Deployment Office is working with the Government Digital Service on a project which aims to provide more transparent and meaningful information on energy efficiency policies and initiatives. The aim is to create a 'one-stop-shop' that brings all the Government's policies together in one place, and we plan to complete this project by June 2014.

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57 For more information see 'misaligned financial incentives' heading on p.

## Undervaluing Energy Efficiency

6.15 The roll out of **smart meters** will see the replacement of 53 million meters in homes and small businesses across Great Britain. It is estimated that smart meters will reduce the average household electricity and gas bill by £24 in 2020 and by £39 in 2030<sup>58</sup>. The next phase of the programme will focus on the design and build of the systems and equipment needed for the roll out to proceed as planned, and will see the newly appointed data and communications providers coming together for the first time with service users, such as suppliers and network operators. New governance arrangements will operate alongside the Smart Energy Code, setting out the commercial and technical arrangements for the smart metering system and its users.

6.16 Government sponsored research initiatives, for example, the work being undertaken by the **IEA Energy Efficiency Unit**, will conclude over the next 12 months. These will strengthen the evidence base on the multiple benefits of energy efficiency, including economic growth and business productivity. The **ENWORKS**-led project exploring the barriers to energy efficiency faced by SMEs, which concludes in Spring 2014, will help us develop a better understanding and, potentially, raise awareness of the benefits of investment in energy efficiency amongst SMEs.

## Misaligned Financial Incentives

6.17 The *Energy Efficiency Strategy* set out the Government's ambition to ensure that in the future we only use the energy we need to. Realising the energy saving potential in the demand-side of the electricity market will be central to achieving this. By reducing our energy consumption we can ensure that we only build the power stations we need. Effective demand-side management is capable of lowering energy costs and

creating new opportunities for new technologies, new business models and new entrants into the market.

6.18 To ensure that the UK is in a position where it can realise this untapped potential the Government will pilot **EDR**. EDR has the potential to enable energy efficiency projects to compete with power stations for investment, ensuring they are rewarded for the value they provide to the system. At least **£20 million** has been allocated for the EDR pilot, which we expect to launch in summer 2014. The pilot is expected to last for two years and will examine how businesses and other organisations that install measures, such as more efficient motors, air conditioning and lighting could receive financial incentives for the reduced amount of electricity they use. As we get closer to the pilot phase the Government will work with stakeholders in developing the detail, and we will engage the market to encourage participation once the pilot opens.

6.19 We have also commissioned a project to review policy and technical models relating to "**D3**". "D3" combines action on demand reduction, demand response and distributed energy and has the potential to create new opportunities to improve demand-side focused energy management.

6.20 The Government has sought to address the split incentives issue identified in the *Energy Efficiency Strategy*. The Energy Act 2011 requires the Government to regulate to help ensure the take up of cost effective energy efficiency improvements in the Private Rented Sector and we will consult on these regulations in early 2014. From April 2016, regulations must be in place to ensure that domestic private landlords will not be able to unreasonably refuse requests from their tenants for consent to energy efficiency improvements, where financial support is available, such as the Green Deal and ECO.

<sup>58</sup> DECC, *Smart meter roll-out for the domestic and small and medium non-domestic sectors (GB): Impact Assessment* (January 2013).

The Energy Act also contains a duty to bring in minimum standards for private rented housing and commercial rented property from 2018, likely to be set at EPC band 'E'; the industry is calling for the early introduction of these regulations to provide certainty to the private rental sector. The Government will continue to work with stakeholders in the private rented sector in advance of any regulations to encourage take up of energy efficiency measures through the Green Deal. Any use of these regulation-making powers is conditional on there being no upfront or net negative costs to landlords.

## Calling for an ambitious EU 2030 framework and delivering an effective response to the EU Energy Efficiency Directive

6.21 The Government will continue to engage with the European Commission, and other Member States, as the Commission develops its proposals for the 2030 climate and energy package.

6.22 Energy efficiency has a key role to play as the EU works towards cost-effective decarbonisation and will be central to efforts to improve the EU's energy security, reducing its reliance on fossil fuel imports. The UK Government strongly supports ambitious greenhouse gas targets and has called for a 40% greenhouse gas target for the EU for 2030, rising to up to 50% in the event that an ambitious global deal is reached.

6.23 In July the UK Government called for greater ambition on EU-wide performance standards, including product and labelling standards, which have already been successful in driving energy efficiency improvements, in its response to the European Commission's 2030 energy and climate package Green Paper.

6.24 The UK Government is committed to implementing the Energy Efficiency Directive, and has already consulted on the introduction

of ESOS, ahead of transposing the requirements in Article 8, and the smart metering elements within the Directive. We will also consult on:

- Public procurement (Article 6).
- Options for installing heat metering (Articles 9 and 11).
- Licence conditions for billing (Articles 10 and 11).
- Amendments to the Environmental Permitting Regulations concerning co-generation requirements (Article 14).

