

## **UK Annual Report against Article 24(1) of the Energy Efficiency Directive 2012: April 2018**

### **Background**

This report sets out the information that Member States must provide annually to the Commission under Article 24(1) of the Energy Efficiency Directive (“the Directive”) to report progress achieved towards national energy efficiency targets, in accordance with Annex XIV Part 1. This provides an update on a consistent basis with information reporting in the National Energy Efficiency Action Plan submitted on 30<sup>th</sup> April 2017, which reported progress against these aspects together with wider developments that UK is required to report every three years.

### **Summary of specific delivery**

#### **a) Overview of progress in reducing energy consumption**

A table reporting the latest UK statistical data required by point (a) of Annex XIV of the Directive is shown in Annex A.

Overall, energy consumption in the UK is on a long term downward trend. Primary energy consumption in 2016 fell by 1.7% since 2015 but final energy consumption was 1.5% higher. Compared with 2007, consumption was 16% and 9% lower respectively.

UK statistical data required by point (a) of Annex XIV of the Directive is reported up to 2016 in Annex A. In contrast the policy updates within this report, which are shown in Table 3 and Annex B, are based on evidence and data up to 2017.

Looking at the sub-sectors and the 2016 statistics:

- Industrial energy consumption fell by 3% since 2015 and by 22% since 2007.
- Household energy consumption rose by 3% since 2015 (by 1% on a temperature adjusted basis). A fall in domestic fuel prices is a potential explanation for this rise. Since 2007 household energy consumption has fallen by 8% (and by 13% reduction on a temperature adjusted basis).
- Service sector energy consumption rose by 2% since 2015 and by 3% since 2007. Real GVA (in national currency) has risen by 15% in this sector since 2007.
- Transport energy consumption for passenger transport rose by 2% since 2015 but has fallen by 9% since 2007. The fall in petrol and diesel prices of 20% and 22% respectively seen between 2012 and 2016 will have slowed the reduction seen in previous years and passenger kilometres have increased by 4% since 2013.
- Since 2007 overall transport energy consumption has fallen by 7%.

## **b) Major legislative and non-legislative measures**

### **Clean Growth Strategy**

The UK's Clean Growth Strategy,<sup>1</sup> published in October 2017, sets out our plans to meet our greenhouse gas emissions reduction targets while delivering increased economic growth. It builds on the successful decarbonisation of the power sector, looking across the whole of the economy and the country, and includes proposals on housing, business, transport, the natural environment, and green finance. The Strategy focuses on policies where we can deliver clear joint benefits, for example, cleaner air from low emissions vehicles; lower energy bills from improved energy efficiency; reducing waste and using resources efficiently; and a more biodiverse, resilient natural environment.

The Strategy will provide a framework for driving policy on energy efficiency. Some recent policies and measures on energy efficiency that have already been implemented include commitments to fund energy efficiency improvements in the public sector and the Energy Company Obligation, which are explained below.

### **Public Sector Energy Efficiency Loans Scheme**

The Department for Business, Energy and Industrial Strategy (BEIS) funds a scheme of interest-free loans to support wider public-sector bodies in England (outside Central Government) to carry out energy efficiency works. The scheme is managed by Salix Finance Ltd, providing a revolving fund. The loan repayments Salix receives under the BEIS-funded part of the scheme are reinvested by Salix in new loans. This is a proven delivery model and to 2017 the loan scheme has funded over 16,000 projects, improving public sector and higher education buildings for its users and is projected to save the sector around £55 million on energy bills this year.

In the 2015 Spending Review, the Government announced £295 million of new funding for public sector energy efficiency across the UK. In England, this increased funding is invested into this revolving public-sector energy efficiency loan scheme. The total fund value currently sits at £210 million, and this will rise to some £385 million by 2020. This revolving loan scheme will continue to be recycled to at least 2025. Similar schemes run in Scotland and Wales which will receive a total of £40 million of the 2015 Spending Review award. Green Growth Wales provides interest free finance to implement energy efficiency projects in Wales' public-sector organisations.

### **Re:Fit**

The Re:Fit programme is a procurement framework for public sector organisations wishing to implement energy services – also known as energy performance – contracts. This is an embryonic market in the UK, and the Greater London Authority provides support for public bodies in accessing this novel contracting arrangement within London. BEIS and Local Partnerships work jointly to provide similar support in the rest of England.

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[https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/651916/BEIS\\_The\\_Clean\\_Growth\\_online\\_12.10.17.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/651916/BEIS_The_Clean_Growth_online_12.10.17.pdf)

In Wales, the Re:Fit Cymru Programme Implementation Unit provides end to end support to the Welsh public sector to develop and successfully implement projects using the Re:Fit framework. Re:Fit Cymru is co-funded by the Intelligent Energy Europe Programme of the European Union, and the Welsh Government. Interest free capital funding for Re:Fit projects can be accessed through Green Growth Wales.

