

UK Annual Report against Article 24(1) of the Energy Efficiency Directive 2012: April 2020

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 previous Annual Energy Efficiency Directive Report submitted in 2019.

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 reported up to 2018 in Annex A.

Primary energy consumption in 2018 fell by 0.2% since 2017 and final energy consumption increased by 1.1%. Compared with 2007, primary energy consumption was 16.4% lower and final energy consumption 7.7% lower.¹

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 2019.

Looking at the sub-sectors and the 2018 statistics:

- Household energy consumption increased by 3.3% since 2017 and has fallen by 8.6% since 2007.
- Service sector energy consumption increased by 1.1% since 2017 and has increased by 11.6% since 2007. Real GVA (in national currency) has risen by 9.5% in this sector since 2007.
- Industrial energy consumption increased by 0.1% since 2017 but has fallen by 26.0% since 2007. Industrial real GVA (in national currency) rose by 3.9% between 2017 and 2018.
- Energy consumption for transport has fallen by 0.1% since 2017 and has fallen by 4.8% since 2007. Passenger kms increased by 0.1% and freight tonne-kms increased by 2.3% since 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 Strategy². 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 2019, we have introduced a number of new energy efficiency measures and made changes to some that we have reported upon previously. These include the commitment to introduce a Future Homes Standard which will ensure that new homes are built with high levels of energy efficiency and low carbon heat from 2025, 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 UK 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 UK Government has developed an ambitious Buildings Mission³, the first of the missions to be introduced under the Clean Growth Grand Challenge⁴. 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 design⁵. 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. Phase 1 of the competition was launched on 2 March 2020.

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 UK Government is considering how it can work with industry to best support innovation in the area.

The Future Homes Standard

In March 2019, the UK Government added to the Buildings Mission by committing to introduce a Future Homes Standard by 2025, for new build homes to be future-proofed with low carbon heating and world leading levels of energy efficiency. Introducing the Future Homes Standard by 2025 will ensure that the homes this country needs will be fit for the future, better for the environment, and affordable for consumers to heat.

As a stepping stone to this commitment, we are consulting on a meaningful and achievable increase to the energy efficiency standards for new homes to be introduced through the Building Regulations

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/

in 2020. The preferred option is to set a standard that should result in a 31% reduction in carbon dioxide (CO₂) emissions compared to 2013 standards. This consultation closed on 7 February 2020. A further consultation will follow on energy efficiency standards for new non-domestic buildings and existing buildings.

Energy Efficient Scotland Route Map

The Scottish Government published the Energy Efficient Scotland Route Map⁶ and launched the Energy Efficient Scotland Transition Programme⁷ in May 2018, setting out the Scottish Government's vision for all Scottish buildings. It aims that by 2040 all Scottish homes and buildings will be warmer, greener and more efficient. To reduce poor energy efficiency as a driver of fuel poverty and to reduce greenhouse gas emissions. In December 2019, the Scottish Government published a consultation on proposals for improving energy efficiency in owner occupied housing, which closed on 9 April 2020⁸. The proposals aim to maximise the number of homes achieving Energy Performance Certificate (EPC) Band C by 2030. The Scottish Government already provides a range of support and incentives to help owner occupiers improve the energy efficiency of their homes, including grants and low-cost loans, which can be accessed via Home Energy Scotland.

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) ratings 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 EPC Band E for private rented property in England and Wales were applied to properties let on new tenancies in April 2018⁹. 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.

A number of local authorities across England and Wales 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 was launched in January 2019 and is expected to be completed by April 2021.

Scotland planned to introduce regulations to improve energy efficiency of private rented housing which were due to come into force on 1 April 2020. This has now been postponed due to the Covid-19 crisis.

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

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

⁸ <https://consult.gov.scot/housing-and-social-justice/energy-efficient-scotland-owner-occupier-proposals/>

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

Social Rented Sector Standards – Scotland

The Energy Efficiency Standard for Social Housing (EESH) for Scotland,¹⁰ introduced in March 2014, set a first milestone of a minimum energy efficiency rating, broadly equivalent to EPC Bands 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 85% EESH compliance (2018/19). Following public consultation, a new EESH2 milestone was confirmed in June 2019, that all social housing meets, or can be treated as meeting, EPC Band B, or is as energy efficient as practically possible, by the end of 2032 and within the limits of cost, technology and necessary consent.

The Welsh Housing Quality Standard for social housing set the energy target at SAP¹¹ 65 (EPC band D) by 31st December 2020 in the revised guidance published in 2008. Statistical reporting from all Welsh social landlords showed compliance of 93% against all elements of the standard as at 31st March 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 2022¹². It focuses entirely on achieving notional bill savings for low income and vulnerable households, helping to meet the UK 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.

