UK Annual Report against Article 24(1) of the Energy Efficiency Directive 2012: April 2019

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 Part 1 of Annex XIV. This provides an update on a consistent basis with information reporting in the most recent Annual Energy Efficiency Directive Report submitted on 30th April 2018.

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.

Primary energy consumption in 2017 fell by 1.2% since 2016 and final energy consumption fell by 0.7%. Compared with 2007, consumption was 16.0% and 8.7% lower respectively.[1]

UK statistical data required by point (a) of Annex XIV of the Directive is reported up to 2017 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 2018.

Looking at the sub-sectors and the 2017 statistics:

- Household energy consumption fell by 3.7% since 2016 and has fallen by 11.0% since 2007
- Service sector energy consumption fell by 1.9% since 2016 but has increased by 5.1% since 2007. Real GVA (in national currency) has risen by 12.6% in this sector since 2007.
- Industrial energy consumption increased by 1.5% since 2016 but has fallen by 21.4% since 2007. Industrial real GVA (in national currency) rose by 4.9% between 2016 and 2017.
- Energy consumption for transport increased by 0.9% since 2016 but has fallen by 5.6% since 2007. UK Transport consumption has increased each year since 2013 driven by increase in passenger kms of 4.6% and freight tonne-kms of 3.1% due to economic growth and in response to unleaded and diesel prices falling by 12.3% and 14.4% respectively between 2013 and 2017.

[1] These figures are based on actual energy consumption data, it should be noted that the UK Article 3 targets are based on the 2007 Baseline set by the EU Price-Induced Market Equilibrium System (PRIMES) model.

b) Major legislative and non-legislative measures implemented

The UK Government's overall framework for increasing energy efficiency continues to be provided by its proposals and policies for meeting the UK's carbon budgets, with the most recent published plan being the 2017 Clean Growth Strategy[2]. This sets out its plans for meeting the UK's ambitious greenhouse gas reduction targets while boosting economic growth. Since our previous Annual report in April 2018, we have introduced a number of new energy efficiency measures and made changes to some that we have reported upon previously. These include the launch of the Buildings Mission for halving energy use from new buildings in the UK by 2030, new legislation for improving energy efficiency standards in the private rented sector in England and Wales, and the publishing of the Scottish Government's Energy Efficiency Scotland route map. While the full effect of these major new initiatives will be felt after the end of 2021, we expect to see some impact before that time.

Buildings

Buildings Mission

In May 2018 the Prime Minister announced the Government's commitment to halve the energy usage of new buildings in the UK by 2030 (from 2018 consumption levels), using new technologies and modern construction practices. To help achieve this, the Government has developed an ambitious Buildings Mission[3] , the first of the missions to be introduced under the Clean Growth Grand Challenge[4]. The mission is backed by £170 million of public money through the Transforming Construction Industrial Strategy Challenge Fund. We expect this will be matched by £250 million of private sector investment, meaning over £400 million will be invested in new construction products, technologies and techniques.

Progress achieved so far includes a £36 million investment, announced in September 2018, in a new Active Buildings Centre at Swansea University that aims to remove barriers to the market adoption of new solar-powered building design[5]. In October 2018 we announced the Home of 2030 Design Competition that will seek to reward innovation in design and delivery of higher quality, more energy efficient and age-friendly housing.

The Buildings Mission also includes a target of halving the cost of retrofitting existing buildings to the same energy performance standards as new buildings by 2030. A series of supply chain pilots were launched in late 2018 to support this, and an extensive technical research exercise has been launched in 2019. The Government is considering how it can work with industry to best support innovation in the area.

Energy Efficient Scotland Route Map

[2] www.gov.uk/government/publications/clean-growth-strategy

[3] www.gov.uk/government/publications/industrial-strategy-the-grand-challenges/missions#buildings

[4] www.gov.uk/government/publications/industrial-strategy-the-grand-challenges/industrial-strategy-the-grand-challenges#clean-growth

[5] www.epsrc.ukri.org/newsevents/news/activebuildingcentre/

The Scottish Government published the Energy Efficient Scotland Route Map[6] and launched the Energy Efficient Scotland Transition Programme[7] in May 2018, setting out the Scottish Government's vision for all Scottish buildings. It aims for all Scottish homes to achieve at least an EPC rating of 'C' by 2040. The Scottish Government opened a consultation in March 2019 seeking views on whether Energy Efficient Scotland can be accelerated and how any risks associated with this could be overcome[8]. The Energy Efficient Scotland Route Map outlines that owner occupiers will be first encouraged to meet EPC Band C, and proposes that mandatory action commence from 2030 if sufficient progress is not made.