### **Products policy**

Products policy ensures that relevant energy-using products placed on the EU market meet minimum energy performance standards (Ecodesign for Energy-related Products Directive 2009/125/EC), as well as providing consumers with a label to enable more informed purchasing decisions (Energy Labelling Regulation (EU) 2017/1369). The Energy Labelling Regulation came into force on 1 August 2017 replacing the Energy Labelling Directive 2010/30/EU.

### **Greening Government Commitment**

The Greening Government Commitments set out the actions UK Government Departments and their agencies will take to reduce their impacts on the environment from 2016 to 2020. They set targets for UK Central Government Departments and their agencies to: reduce their greenhouse gas (GHG) emissions by at least 32% from a 2009/10 baseline by 2020 (in line with individual Department targets); send less waste to landfill and reduce the overall amount of waste they produce; and reduce water consumption. They also set out commitments for Departments to improve sustainable procurement and report transparently on key sustainability issues. They are applied to 22 Central Government Departments, non-ministerial Government Departments in England and many of their arms-length bodies. All are responsible for meeting their own individually agreed targets that together compromise the 32% reduction.

The most recent Greening Government Commitments Annual Report for 2016 to 2017 is available here: [https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/679636/ggc-annual-report-2016-17.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/679636/ggc-annual-report-2016-17.pdf)

### **Climate Change Agreements**

Climate Change Agreements (CCAs) were introduced alongside the Climate Change Levy (CCL). They have the dual policy aims of mitigating the impact of the CCL on energy intensive industry and delivering energy efficiency improvements. CCAs are voluntary agreements giving eligible sectors a discount on the main rates of CCL in exchange for signing up to energy efficiency or carbon reduction targets. CCAs cover 53 sectors, ranging from primary industries through to manufacturing and service sector processes. This relief currently provides a 90% CCL discount on electricity and 65% discount on gas and other taxable fuels. Sites with CCAs are also exempt from the CRC Energy Efficiency Scheme, provided that over 70% of the site's energy is eligible for the CCA scheme.

The most recent CCA Biennial Report for 2015-16 is available here:

[https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/661666/Biennial\\_progress\\_report\\_2015\\_and\\_2016.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/661666/Biennial_progress_report_2015_and_2016.pdf)

## **Climate Change Levy**

The CCL was introduced in 2001. It is levied on the supply of energy to business and public-sector consumers. Each of the four main groups of taxable commodities (electricity, gas, coal, and liquefied petroleum gas) has its own main rate per unit of energy. The main rates of the CCL are intended to change business behaviour to reduce energy consumption and ensure the UK fulfils its EU obligations under the Energy Tax Directive (ETD).

## **CRC Energy Efficiency Scheme**

The CRC Energy Efficiency Scheme, which launched as the Carbon Reduction Commitment in April 2010, aims to improve energy efficiency and cut emissions for large public and private sector energy users across the UK.

Energy already covered under CCAs and the EU Emissions Trading System is not included in CRC. Some public bodies must take part in CRC regardless of how much electricity they use. These are called mandated participants and they include all UK Central Government Departments and Devolved Administrations.

CRC operates in phases. Phase 1 ran from April 2010 until the end of March 2014. We are now in phase 2 that runs from 1 April 2014 to 31 March 2019.

For each phase, there is a qualification year. Organisations that meet certain criteria during the qualification year will need to register for the next phase of CRC. The qualification year for phase 2 was between 1 April 2012 and 31 March 2013.

Organisations affected by CRC have to register with the Environment Agency at the start of a phase, for the whole phase.

In each compliance year, an organisation that has registered for CRC needs to do the following:

- collate information about its energy supplies
- submit a report about its energy supplies
- buy and surrender allowances equal to the CO<sub>2</sub> emissions it generated
- tell the Environment Agency about changes to its organisation that could affect its registration (designated changes)
- keep records about its energy supplies and organisation in an evidence pack

An annual report for the two most recent compliance years can be found at:

<https://www.gov.uk/government/publications/crc-annual-report-publication-2016-to-2017>

In 2016, following a review of business energy efficiency taxation, the UK Government announced its decision to close the CRC Energy Efficiency Scheme following the 2018 to 2019 compliance year, with no requirement to buy allowances to cover emissions for energy supplied from April 2019. The Government announced that organisations will report under the CRC for the last time by the end of July 2019, with a surrender of allowances for emissions from energy supplied in the 2018 to 2019 compliance year by the end of October 2019. Government stated that it will work with the Devolved Administrations on scheme closure arrangements.

## **Energy Savings Opportunity Scheme**

Government established the Energy Savings Opportunity Scheme (ESOS) to implement Article 8 (4 to 6) of the EU Energy Efficiency Directive (2012/27/EU)<sup>2</sup>. The ESOS Regulations 2014<sup>3</sup> give effect to the scheme. ESOS is a mandatory energy assessment scheme for organisations in the UK that meet the qualification criteria. The Environment Agency is the UK scheme administrator.