Scottish Government energy efficiency programmes

The Scottish Government has set out our ambition in the Energy Efficient Scotland route map to achieve an EPC rating of C or better for all households experiencing fuel poverty by 2030. This is supported by our national energy efficiency scheme, Warmer Homes Scotland, and Area Based Schemes designed and delivered by local councils. Every household in Scotland can also access free and impartial advice from Home Energy Scotland, including access to low cost or interest free loans to meet the cost of energy efficiency improvements. Funding for these programmes has increased this year, from £119 million to £162 million in 20-21 (an additional £49million).

The Welsh Government continues to improve the thermal and energy efficiency of homes in Wales through the Warm Homes Programme. Between 2011 and March 2019, more than 37,700 homes benefitted from home energy efficiency measures through the Nest Scheme. Of these homes, 43% were rated Energy Efficiency Performance Certificate (EPC) G before measures were installed, 51% rated EPC F and 6% rated at EPC E. Following the installation of home energy efficiency measures, 27% of homes had improved to an EPC C rating, 53% improved to an EPC D rating and 16% improved to an EPC E rating. The remaining 4%, which were some of the most hard to treat properties, achieved a modest EPC rating of F or G.

¹⁰ <https://www.gov.scot/policies/home-energy-and-fuel-poverty/energy-efficiency-in-social-housing/>

¹¹ The Welsh Government’s *Standard Assessment Procedure* for Energy Rating of Dwellings

¹² <http://www.legislation.gov.uk/uksi/2018/1183/contents/made> and <http://www.legislation.gov.uk/uksi/2019/1441/contents/made>

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 their behaviour to reduce energy consumption. Building on the Budget 2016¹³ announcement to make gas and electricity CCL rates equal by 2025 and that the CRC Energy Efficiency Scheme (formerly known as the “Carbon Reduction Commitment”) would be closing, CCL main rates (and reduced rates for Climate Change Agreements participants) have changed from 1 April 2020 as announced at Budget 2018, with the rate paid for electricity decreasing by 4.3% while the rate on gas increases by 19.8%. The UK Government announced at Budget 2020 that it will be raising the rate on gas to £0.00568/kWh in 2022-23 and to £0.00672/kWh in 2023-24 whilst freezing the rates on electricity. To ensure the tax system treats fuels that are used off the gas grid more equitably, the UK Government will freeze liquid petroleum gas (LPG) at 2019-20 levels until April 2024.

Climate Change Agreements (CCA) Scheme

The CCA¹⁴ encourages improvements in energy efficiency across 53 industrial sectors, in return for significant discounts from the CCL. An evaluation of the scheme began in 2018, as per the commitment in the Clean Growth Strategy, to measure the extent to which the scheme has met its twin objectives of ensuring competitiveness while delivering energy/carbon savings. Following the evaluation, the UK Government announced at Budget 2020 that it has decided to reopen and extend the CCA scheme by two years. The CCA consultation was published on 16 April 2020¹⁵.

Streamlined Energy and Carbon reporting (SECR)

SECR reporting¹⁶ came into force in April 2019 to coincide with the wind down of the CRC Energy Efficiency Scheme (as no CRC allowances were required for allowances after 31 March 2019). 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. As part of the reporting requirements, businesses will need to disclose any energy efficiency action taken in a financial year. Given companies have up to 6 months (and in some cases up to 9 months) after their financial year end to file accounts we expect the first reports to be filed in the second half of 2020.

Energy Savings Opportunity Scheme (ESOS)

ESOS¹⁷ requires all large organisations to undertake an audit at least every 4 years of their energy use in buildings, processes and transport and identify energy savings opportunities. The deadline for the second compliance period was on 5 December 2019 and the Environment Agency has published a list on gov.uk¹⁸ of the organisations who have notified compliance. An evaluation and post-implementation review of the scheme was published in February 2020, which set out how ESOS had delivered against the energy /carbon estimates made in 2014¹⁹.