Boiler Plus

New standards for domestic boilers in the Building regulations for England, known as 'Boiler Plus' came into force in April 2018, with the aim of reducing domestic carbon emissions and encouraging energy efficiency. The standards require:

- all gas boilers installed into existing systems to have Energy Related Products methodology (ErP) rating of at least 92%;
- time and temperature controls to be installed at the same time, if not already present and working; and
- combination boiler replacements to include the provision of an additional energy efficiency measure to be installed at the same time. But to reflect the diverse needs and circumstances of homes and households, the requirement will provide flexibility to allow a wide range of technology options to be considered.

Private Rented Sector

Regulations for a minimum energy efficiency standard of energy Performance Certificate (EPC) Band E for private rented property in England and Wales were applied to properties let on new tenancies in April 2018[9]. They will apply to all privately rented properties (even if there has been no change in tenancy) by 1 April 2020. In March 2019, amendments were agreed by Parliament to introduce a landlord financial contribution element. Under these amended regulations, landlords of EPC F and G rated homes will be required to invest, or co-invest, in improving the energy efficiency of these properties, where third-party funding is insufficient or cannot be secured. The landlord spending requirement will be capped at £3,500 inclusive of VAT. The amended regulation took effect on 1 April 2019.

Seven local authorities across England are participating in a pilot study to develop and test monitoring, compliance and enforcement approaches with regards to the Private Rented Sector Regulations. This study is running from January to December 2019.*Social rented Sector Standards – Scotland*

[6] www.gov.scot/publications/energy-efficient-scotland-route-map/

[7] www.gov.scot/policies/energy-efficiency/energy-efficient-scotland/

[8] www.gov.scot/publications/energy-efficient-scotland-consultation/

[9] www.gov.uk/government/publications/the-private-rented-property-minimum-standard-landlord-guidance-documents

The Energy Efficiency Standard for Social Housing (EESSH) for Scotland[10], introduced in March 2014, set a first 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 80% EESSH compliance (2017/18). A consultation was carried out in 2018 on further milestones beyond 2020, including a proposal to maximise the proportion of social housing meeting EPC band B by 2032. The new milestones for EESSH post-2020 will be announced in 2019.

Energy Company Obligation

The Energy Company Obligation (ECO) requires domestic energy suppliers over a certain size to achieve carbon and notional bill savings by promoting and installing energy efficiency measures into domestic homes in Great Britain. 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').

A new obligation period, 'ECO3', was introduced in 2018 to run from 3 December 2018 to 31 March 2022[11]. It focuses entirely on low income and vulnerable households, helping to meet the Government's fuel poverty commitments. It also encourages innovation by incentivising the inclusion of new, cost effective measures into the scheme, providing a boost for small, innovative companies across Great Britain. Local authorities also have an expanded role, through Local Authority Flexible Eligibility, encouraging the use of their expertise to identify the most vulnerable households in their areas.

Home Energy Scotland and Home Energy Efficiency Programmes for Scotland (HEEPS)

The Scottish Government's Home Energy Efficiency Programmes Area Based Scheme (HEEPS: ABS)[12] distributes funding based on an assessment of need. Its HEEPS Equity loan pilot scheme was extended in June 2018 from Glasgow, Perth & Kinross and Argyll and Bute areas to cover additional areas Inverclyde, Renfrewshire, Stirling, Dundee and Western Isles. HEEPS: ABS was funded by the Scottish Government with £49 million for 2018-2019.

Energy efficiency schemes covering large organisations (private and public sector)

Climate Change Levy (CCL)

The CCL, introduced in 2001, is a levy on the supply of energy to business and public-sector consumers intended to change business' behaviour to reduce energy consumption. CCL rates will be increased from 1 April 2019 by 31% on electricity and 40% for gas and other taxable fuels.[13] While CCL rebates (provided via Climate Change Agreement scheme) will be raised to ensure that energy intensive sectors remain protected from the impacts on their international competitiveness, the overall effect of the increase in CCL rates will be an incentive for additional action to conserve energy.