Organisations that qualify for ESOS must carry out ESOS assessments at least every 4 years. These assessments include energy audits of the energy used by their buildings, industrial processes, and transport to identify cost-effective energy saving measures (including those done under the implementation of energy management systems under Article 8(6)). Organisations must notify the Environment Agency by a set deadline that they have complied with their ESOS obligations.

The ESOS interim report from 2017 can be found here:

[https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/650722/Evaluation\\_of\\_ESOS\\_Interim\\_process\\_and\\_early\\_impact\\_evaluation\\_report\\_FINAL.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/650722/Evaluation_of_ESOS_Interim_process_and_early_impact_evaluation_report_FINAL.pdf)

## **Smart metering**

The Government has put in place licence conditions requiring energy suppliers to take all reasonable steps to roll-out smart meters to all domestic properties and smaller non-domestic premises covered by the smart metering mandate in Great Britain by the end of 2020. The roll-out of smart meters will help consumers better manage their energy consumption, bring an end to estimated billing, and in time make switching energy suppliers easier and faster. Near-real time information from smart meters will help put consumers in control of their bills, leaving them better placed to reduce energy consumption and adopt efficiency measures. Data from smart meters will provide energy networks with more granular information on patterns of use which will help them to manage and plan current activities. The roll-out will also lay the foundations for a smarter, more efficient and decarbonised energy system.

The roll-out is making good progress. At the end of December 2017, there were over 10 million smart and advanced meters operating across homes and businesses in Great Britain, by both large and small energy suppliers.

## **Energy Company Obligation**

The Energy Company Obligation replaced the Carbon Emissions Reduction Target (CERT) and Community Energy Saving Programme (CESP) from January 2013, and, like its predecessors, required domestic energy suppliers over a certain size to achieve carbon and notional bill savings by promoting and installing energy efficiency measures into domestic homes.

There have been two stages of ECO so far – the obligation between January 2013 and March 2015 (known as ‘ECO1’), and one between April 2015 and March 2017 (‘ECO2’).

The 2015 Spending Review announced that ECO would be replaced with a new, cheaper obligation from April 2017 until March 2022, which will deliver the Government’s commitment to insulate one

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<sup>2</sup> <http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:L:2012:315:0001:0056:EN:PDF>

<sup>3</sup> <http://www.legislation.gov.uk/ukxi/2014/1643/contents/made>

<sup>4</sup> Over 250,000 customer accounts and delivering over 2000GWh of gas or 400GWh of electricity per year

million more homes between 2015 and 2020 in support of its commitment to tackle fuel poverty. The new supplier obligation will be implemented in two phases:

- The Energy Company Obligation has been extended by 18 months (to September 2018), with a greater focus on fuel poverty.
- From October 2018 – March 2022.

### **Warm Homes Wales**

The key programme for tackling fuel poverty in Wales is the Welsh Government Warm Homes scheme, which includes the Nest and Arbed schemes. For the period 2017-2021 the Welsh Government are investing £104 million to improve the energy efficiency of up to 25,000 homes of those on low incomes or living in deprived areas of Wales.

### **Private Rented Sector Regulations – domestic and non-domestic**

From the 1 April 2018 there will be a requirement for any properties rented out in the domestic and non-domestic private rented sector to have a minimum energy performance rating of E on an Energy Performance Certificate (EPC). The regulations have come into force for new lets and extensions and renewals of tenancies with effect from 1 April 2018, and will come into effect for all existing domestic tenancies on 1 April 2020 (1 April 2023 for non-domestic properties). It will be unlawful to rent a property which breaches the requirement for a minimum E rating, unless there is an applicable exemption.

The PRS non-domestic regulations require landlords to install all improvements which will pay for themselves within a seven-year period, while the domestic regulations as they currently stand state that landlords can apply for an exemption (which lasts for five years) from the regulations if they are unable to conduct work to improve their property's energy efficiency performance without incurring costs.

At the end of 2017, the Government consulted on amendments to the domestic PRS regulations. The consultation closed in March 2018 and responses are currently being analysed.

The Scottish Government consulted on regulation of energy efficiency of private rented homes in Scotland from April to end June 2017 with proposed actions to be set out in the route map on Scotland's energy efficiency programme, to be published in May 2018.

### **Social rented Sector Standards – Scotland**

The Energy Efficiency Standard for Social Housing (EESH) was introduced in Scotland in March 2014. It sets a milestone of a minimum energy efficiency rating, broadly equivalent to EPC Band C and D, depending on building and fuel type, for all social housing by 31 December 2020. Latest performance data from the Scottish Housing Regulator reveals encouraging progress, with 75% EESH compliance (2016/17). A consultation is expected from May 2018 on a further milestone beyond 2020.