The Industrial Heat Recovery Support (IHRS) Programme

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

¹⁴ <https://www.gov.uk/guidance/climate-change-agreements--2>

¹⁵ <https://www.gov.uk/government/consultations/climate-change-agreements-scheme-extension-and-reforms-for-any-future-scheme>

¹⁶ www.gov.uk/government/consultations/streamlined-energy-and-carbon-reporting

¹⁷ www.gov.uk/guidance/energy-savings-opportunity-scheme-esos

¹⁸ <https://www.gov.uk/guidance/energy-savings-opportunity-scheme-esos#esos-published-data>

¹⁹ <https://www.gov.uk/government/publications/energy-audits-and-reporting-research-including-the-energy-savings-opportunity-scheme>

The IHRS was opened by the UK Government in October 2018²⁰ and is open for applications until July 2020, the IHRS provides funding towards project costs of feasibility studies, preliminary engineering studies and capital deployment until March 2022. 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. The Programme supports projects that recover and reuse heat generated for industrial processes, that otherwise would be wasted. 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. By the end of March 2020, the IHRS programme has offered some £7million to around 30 projects.

Electricity Demand Reduction (EDR)

The EDR pilot²¹ tested the viability of the Capacity Market and learning lessons for UK Government and other stakeholders on EDR more widely, by providing funding to participants for the actual reductions in electricity use they made over the winter peak period. An evaluation of the pilot was published in July 2019, which concluded that energy efficiency projects were not yet ready to enter the GB Capacity Market as currently designed. A subsequent Call for Evidence²² closed in September 2019, seeking views on how to reduce barriers to the development of the market for EDR measures, and a UK Government Response will be published in due course.

Combined Heat and Power Quality Assurance Programme (CHPQA)

The CHPQA Programme²³ is an annual assessment process that ensures that all Combined Heat and Power (CHP) plants that benefit from UK Government support through a variety of renewable energy and energy taxation policies meet a minimum level of energy efficiency. Those that meet the EU's requirement for 10% primary energy savings are referred to as 'good quality' CHP. In order to receive CHP support for electrical output, we require that systems are certified as 'good quality CHP' in the CHPQA. The CHPQA is a voluntary programme and CHP plants do not have to apply unless they wish to claim UK Government support.

Energy efficiency schemes covering smaller businesses and business buildings

BASEE (Boosting Access for SMEs to Energy Efficiency) Competition

The aim of BASEE²⁴ is to accelerate the growth of the energy services market for SMEs (Small and medium-sized enterprises) by driving down transaction costs and promoting third party investment in small-scale energy efficiency projects. The competition has made available £6m of funding for innovative, scalable business models or solutions that facilitate investment for small energy efficiency retrofit/refurbishment projects for SMEs in the UK. The competition launched on 13 March 2019 and will run until end of March 2021.

Publicly Available Standard (PAS)

The UK Government has commissioned the British Standards Institute (BSI) to produce a new Publicly Available Standard (PAS) for the installation of energy efficiency measures in non-domestic buildings. These standards will promote trust and confidence in the energy efficiency market, and consideration will also be given on how to incentivise accreditation to these standards through the existing and future policy framework.

Private Rented Sector (PRS) minimum standard regulations

²⁰ <https://www.gov.uk/guidance/industrial-heat-recovery-support-programme-how-to-apply>

²¹ <https://www.gov.uk/guidance/electricity-demand-reduction-pilot>

²² <https://www.gov.uk/government/consultations/facilitating-energy-efficiency-in-the-electricity-system>

²³ <https://www.gov.uk/guidance/combined-heat-power-quality-assurance-programme>

²⁴ <https://www.gov.uk/government/publications/boosting-access-for-smes-to-energy-efficiency-basee-competition>

The UK Government introduced minimum energy efficiency standards for existing private rented non-domestic buildings in April 2018, where landlords of non-domestic PRS properties were not permitted to grant a new tenancy or to extend or renew an existing tenancy if their building had an Energy Performance Certificate (EPC) rating of an F or G. From 1 April 2023, this prohibition on leasing will also apply to continuing with an existing lease, meaning that all non-domestic PRS properties will need to be at least EPC E. In October 2019, the UK Government published a consultation²⁵ on a future target of EPC B by 2030, where cost effective. The consultation closed on 7 January 2020 and a response will be published in due course.

In-use energy performance ratings

As part of UK Government's response to the Committee on Climate Change 2019 report, the UK Government committed to consult on introducing mandatory in-use energy performance ratings for non-domestic buildings in the private sector.²⁶ This will be key to helping businesses to understand and improve the actual energy performance of their buildings.

Small Business Energy Efficiency Scheme

Work is being carried out on the development of a new Small Business Energy Efficiency Scheme and the UK Government published a Call for Evidence²⁷ in March 2019 to explore options. A summary of responses will be published in due course. The aim of the scheme is to realise the untapped cost-effective energy saving potential in the SME sector and contribute towards the Clean Growth Strategy²⁸ ambition of supporting businesses to improve their energy efficiency by at least 20% by 2030.