[10] https://www.scottishhousingregulator.gov.uk/energy-efficiency-standard-social-housing-eessh

[11] www.gov.uk/government/consultations/energy-company-obligation-eco3-2018-to-2022

[12] www.eas.org.uk/en/home-energy-efficiency-programmes-for-scotland-heeps_50558/

[13] www.gov.uk/government/publications/rates-and-allowances-climate-change-levy/climate-change-levy-rates

Streamlined Energy and Carbon reporting (SECR)

SECR reporting[14] comes into force on 1 April 2019 after the wind down of the CRC Energy Efficiency Scheme. SECR aims to reduce the administrative burdens of the current overlapping suite of reporting requirements while increasing corporate transparency, further incentivising energy efficiency and reducing carbon emissions. It will provide an estimated 11,900 large organisations with consistency in emissions reporting that aligns with the existing requirements for quoted companies.

Energy Savings Opportunity Scheme (ESOS)

ESOS[15] requires all large organisations to undertake a regular audit of their energy use in buildings, processes and transport and identify energy savings opportunities (implementing the requirements of Article 8 of the EU Energy Efficiency Directive). Phase 2 of the scheme began in December 2018 and updated guidance has been issued, the compliance deadline will be in December 2019. An evaluation of the scheme, as per the commitment in the Clean Growth Strategy, is currently being undertaken to consider any future reforms

Public sector

Emissions Reduction Pledge

The Emissions Reduction Pledge[16], launched in July 2018, is a voluntary scheme under which wider public sector and higher education sector organisations sign up to reduce their emissions by 30% by 2020 (from 2009/10 levels).

Welsh action on public sector energy efficiency and the Welsh Government Energy Service (WGES)

The Welsh Government created its new Energy Service[17] in October 2018, bringing together the services previously offered by Green Growth Wales and the Local Energy Service. It supports the public and community energy sectors to develop energy efficiency and renewable energy projects. In addition to maintaining the previous level of service, WGES aims to promote better collaboration between public sector and local communities and provide greater benefits to communities, including jointly owned or developed schemes. It supports new projects through to delivery and works with senior leaders in the public sector to develop area-based energy and decarbonisation solutions with the aim of continuing the transformation of how energy is generated and used. The service includes a range of initiatives including:

- A core service to identify and develop a pipeline of energy efficiency and renewable energy projects, offering technical, procurement and financial support. This support also aims to increase the scale of ambition through engaging with senior public sector leaders and making links between organisations and communities.

[14] www.gov.uk/government/consultations/streamlined-energy-and-carbon-reporting

[15] www.gov.uk/guidance/energy-savings-opportunity-scheme-esos

[16] https://www.gov.uk/government/publications/emissions-reduction-pledge-2020-emissions-reporting-in-public-and-higher-education-sectors

[17] www.localenergy.gov.wales/en/

- The Re:Fit Cymru Programme Implementation Unit.
- The Wales Funding Programme[18]. This provides interest free loans for qualifying schemes and is operated in partnership with Salix Finance for the public sector.
- The Welsh Energy Loan Fund. This provides development and capital project loans to support the installation of new community scale renewable energy installations by social enterprises and SME organisations. It is operated by the Development Bank of Wales.

The Industrial Heat Recovery Support (IHRS) Programme

The Industrial Heat Recovery Support (IHRS) opened by the UK Government in October 2018[19]. The programme aims to increase the deployment of heat recovery technologies in England and Wales, and offers a total of £18 million in grant funding. Industrial heat recovery is a process by which heat generated for an industrial process, that otherwise would be wasted, is recovered and reused. This waste heat can be reused in different ways; within the same industrial facility, by another end-user (e.g. through a heat network), or by converting the waste heat to power. This technology will allow businesses to reduce waste heat, save money on their energy bills and reduce carbon emissions.

The Industrial Energy Transformation Fund (IETF)

The Industrial Energy Transformation Fund (IETF) was announced in the Autumn Budget in 2018. The IETF will support businesses with high energy use, such as energy intensive industries, to transition to a low carbon future. It will help companies cut their energy bills and carbon emissions through investing in energy efficiency and low-carbon technologies. The IETF has a UK-wide budget of £315m over five years to 2024.

Consumers

Consumer advice

The UK Government launched Simple Energy Advice[20] in October 2018. This is a new internet and phone-based consumer advice service to help householders cut their bills and carbon emissions by reducing their energy usage. TrustMark, the Government Endorsed Quality scheme for any work that a consumer performs on their home, announced at the same time that it has expanded its remit to include energy efficiency sectors[21].