6.25 As we work towards the 5 June 2014 transposition deadline for the Energy Efficiency Directive, we will be working closely with business and other stakeholders to drive take up of cost-effective energy efficiency opportunities in a way that minimises administrative costs.

6.26 In April 2014 we will submit the UK National Energy Efficiency Action Plan (NEEAP) to the European Commission. The NEEAP will report on progress towards the UK's national energy efficiency target and update on action being taken as a result of the Directive. Also included in the NEEAP will be the UK's strategy for mobilising investment in the renovation of the UK's building stock. In June 2014 the UK will notify the European Commission of the approach it has taken to implementing the Directive. The Government plans to make information on the UK's transposition available on GOV.UK shortly after the transposition deadline.

6.27 The Government is committed to ensuring that the UK demonstrates international leadership on energy efficiency. The action undertaken over the last year is at the heart of this. Over the next 12-24 months we will build on the progress made, and cement the UK's position as a global leader on energy efficiency.

# Annex 1:

## Progress implementing actions from the 2012 Energy Efficiency Strategy

The *Energy Efficiency Strategy* highlighted several key areas of action that the Government would focus on and the table below details the progress made by Government in implementing commitments that were made in each of these.

### Action to support the finance market

<b>ACTION</b>	<b>STATUS</b>
Publishing guidance on financing energy efficiency for the public sector	<b>COMPLETE</b> <sup>59</sup>
Announce ENWORKS research project to understand the process, costs, and benefits of financed energy efficiency projects.	<b>UNDERWAY</b> (see p. 41)
Initiate an assessment of compatibility of energy efficiency investments with the public sector budgeting framework.	<b>COMPLETE</b> (see. p. 38)
Roll out RE: FIT nationwide	<b>COMPLETE</b> (see p. 38)
Progress the Electricity Demand Reduction project	<b>UNDERWAY</b> (see p. 46)

### Action to drive energy efficiency innovation

<b>ACTION</b>	<b>STATUS</b>
Initiate three new energy efficiency Technology Innovation Needs Assessments (TINAs)	<b>COMPLETE</b> <sup>60</sup>
Sponsor three new energy efficiency Green Economy Awards (formerly the Green Business Awards).	<b>COMPLETE</b> (see p. 38)
Reviewing the way that new innovative energy efficiency measures are reviewed and accredited	<b>UNDERWAY</b> (see p. 40)

<sup>59</sup> DECC and Local Partnerships, A guide to financing energy efficiency in the public sector (November 2012).

<sup>60</sup> [http://www.lowcarboninnovation.co.uk/working\\_together/technology\\_focus\\_areas/overview/](http://www.lowcarboninnovation.co.uk/working_together/technology_focus_areas/overview/)

## Strengthen the evidence base

<b>ACTION</b>	<b>STATUS</b>
Commission research into the potential of advanced heating controls	<b>COMPLETE</b> (see p.41)
Work with the IEA to explore all benefits of energy efficiency	<b>UNDERWAY</b> (see p. 41)
Co-ordinate with Research Councils UK to support the development of a knowledge hub for the refurbishment of existing homes as well as new Energy Demand Research Centres	<b>CLARIFIED</b> <sup>61</sup>

## Controls and information

<b>ACTION</b>	<b>STATUS</b>
Launch a behavioural trial with John Lewis Partnership	<b>UNDERWAY</b> (see p. 25)
Make funding available to increase the proportion of facilities managers receiving specialist energy efficiency training	<b>UNDERWAY</b> (see pp. 31-32)
Develop a trial to study the impact of advice on how to use heating controls provided when boiler checks are carried out	<b>UNDERWAY</b> (see. p. 41)
Announce a forthcoming Community Energy Strategy	<b>UNDERWAY</b> (see p. 25)
Commission a Community Energy Efficiency Outreach Programme with Groundwork UK	<b>COMPLETE</b> (see p. 25)

## Audits and standards

<b>ACTION</b>	<b>STATUS</b>
Begin the process of implementing the energy audits requirement under Article 8 of the Energy Efficiency Directive.	<b>UNDERWAY</b> (see p. 45)
Seek the ISO50001 Energy Management Standard accreditation for DECC	<b>COMPLETE</b> (see. p. 33)

61 NOTE: The Energy Demand Research Centres were launched alongside last year's Energy Efficiency Strategy (<http://www.epsrc.ac.uk/newsevents/news/2012/Pages/energyefficiencycutcarbonuse.aspx>). Since the publication of last year's Strategy, the Government has engaged in dialogue with the Buildings Working Group (an industry representative body) on the knowledge hub and confirmed, in terms of next steps, that it is for industry to develop a self-financing, workable proposal that will add value to information already publicly available.



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