Public sector

Greening Government Commitments

The UK Government is taking a leading role in reducing greenhouse gas emissions through the Greening Government Commitments. In 2017, UK Central Government Departments agreed a 43% greenhouse gas emission reduction target by 2020 (based on 2009/10 levels), having met three years early a previous target of 32% by 2020. Good progress is being made, with the latest Greening Government Commitment Annual Report showing a reduction of greenhouse gas emissions of 39% in 2017/18.²⁹

Funding projects across the public sector – Public Sector Energy Efficiency Loan Scheme

We continue to fund public sector energy efficiency projects through the Public Sector Energy Efficiency Loan Scheme, managed by Salix Finance Ltd. This scheme provides interest-free Government funding to the public sector to improve energy efficiency and reduce carbon emissions. Currently, over 100 different energy efficiency technologies are supported. The capital pot for England stands at £312m as of the end of 2019/20. Salix manages similar funds for the Scottish and Welsh Governments. From 2004 to 31st March 2019, this scheme has delivered over 17,700 projects to over 2,700 public sector clients, valued at £842 million.

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

²⁵ <https://www.gov.uk/government/consultations/non-domestic-private-rented-sector-minimum-energy-efficiency-standards-future-trajectory-to-2030>

²⁶ <https://www.gov.uk/government/publications/committee-on-climate-changes-2019-progress-reports-government-responses>

²⁷ <https://www.gov.uk/government/consultations/energy-efficiency-scheme-for-small-and-medium-sized-businesses-call-for-evidence>

²⁸ <https://www.gov.uk/government/publications/clean-growth-strategy>

²⁹ <https://www.gov.uk/government/publications/greening-government-commitments-2017-to-2018-annual-report>

The Welsh Government created its current Energy Service³⁰ 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. The service also aims to increase the scale of ambition, capacity and capability, through engaging with senior public sector leaders and making links between organisations and communities.
- The Wales Funding Programme³¹. 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.

Since 2015, through the WGES (including the forerunners Green Growth Wales and the Local Energy Service), there has been an investment of £77million of zero-interest loans across the public sector in Wales, to date. The services have also supported the delivery of a further £27million of energy and energy efficiency projects, with finance secured from alternative routes. In 2018/19 alone, investments of £22.8million were made to support a wide range of energy efficiency projects, from a £24,000 investment in LED lighting at a primary school to a £4 million estate-wide deep retrofit project. For 2019/2020, a further £11.5million of capital was made available for investment, consisting of new capital and the reinvestment of interest free repayments.

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 £315million over five years to 2024.

Consumers

Consumer advice

Simple Energy Advice Service (SEA): The SEA service was set up in 2018³² to provide impartial and tailored advice to help people make their homes greener and cheaper to run. The service consists of an easy-to-use website, supported by a call centre which members of the public may contact for assistance. SEA was created in response to the Government-commissioned Each Home Counts Review, which emphasised the importance of consumers receiving trusted, impartial advice on energy efficiency. SEA's 'core' offer is an assessment of users' behavioural traits and of the fabric of their homes (using EPC data), resulting in tailored energy saving advice. Where relevant, users are also directed towards financial support and qualified installers. There is further information, for example on smart meters, and specific advice for tenants and landlords. We are continuing to develop the service to broaden and further improve its functionality.

The Welsh Government provides advice to people living in Wales improve their home energy efficiency. Subject to meeting certain eligibility criteria, people are provided home energy efficiency

³⁰ www.localenergy.gov.wales/en/

³¹ www.salixfinance.co.uk/loans/welsh-loans

³² www.simpleenergyadvice.org.uk

measures at no cost to the householder, to improve the energy efficiency of their homes. This contributes to the Welsh Government's efforts to reduce fuel poverty and decarbonise Welsh homes. There is evidence, however, increased benefits could be delivered through an expansion of advice and support services, targeting people struggling to maintain a satisfactory home temperature at an affordable cost. As part of the new plan to tackle fuel poverty, the Welsh Government will implement a pilot scheme to explore how people can be supported to reduce energy demand using smart metering and other measures.