### **Building Regulations**

The Building Regulations set minimum energy performance standards for new buildings and when 'building work' is carried out to existing properties. Since 2002 Building Regulations have:

- 2002: strengthened insulation and window efficiency standards

- 2005: introduced requirements for high efficiency condensing boilers
- 2006: energy efficiency standards strengthened by 20% compared to the 2002 requirements for new homes, 25% for non-domestic buildings
- 2010: energy efficiency standards strengthened by 25% compared to the 2006 requirements (for homes and non-domestic buildings)
- 2013: energy efficiency standards strengthened by 6% compared to the 2010 requirements for new homes, 9% for non-domestic buildings
- 2017: Clean Growth Strategy set out commitments to improving the energy efficiency of buildings. As part of this and following the outcome of Dame Judith Hackitt's independent review of Building Regulations and fire safety, we will consult on improving energy requirements for all new buildings and when work is carried out on existing buildings where the evidence suggests that there are cost effective and affordable opportunities, and it is safe and practical to do.

### Scotland Building Regulations

Energy standards within Scottish building regulations<sup>5</sup> were reviewed and improved in 2007, 2010 and most recently in October 2015. The 2015 standards for new homes and new non-domestic buildings deliver, respectively, a 21% and 43% aggregate reduction in CO<sub>2</sub> emissions in comparison to the 2010 standards.

### Northern Ireland Building Regulations

At present Northern Ireland's Building Regulations align with the standards applicable in England prior to April 2014. In practice this means that the energy efficiency requirements for works to existing buildings in Northern Ireland align with England's current building regulations (other than marginal differences in the permissible efficiency of certain cooling and lighting installations in non-domestic buildings). In relation to target carbon emissions ratings for new buildings and certain larger extensions, Northern Ireland's regulations are at present some 6% behind those of England for new dwellings and some 9% (aggregate) in terms of buildings other than dwellings.

### Wales Building Regulations

In 2014 Welsh Government published improved carbon emission rates of all new buildings in Wales. Performance of new homes is now required to be some 8% better than under the previous 2010 standards. In addition, mandatory fabric u-value standards have been introduced and improved. New non-domestic buildings are now subject to a 20% reduction in CO<sub>2</sub> levels in comparison to Part L 2010 levels. Furthermore, non-domestic buildings will also have to meet improved fabric standards for walls and roofs' and consequential energy performance improvements are required to all existing buildings that are extended.

### **Ultra Low Emission Vehicle policies**

The UK Government has a broad range of measures in place to support the UK's growing Ultra Low Emission Vehicle (ULEV) market. This includes consumer grants of up to £4,500 off the cost of an electric or fuel cell car, 20% of the price of an electric van (up to a maximum of £8,000), up to £7,500 off the price of an electric taxi, and up to £1,500 for electric motorcycles.

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<sup>5</sup> <http://www.gov.scot/bsd>

Since late 2016 up to £4m funding has been available for eligible low emission HGVs over 3.5 to 44 tonnes, however no vehicles in this category are currently receiving the grant. Plug-in grants for the first 200 HGVs are worth up to £20,000 per vehicle (maximum of 20% of the purchase price). After the first 200 HGVs, the grants will fall back to a maximum of £8,000 in line with eligible vans.

The tax system provides further incentives for low emission vehicles and supporting infrastructure. This includes UK road tax (Vehicle Excise Duty), company car tax, and enhanced capital allowances that are in place for large investments in electric car charging infrastructure.

The Government provides direct support for Electric Vehicle (EV) charging infrastructure through various grant schemes. Through the Workplace Charging Scheme, £300 grants are available for each chargepoint installed at workplaces for the use of employees and company fleets. Grants of £500 are available towards the cost of a home chargepoint through the Electric Vehicle Homecharge Scheme. The On-Street Residential Charging Scheme supports local authorities with grants for public chargepoints on residential streets. In addition, Highways England have a £15m fund to ensure there are EV chargepoints at least every 20 miles across 95% of the Strategic Road Network.

The Government is also currently taking the Autonomous and Electric Vehicles Bill through Parliament, which is seeking powers to improve the consumer experience in terms of accessibility and interoperability of public chargepoints and ensure sufficient coverage at Motorway Service Areas and large fuel retailers.

The Government's programme of support for ULEVs also includes: significant funding for research & development into new low emission vehicle technologies; schemes for low emission buses and taxis; dedicated funding for hydrogen fuel cell electric vehicles and associated refuelling infrastructure; and a joint industry-government campaign to raise public awareness and address misconceptions. Eight Go Ultra Low cities in the UK have been granted funding to accelerate ULEV uptake through innovative local measures and incentives.

The Welsh Government is supplementing UK Government and private investment by investing £2 million in developing a network of public electric charging points near Wales' trunk roads. The focus will be on rapid chargers to supplement the 500 publicly accessible charging points in Wales, in recognition that demand for these points will grow significantly in the coming years.

### **Rail electrification**

The Department for Transport has set out its policy for rail infrastructure investment which will cover the period 2019 to 2024. In addition, the Department is supporting innovation in new technology and bi-modes trains which maximise the use of the current electrification of the network. There are also a range of initiatives sponsored by the Department for Transport on hybrid and fuel cells power sources which will reduce emissions and contribute to increased energy efficiency.