Smart meters

The roll-out of smart metering is an important part of the UK Government's approach for helping to enable consumers to make energy savings. The GB Smart Metering Implementation Programme has made significant progress in 2018, with even more homes and small businesses choosing to have a smart meter installed[22]. Over 1 million smart meters were installed in every quarter of 2018 and

[18] www.salixfinance.co.uk/loans/welsh-loans

[19] https://www.gov.uk/guidance/industrial-heat-recovery-support-programme-how-to-apply

[20] www.simpleenergyadvice.org.uk

[21] https://prolandscapermagazine.com/government-trustmark-new-mark-quality/

[22] www.gov.uk/government/publications/smart-metering-implementation-programme-progress-report-2018

around 13.8 million are already operating in smart mode across Great Britain as of 31 December 2018. In 2018, the Smart Meter Installation Code of Practice was amended to require that energy efficiency guidance delivered at install is tailored to each consumer's circumstances. This further helps consumers become aware of the changes they can make to improve the efficiency of their energy use.

Transport

Ultra Low Emission Vehicle policies

The UK Government's package of support for the transition to zero emission vehicles (amounting to investment of nearly £1.5 billion from April 2015 to March 2021) will continue to offer grants for plug-in cars, vans, taxis and motorcycles until at least 2020, with consumer incentives in some form continuing beyond that date. In July 2018 the UK Government published its Road to Zero Strategy which sets out new measures to clean up road transport and lead the world in the developing, manufacturing and using zero emission road vehicles[23].

Transport Scotland (an executive agency of the Scottish Government) increased its Low Carbon Transport Loan Fund (LCTL) in 2018-19 from £8M to £20M[24] enabling more businesses and consumers to make the switch to electric vehicles. As a result of the Scottish Government's Programme for Government commitment to phase out the need for petrol and diesel cars and vans by 2032, this year we are investing £15 million to add an additional 1,500 new charge points in homes, businesses and local authority land.

The Welsh Government announced in October 2018 that it is supplementing UK Government and private investment by investing £2 million in developing a network of public electric charging points near Wales' trunk roads[25]. 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.

Other transport measures

Heavy Goods Vehicles

The Road to Zero Strategy [26], published in July 2018, set out a range of actions that the UK Government and UK industry are taking to further reduce carbon emissions from this sector, these include:

- Introducing a new voluntary industry-supported commitment to reduce HGV greenhouse gas emissions by 15% by 2025, from 2015 levels. This commitment promises to help the industry achieve significant emissions reductions while realising concrete commercial benefits through improved fuel and logistical efficiency;

[23] www.gov.uk/government/publications/reducing-emissions-from-road-transport-road-to-zero-strategy

[24] www.gov.scot/policies/renewable-and-low-carbon-energy/low-carbon-transport/#fund

[25] www.gov.wales/electric-charging-points-strategic-road-links-wales-given-ps2million-funding-boost

[26] www.gov.uk/government/publications/reducing-emissions-from-road-transport-road-to-zero-strategy

- Launching a joint research project with Highways England to identify and assess zero emission technologies suitable for HGV traffic on the UK road network;
- Working with industry to develop an ultra-low emission standard for trucks; and
- Undertaking further emissions testing of the latest natural gas HGVs to gather evidence that will inform decisions on future government policy and support for natural gas as a potential near-term, lower emission fuel for HGVs.

Supporting Public Transport

In February 2019, the UK's Department for Transport announced the winners of the £48m Ultra-Low Emission Bus Scheme[27]. Funding will be awarded to 19 bidders to support the purchase of 263 ultra-low emission buses and includes £14.2m investment in charging infrastructure. The Transforming Cities Fund, increased from £1.7bn to £2.4bn at the Autumn 2018 budget, is supporting cities to make it easier, safer and quicker for people to travel by funding improved public transport connections. This will help to increase productivity and reduce congestion.

[27] www.gov.uk/government/publications/ultra-low-emission-bus-scheme-successful-bidders

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^2 and as of 9 July 2015 over 250 m^2 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.

Due to uncertainty surrounding the extent to which the latest buildings regulations standards have taken effect. 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 59 GWh of energy savings in 2018 in eligible buildings owned and occupied by Central Government as referred to in Article 5(6). With the 383.1 GWh of energy savings achieved up to 2017, the UK has so far achieved 442.1 GWh of energy savings in eligible buildings owned and occupied by Central Government. This exceeds the target that has been set for 2020 by 278.5 GWh.

Table 1: Summary of energy savings in Central Government buildings

Savings up to 2017 (GWh)	Savings in 2018 (GWh)	Total Savings up to 2018 (GWh)	2020 Target (GWh)	Position against target (GWh)
383.1	59	442.1	163.6	+278.5

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 were 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 National Energy Efficiency Action Plan 2017 and the Annual Report 2018.