## **Other EEP transport measures**

### Heavy Goods Vehicles

In February 2017 the Government published a Freight Carbon Review, which explored opportunities for and barriers to reducing emissions from the road freight sector. This work considered opportunities to reduce emissions through improving HGV fuel efficiency by retrofitting fuel saving devices, and driver training and monitoring. Following publication of the Review, the Government has funded the Energy Saving Trust to develop a portal, which will provide independent, credible advice to the road freight sector on reducing fuel consumption and emissions, and signpost to existing best practice schemes.

In January 2017, the Government announced 20 projects awarded £20 million through the Low Emission Freight and Logistics Trial. The aim is to demonstrate new technologies and to encourage the widespread introduction of low and zero emission vehicles to UK fleets. The Trial is supporting industry-led trials of alternative propulsion technologies, including electricity, hydrogen and biofuels.

In June 2016, the Office for Low Emission Vehicles, in conjunction with the Low Carbon Vehicle Partnership, launched an HGV technology accreditation scheme. This scheme has been designed to provide independent validation of fuel savings from a range of retrofit technologies such as low rolling resistance tyres and aerodynamic devices, providing transparency and greater certainty to operators. The scheme has been designed to accelerate the adoption of fuel saving technologies and thereby reduce fuel costs for fleet operators while delivering GHG savings.

In addition to Government support, the road freight sector is taking steps to increase its fuel efficiency. For example, the Freight Transport Association Logistics Carbon Reduction Scheme (LCRS) is a free voluntary industry initiative that provides industry leadership on the adoption of low carbon fuels and technologies. The LCRS encourages best practice by enabling members to record, report, and reduce carbon emissions. LCRS participants are reducing their fuel consumption and carbon emissions through: driver training and performance monitoring; reduced empty running; improved routing and scheduling; greater use of aerodynamic devices and low rolling resistance tyres to reduce drag; and more efficient engines. LCRS members have committed to a collective reduction of 8% in the carbon intensity of their freight operations by 2015 against a 2010 baseline.<sup>6</sup> The latest annual report of the LCRS shows a sample of LCRS members consistently reporting a 7% reduction between 2010-15. In 2016, the LCRS began collecting data on the take up of Euro VI/6 commercial vehicles to improve air quality.

### Local Sustainable Transport Fund

The Local Sustainable Transport Fund (LSTF) closed in 2016. Between 2011-2016, £678.5m of capital and revenue funding (including Bikeability training) was allocated to local councils to support sustainable travel projects run by local councils including promoting public transport, encouraging uptake of cycling and walking, and raising awareness of the alternative transport modes. Since then, Central Government has allocated £80m of revenue under the Sustainable Travel Transition Year competition in 2016/17 and the Access Fund, which builds on the legacy of the LSTF, by providing revenue funding through to 2019/20. Successful Access Fund local authorities were announced in January 2017.

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<sup>6</sup> [http://www.fta.co.uk/export/sites/fta/\\_galleries/downloads/logistics\\_carbon\\_reduction\\_scheme/17069-logistics-carbon-review.pdf](http://www.fta.co.uk/export/sites/fta/_galleries/downloads/logistics_carbon_reduction_scheme/17069-logistics-carbon-review.pdf)

### **c) Share of Central Government buildings not meeting the requirements referred to in Article 5(1)**

Member States are required to report the total building floor area of the buildings with a total useful floor area over 500 m<sup>2</sup> and as of 9 July 2015 over 250 m<sup>2</sup> owned and occupied by the Member States' central government that, on 1 January of the year in which the report is due, did not meet the energy performance requirements referred to in Article 5(1).

To calculate floor area, data has been taken from the electronic Property Information Mapping Service database (ePIMS). ePIMS provides data on the floor area of buildings within the central civil estate. To gather data on the floor area of buildings within the rest of Central Government's estate, the following data has also been collected:

- Data on the floor area of buildings within the Ministry of Defence's estate.
- Data on the floor area of building within the Scottish Government's estate.
- Data on the floor area of building within the Welsh Government's estate.
- Data on the floor area of building within the Northern Irish Executive's estate.

These datasets have been combined in order to calculate the floor area of the entire Central Government estate. The datasets have then been filtered to remove buildings referred to in Article 5(2), so that only owned and occupied buildings are included and so that only buildings with a floor area greater than 250 square metres are included. This gives a figure of 14.0 million square metres.

To calculate the floor area of buildings that do not meet the energy performance requirements referred to in Article 5(1), it was then necessary to filter out any buildings that do meet the minimum energy performance requirements. The minimum requirements referred to in Article 5(1) are elemental (e.g. they specify a boiler of a particular efficiency, walls of a particular U-Value). They are taken to correspond to the specifications in Part L2B of the 2010 Building Regulations relating to refurbishments of existing buildings other than dwellings.

There has been a limited amount of time for the latest building regulation standards to take effect. Therefore, a cautious assumption has been made that all buildings referred to in Article 5(1) do not meet the minimum energy performance requirements.