In order to calculate energy savings, energy consumption data for buildings within scope of the above policies has been collected for 2017 and 2018. Energy savings in 2018 have then been calculated by subtracting energy consumption in 2018, from energy consumption in 2017. 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 389 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[28] (excluding micro-generation)

	2013	2014	2015	2016	2017	2018	Total
Boiler	167,600	115,500	73,500	102,100	43,900	34,600	537,100
Cavity Wall Insulation	166,200	316,500	149,100	89,700	68,800	80,500	870,900
Loft Insulation	126,400	206,200	100,200	66,100	37,100	41,500	577,500
Other Heating	30,100	52,900	50,900	69,100	33,100	33,700	269,900
Other Insulation	1,600	8,500	2,100	1,200	800	2,100	16,300
Solid Wall Insulation	27,500	49,000	32,500	29,900	17,800	19,400	176,100
Window Glazing	300	1,900	2,200	1,000	200	800	6,400
Total number of measures	**519,800**	**750,300**	**410,600**	**359,000**	**201,800**	**212,700**	**2,454,200**

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.[29] 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.[30] A summary of changes to policy savings of at least 500 GWh are provided below.

[28] Source: BEIS Household energy statistics www.gov.uk/government/collections/household-energy-efficiency-national-statistics

[29] Source: Energy and Emissions Projections 2017 Updated energy and emissions projections: 2017 - GOV.UK

[30] 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 2018

Policy	Revised Saving 2014-20 (TWh)	Change	Reasons for Change
*Carbon Emissions Reduction Target (2010-2012)	**92**	**-27**	The changes in policy savings from CERT are due the fact the UK no longer counts post-2020 savings towards its Article 7 2020 Target.
*Community Energy Savings Programme (2010-2012)	**4**	**-1**	The changes in policy savings from CESP are due the fact the UK no longer counts post-2020 savings towards its Article 7 2020 Target.
Energy Company Obligation (ECO)*	**21**	**-25**	The Energy Company Obligation figures now include savings from the most recent phases of ECO: ECO2t and ECO 3. ECO 2t was an 18-month transitional scheme that offered retrofit insulation measures to the whole housing market whilst a larger share of the obligation was targeted to a low-income vulnerable group (affordable warmth group). ECO 3 switched to a wholly affordable warmth scheme in Dec 2018 thereby dropping the carbon element focused scheme that was previously eligible to all households. The rationale for changing the eligibility criteria to a wholly affordable warmth scheme was to focus the schemes effort in helping government to meet its fuel poverty obligation of moving all fuel poor homes to EPC Band C by 2030. The benefits of diverting support toward the affordable warmth group is that it helps to reduce fuel bills for those most in need of support, including households with children who either can't afford to heat their home adequately, or in extreme cases not at all when the primary heating appliance is faulty. The types of measures targeted towards the affordable warmth group often comprise a larger share of expensive heating technologies that deliver savings over a shorter time frame compared to insulation products. This means diverting ECO funding toward the affordable warmth group at the expense of insulation delivered to the able to pay market results in lower carbon savings per pound spent. This has been the primary driver of the reduction in TWh energy savings from this policy since last year's report. In addition to these changes, The UK no longer counts post-2020 savings towards its Article 7 2020 Target.

Climate Change Levy (CCL)[31]	17	**-2**	The main driver of the fall in savings from CCL have been necessary improvements and updates to the model this year. Additionally, the CCL Rebalance announced in the Autumn Budget 2018 involved a reduction in electricity rates and an increase in gas rates. The net effect of all updates as well as the rebalance has been a reduction in savings by 2 TWh. In similar fashion to CCL, model updates and Autumn Budget 2018 changes in CCA rates have influenced changes in CCA savings.
Climate Change Agreements (CCA)	15	**1**	
Energy Savings Opportunity Scheme (ESOS)	16	**1**	Savings have slightly increased due to annual model updates for domestic economic indicators.
Smart metering (Non-domestic)	4	**-2**	Savings have reduced due to an updated assumption on the profile of smart meter installations.
Re:Fit Cymru	1	**New policies +13**	These policies are new to the report and have been included upon confirming eligibility for contribution towards the 2020 target.
Green Growth Wales			
Warm Homes Programme			
Welsh Housing Quality Standard			
Boiler Plus	2		
Streamlined Energy and Carbon Reporting Framework (SECR)	4		
Small Scale Renewables (FiT)	6		

[31] In the 2018 Annual Report, due to a typo error, policy savings for CCL and CCA were misaligned in Table 3 meaning the figures corresponded to each other. This has been rectified this year and the changes in savings have been appropriately identified.

Annex A: UK statistics for energy consumption and activity data[32]

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

	Data for 2007	Data for 2016	Data for 2017	Units
(i) primary energy consumption;	212.2	180.5	178.1	mtoe (ncv)
(ii) total final energy consumption;	145.2	133.6	132.6	mtoe (ncv)
(iii) final energy consumption by sector				
— industry mtoe	28.9	22.4	22.7	mtoe (ncv)
— transport (passenger)[33]	43.6	39.3	39.8	mtoe (ncv)
— transport (road freight transport)	12.9	13.6	13.6	mtoe (ncv)
— households	41.7	38.5	37.1	mtoe (ncv)
— services;	17.2	18.4	18.1	mtoe (ncv)
— agriculture;	0.9	1.3	1.4	mtoe (ncv)
(iv) gross value added by sector [34]				
— industry	433	430	433	billion € cash prices
— services;	1,484	1,585	1,536	billion € cash prices
(v) disposable income of households;	1,778	1,626	1,511	billion € cash prices
(vi) gross domestic product (GDP);	1,776	2,269	2,362	billion € cash prices
(vii) electricity generation from thermal power generation;	32.9	24.4	23.1	mtoe (ncv)
(viii) electricity generation from combined heat and power;	2.4	1.8	1.9	mtoe (ncv)
(ix) heat generation from thermal power generation;	4.0	3.2	3.3	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	55.4	52.4	mtoe (ncv)
(xii) passenger kilometres (pkm), if available;	792.2	797.5	807.9	billion kms
(xiii) tonne kilometres (tkm), if available[35]	239.3	196.1	189.0	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	65.6	66.0	millions

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

32 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-uk-energy-statistics-dukes-2018-main-report

33 Includes freight activity for rail, aviation and shipping

34 Economic series are presented in real prices in euros converted using the exchange rate observed in the individual years.

35 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)

The following table provides up to date figures on policies confirmed to be in scope for contribution to Article 7 of the Energy Efficiency Directive. Additional policies exist which may help contribute to the UKs position against the Article 7 2020 target. An update for these will be provided in the 2020 Annual Report.

Policies	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	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	**92**
***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	**4**
***Energy Company Obligation**				0.5	1.0	1.5	2.2	3.2	3.9	4.3	4.6	**21**
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					2.0	2.3	2.6	2.3	2.2	2.0	1.9	**15**
Climate Change Levy					1.6	1.9	2.2	2.0	2.1	3.1	4.2	**17**
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	3.2	3.2	3.2	3.2	3.1	**16**
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	0.5	**1**
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)					0.0	0.0	0.1	0.1	0.3	1.4	2.5	**4**
Sustainable Energy Programme (Northern Ireland)					0.1	0.1	0.2	0.2	0.3	0.3	0.4	**2**
Re:Fit Cymru					0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Green Growth Wales					0.0	0.0	0.0	0.1	0.1	0.1	0.1	**1**
Warm Homes Programme					0.0	0.0	0.0	0.1	0.1	0.1	0.1	
Boiler Plus					0.0	0.0	0.0	0.0	0.3	0.5	0.8	**2**
Streamlined Energy and Carbon Reporting Framework (SECR)					0.0	0.0	0.0	0.0	0.0	1.8	2.4	**4**
Small Scale Renewables (FiT)					0.8	1.1	1.2	1.3	1.3	0.0	0.0	**6**
	3	**6**	**10**	**10**	**25**	**35**	**46**	**52**	**60**	**68**	**76**	**389**

*Policies marked (*) are Energy Obligations, **Welsh Government policies have been summed together and rounded to zero decimal places*

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. Net calorific values do not include the condensation heat of water.[36] 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). [37]

Passenger kilometres (pkm): A measure of the distance in kilometres travelled by individuals.

Tonne of oil equivalent (toe): A common unit of measurement which enables different fuels to be compared and aggregated. [38] The data in Annex A is reported as million tonnes of oil equivalent (mtoe); 1 Mtoe = 11.63TWh.

[36] 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

[37] Energy Consumption in the UK 2016 User Guide: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/573271/ECUK_user_guide_November_2016_final.pdf

[38] From 2015 the UK statistics only include tonne-kms for vehicles over 3.5 tonnes.