Therefore, the total building floor area of buildings with a useful floor area over 250 square metres, which did not meet the energy performance requirements referred to in Article 5(1), is calculated to be 14.0 million square metres.

#### d) The amount of energy savings in Central Government buildings

Article 5(6) requires the United Kingdom to achieve an energy savings target of 163.6 Gigawatt hours (GWh) by 2020. The energy savings, meeting the requirements of Article 5(6), for all Central Government Departments, have then been added together. This calculation gives a final result of 24.3 GWh of energy savings in 2017 in eligible buildings owned and occupied by Central Government as referred to in Article 5(6). With the 358.8 GWh of energy savings achieved up to 2016, the UK has so far achieved 383.1 GWh of energy savings in eligible buildings owned and occupied by Central Government. This exceeds the target that has been set for 2020 by 219.2 GWh.

**Table 1: Summary of energy savings in Central Government buildings**

Savings up to 2016 (GWh)	Savings in 2017 (GWh)	Total Savings up to 2017 (GWh)	2020 Target (GWh)	Position against target (GWh)
358.8	24.3	383.1	163.6	+219.2

Member States are required to report the total building floor area of heated and/or cooled buildings owned and occupied by the Member States' central government that was renovated in the previous year referred to in Article 5(1) or the amount of energy savings in eligible buildings owned and occupied by their central government as referred to in Article 5(6).

The UK has adopted the approach referred to in Article 5(6). For the UK, relevant energy savings come from three separate policies. Those policies are the Greening Government Commitments, the Scottish Government's Carbon Management Plan, and the Welsh Government's Climate Change Strategy. This is the same reporting approach that was taken for the Annual Report 2016 and the National Energy Efficiency Action Plan 2017.

In order to calculate energy savings, energy consumption data for buildings within scope of the above policies has been collected for 2016 and 2017. Energy savings in 2017 have then been calculated by subtracting energy consumption in 2017 from energy consumption in 2016. This calculation has been carried out at the most granular level possible. As a result, energy savings have been calculated for individual Departments within the Greening Government Commitments.

Energy savings, from the above policies, have then been adjusted in order to calculate energy savings as referred to in Article 5(6). Energy savings have been adjusted using data on the floor area of Central Government buildings.

Floor area data have been collected using the ePIMS database, Ministry of Defence data, Scottish Government data, Welsh Government data, and Northern Irish Executive data. These data sets have been combined in order to calculate the total floor area of each individual Central Government Department.

For each Central Government Department, the floor area of buildings meeting the requirements of Article 5(6) has then been calculated by removing data on:

- buildings referred to in Article 5(2),
- buildings that are not owned and occupied, and
- buildings with a floor area less than or equal to 250 square meters.

For each Central Government Department, the floor area of buildings meeting the requirements of Article 5(6) has then been divided by the total floor area of that Central Government Department. This calculation gives the proportion of floor area that meets the requirements of Article 5(6).

For each Central Government Department, the proportion of floor area that meets the requirements of Article 5(6) has then been multiplied by the relevant energy savings from the Greening Government Commitments, Carbon Management Plan or Climate Change Strategy. These calculations give the energy savings meeting the requirements of Article 5(6) for each Central Government Department.

**e) Energy savings achieved through the national energy efficiency obligation schemes referred to in Article 7(1) or the alternative measures adopted in application of Article 7(9)**

The UK target under Article 7 is 324 terawatt hours (TWh) of energy savings as measured on a Gross Calorific Value basis. This annual assessment reports a total of 432 TWh (see Annex B for further details).

This UK target is calculated based on cumulative end-use energy savings equivalent to 1.5% of annual energy sales to final energy users relative to the average energy sales over the period 2010-12. A 25% reduction is applied based on the derogations available under Article 7(2) and Article 7(3).

The UK has one live Energy Obligation that has been operational since 2013 (covering Great Britain not Northern Ireland). Statistics reporting delivery of measures through the Energy Company Obligation are published monthly and summarised in the table below.

**Table 2: Summary of measures installed under the Energy Company Obligation<sup>7</sup> (excluding micro-generation)**

	<b>2013</b>	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>	<b>Total</b>
Boiler	167,602	115,455	73,473	102,192	44,002	502,724
Cavity Wall Insulation	166,210	316,493	149,239	90,041	69,174	791,157
Loft Insulation	126,391	206,175	100,202	66,212	37,371	536,351
Other Heating	30,130	52,936	50,948	69,127	33,119	236,260
Other Insulation	1,612	8,473	2,138	1,153	830	14,206
Solid Wall Insulation	27,550	48,966	32,506	29,885	17,275	156,182
Window Glazing	284	1,874	2,208	997	235	5,598
<b>Total number of measures</b>	<b>519,779</b>	<b>750,372</b>	<b>410,714</b>	<b>359,607</b>	<b>202,006</b>	<b>2,242,478</b>

The energy savings derived from these measures are reported in Annex B alongside the savings from alternative measures.

The savings presented in this report are based on the most recent savings assessments in the Energy and Emissions Projections 2017 and the latest available evidence on the impact of measures.<sup>8</sup> In addition to revisions to projected savings to reflect policy changes, the impact of the latest economic growth and price assumptions from the Green Book supplementary guidance are also reflected in the updated figures.<sup>9</sup> A summary of changes to policy savings of at least 500 GWh are provided below.

<sup>7</sup> Source: BEIS Household energy statistics <https://www.gov.uk/government/collections/household-energy-efficiency-national-statistics>

<sup>8</sup> Source: Energy and Emissions Projections 2017 [Updated energy and emissions projections: 2017 - GOV.UK](#)

<sup>9</sup> Source: Green Book supplementary guidance [Green Book supplementary guidance: valuation of energy use and greenhouse gas emissions for appraisal - GOV.UK](#)

**Table 3: Summary of changes in energy savings since April 2017**

<b>Policy</b>	<b>Revised saving 2014-20 (TWh)</b>	<b>Change (TWh)</b>	<b>Reasons for change</b>
Energy Company Obligation*	46	+6	In order to have consistency with Energy and Emissions Projections (EEP) 2017, an assumption is made that the ECO maintains a 70:30 energy savings split between the fuel poverty focussed element of ECO and the carbon focussed element after September 2018. This increases the savings estimate.
Climate Change Levy (CCL)	14	-6	The methodology firstly identifies the proportion of the fuel price increase attributable to the CCL tax and then the impact on consumption. Retail price has increased, yet the CCL rate is unchanged. As a result, the CCL rate now leads to a lower proportionate increase in fuel price and consequently a lower proportional reduction in energy savings.
Climate Change Agreements (CCA)	19	-7	CCA savings estimated based on impact of CCL so same reasons apply here.
Smart metering (Non-domestic)	6	-1	Savings have reduced due to an updated assumption on the future number of smart meter installations.
CRC Energy Efficiency Scheme	27	-1	Savings are estimated as CRC energy savings minus energy savings attributed to products policy. Due to an increase in policy savings, CRC savings have reduced.
Energy Savings Opportunity Scheme	15	-1	Savings have reduced due to downward revisions to final energy demand.
Private Rented Sector Regulation (England & Wales) - domestic	0.3	-0.5	Savings reduced as the regulations apply to all domestic rented properties from 2020, rather than 2018.

## Annex A: UK statistics for energy consumption and activity data<sup>10</sup>

This table reports the latest UK statistical data required by point (a) of Annex XIV of the Directive.

	Data for 2007	Data for 2015	Data for 2016	Units
(i) primary energy consumption;	212.2	181.9	178.8	mtoe (ncv)
(ii) total final energy consumption;	145.2	130.2	132.1	mtoe (ncv)
(iii) final energy consumption by sector				
— industry mtoe	28.9	23.0	22.4	mtoe (ncv)
— transport (passenger) <sup>11</sup>	43.0	38.1	39.0	mtoe (ncv)
— transport (road freight transport)	13.6	13.7	13.7	mtoe (ncv)
— households	41.7	37.0	38.1	mtoe (ncv)
— services;	17.2	17.3	17.7	mtoe (ncv)
— agriculture;	0.9	1.0	1.2	mtoe (ncv)
(iv) gross value added by sector <sup>12</sup>				
— industry	433	464	430	billion € cash prices
— services;	1,484	1,729	1,585	billion € cash prices
(v) disposable income of households;	1,654	1,628	1,487	billion € cash prices
(vi) gross domestic product (GDP);	1,770	2,176	2,262	billion € cash prices
(vii) electricity generation from thermal power generation;	32.9	24.2	24.4	mtoe (ncv)
(viii) electricity generation from combined heat and power;	2.4	1.7	1.7	mtoe (ncv)
(ix) heat generation from thermal power generation;	4.0	3.2	3.2	mtoe (ncv)
(x) heat generation from combined heat and power plants, including industrial waste heat;	4.0	4.0	4.0	mtoe (ncv)
(xi) fuel input for thermal power generation;	77.9	58.5	55.4	mtoe (ncv)
(xii) passenger kilometres (pkm), if available;	792.2	790.9	800.7	billion kms
(xiii) tonne kilometres (tkm), if available <sup>13</sup>	253.0	201.3	201.3	billion tonne-kms
(xiv) combined transport kilometres (pkm + tkm), in case (xii) and (xiii) are not available;	n/a	n/a	n/a	
(xv) population.	61.3	65.1	65.6	millions

Annex C provides explanations of the units used in Annex A (mtoe, pkm, tkm, ncv).

<sup>10</sup> Energy statistics consistent with the Digest of UK Energy Statistics definitions, presented on a net calorific value basis. (excluding non-energy use) <https://www.gov.uk/government/statistics/digest-of-united-kingdom-energy-statistics-dukes-2016-main-chapters-and-annexes>

<sup>11</sup> Includes freight activity for rail, aviation and shipping

<sup>12</sup> Economic series are presented in real prices in euros converted using the exchange rate observed in the individual years.

<sup>13</sup> From 2015 the UK statistics only include tonne-kms for vehicles over 3.5 tonnes.

## Annex B: Table of estimated savings by policy

TWh (Gross Calorific Value)

	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022	2023	TOTAL
Carbon Emissions Reduction Target (2010-2012)*	2.8	5.9	9.3	9.3	9.3	9.3	9.3	9.3	9.3	9.3	9.2	9.1	8.9	8.7	119
Community Energy Savings Programme (2010-2012)*		0.1	0.4	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	6
Energy Company Obligation*				0.5	1.2	1.9	2.8	3.7	4.5	5.2	6.0	6.7	6.7	6.7	46
Building Regulations - non-domestic (Existing build)					1.7	3.4	5.0	6.5	8.1	9.5	10.9				45
Building Regulations - domestic (Existing build)					3.7	7.4	8.4	9.3	10.2	11.2	12.1				62
Building Regulations - domestic (New build)					1.0	1.9	2.9	3.8	4.8	5.7	6.6				27
Building Regulations - non-domestic (New build)					0.7	1.4	2.1	2.7	3.4	4.0	4.7				19
Climate Change Agreements					1.8	2.1	2.4	2.1	2.0	1.8	1.7				14
Climate Change Levy					1.7	2.0	2.4	2.2	2.3	3.8	5.0				19
CRC Energy Efficiency Scheme					1.8	2.5	3.4	4.2	5.1	5.1	5.1				27
Energy Savings Opportunity Scheme					0.0	0.0	3.1	3.1	3.1	3.0	3.0				15
Greening Government Commitment					0.4	0.5	0.5	0.6	0.6	0.6	0.6				4
Home Energy Efficient Programmes (Scotland)					0.2	0.5	0.7	0.9	1.0	1.0	1.0				5
Low Emission Vehicle policies					0.0	0.1	0.3	0.4	0.4	0.5	0.6				2
Private and Social Sector Regulation (Scotland)					0.0	0.1	0.1	0.2	0.3	0.4	0.4				2
Private Rented Sector Regulation (England & Wales) – domestic					0.0	0.0	0.0	0.0	0.0	0.0	0.3				0
Private Rented Sector Regulation (England & Wales) - non-domestic					0.0	0.0	0.4	0.7	1.1	1.4	1.7				5
Rail electrification					0.0	0.0	0.0	0.0	0.7	0.7	0.7				2
Re:Fit					0.0	0.0	0.1	0.1	0.1	0.1	0.1				1
Salix public sector finance					0.0	0.1	0.2	0.3	0.5	0.7	0.9				3
Smart metering (Non-domestic)					0.1	0.1	0.2	0.4	1.0	1.9	2.7				6
Sustainable Energy Programme (Northern Ireland)					0.1	0.1	0.2	0.3	0.3	0.3	0.3				2
<b>ALL POLICIES</b>	<b>3</b>	<b>6</b>	<b>10</b>	<b>10</b>	<b>24</b>	<b>34</b>	<b>45</b>	<b>51</b>	<b>59</b>	<b>67</b>	<b>74</b>	<b>16</b>	<b>16</b>	<b>16</b>	<b>432</b>

*Policies marked (\*) are Energy Obligations*



## Annex C: Glossary

*This Annex provides explanations of the units used in Annex A (mtoe, pkm, tkm, ncv).*

**Calorific values (CVs):** The energy content of a fuel can be measured as the heat released on complete combustion. The SI (Système International) derived unit of energy and heat is the Joule. This is the energy in a given quantity of the fuel and is often measured in GJ per tonne. The energy content can be expressed as an upper (or gross) value and a lower (or net) value. The difference between the two values is due to the release of energy from the condensation of water in the products of combustion.<sup>14</sup> The data in Annex A is reported as a net value (ncv).

**Freight tonne kilometres (tkm):** A measure of freight moved which takes account of the weight of the load and the distance through which it is hauled (tonnes lifted multiplied by distance travelled).

<sup>15</sup>

**Passenger kilometres (pkm):** A measure of the distance in kilometres travelled by individuals.<sup>14</sup>

**Tonne of oil equivalent (toe):** A common unit of measurement which enables different fuels to be compared and aggregated.<sup>13</sup> The data in Annex A is reported as million tonnes of oil equivalent (mtoe); 1 Mtoe = 11.63TWh.

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<sup>14</sup> Digest of United Kingdom Energy Statistics (DUKES) 2016 Annex B:  
[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/632576/Annex\\_B.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/632576/Annex_B.pdf)

<sup>15</sup> Energy Consumption in the UK 2016 User Guide:  
[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\\_data/file/573271/EC\\_UK\\_user\\_guide\\_November\\_2016\\_final.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/573271/EC_UK_user_guide_November_2016_final.pdf)