Smart meters

The roll-out of smart gas and electricity meters across Great Britain is enabling millions of consumers to realise a range of benefits³³ and improve energy efficiency. The In-Home Display (IHD), which households are offered when they have smart meters installed, gives accurate information about energy consumption so that consumers can easily understand how to use less and save money on their bills. Research shows that almost three-quarters of people with smart meters have taken steps to reduce their energy use.³⁴ The Smart Metering Implementation Programme has made significant progress in 2019, with over 1 million smart and advanced meters installed in every quarter and a total of 16.5 million now operating, as of 31 December 2019.³⁵ In September 2019, the UK Government published a consultation on proposals for a new policy framework to continue to drive market-wide rollout of smart meters in the period after 2020.³⁶

Transport

Zero Emission Vehicle policies

The UK Government's ambition is to put the UK at the forefront of the design and manufacturing of zero emission vehicles.³⁷ After legislating for net zero emissions by 2050 in Summer 2019, on 4 February 2020, the Prime Minister launched a consultation on bringing forward the end to the sale of new petrol and diesel cars and vans from 2040 to 2035, or earlier if a faster transition appears feasible, as well as including hybrids for the first time. As part of this consultation, we are asking what the accompanying package of support will need to be to enable the transition to zero emission vehicles and minimise the impacts on businesses and consumers across the UK, building on the significant demand and supply side measures already in place. We are investing around £2.5 billion with grants available for plug in cars, taxis and motorcycles, as well as funding to support charge point infrastructure at homes, workplaces, on residential streets and across the wider roads network.

To reduce tailpipe emissions for new cars and vans, new cars CO2 emission reductions regulations came into effect on 1 January 2020 setting targets out to 2030 which apply in the UK. The regulation sets binding CO2 emission reduction targets for new cars of 15% by 2025 and 37.5% by 2030 (based on a 2021 baseline). Manufacturers face fines for non-compliance.

Transport Scotland (an executive agency of the Scottish Government) increased its Low Carbon Transport Loan Fund (LCTL) in 2018-19 from £8million to £20million³⁸ 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, Transport Scotland will also expand the low carbon transport loan to used vehicles for those living in Scotland. This year Transport Scotland 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

³³ <https://prolandscapermagazine.com/government-trustmark-new-mark-quali>

³⁴ www.gov.uk/government/publications/smart-metering-implementation-programme-progress-report-2018

³⁵ <https://www.gov.uk/government/statistics/statistical-release-and-data-smart-meters-great-britain-quarter-4-2019>

³⁶ <https://www.gov.uk/government/consultations/smart-meter-policy-framework-post-2020>

³⁷ <https://www.gov.uk/government/publications/reducing-emissions-from-road-transport-road-to-zero-strategy>

³⁸ www.gov.scot/policies/renewable-and-low-carbon-energy/low-carbon-transport/#fund

near Wales' trunk roads³⁹. 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,⁴⁰ 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 the introduction of 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.

Additionally, new Heavy Duty Vehicle (HDV) CO₂ emission standards regulation⁴¹ came into effect in July 2019. This establishes, for the first time, CO₂ reduction targets for HDVs. The new regulation sets binding CO₂ emission reduction targets for HDV manufacturers of 15% by 2025 and 30% by 2030 (based on 2019 emission levels). Manufacturers face fines for non-compliance.

Supporting Public Transport

In February 2019, the UK's Department for Transport announced the winners of the £48million Ultra-Low Emission Bus Scheme⁴². Funding will be awarded to 19 bidders to support the purchase of 263 ultra-low emission buses and includes £14.2million investment in charging infrastructure. The £2.5billion Transforming Cities Fund 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.

On 11 February, the Prime Minister announced £5 billion funding for investment in local buses and cycling and walking infrastructure⁴³. It includes funding at least 4,000 zero emission buses to make greener travel the convenient option, driving forward the UK's progress on its net zero ambitions; and measures to improve modal shift onto the bus, such as high frequency services, more 'turn up and go' routes, new priority schemes, and more affordable fares.

³⁹ www.gov.wales/electric-charging-points-strategic-road-links-wales-given-ps2million-funding-boost

⁴⁰ <https://www.gov.uk/government/publications/reducing-emissions-from-road-transport-road-to-zero-strategy>

⁴¹ Available at: <https://eur-lex.europa.eu/eli/reg/2019/1242/oj>

⁴² www.gov.uk/government/publications/ultra-low-emission-bus-scheme-successful-bidders

⁴³ <https://www.gov.uk/government/news/major-boost-for-bus-services-as-pm-outlines-new-vision-for-local-transport>

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 m² and as of 9 July 2015 over 250 m² 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 also so that only buildings with a floor area greater than 250 m² are included. This gives a total figure of 14.0 million m².

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 very 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 m², which did not meet the energy performance requirements referred to in Article 5(1), is calculated to be 14.0 million m².

d) The amount of energy savings in Central Government buildings

Article 5(6) requires the UK 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 33.3 GWh of energy savings in 2019 in eligible buildings owned and occupied by Central Government as referred to in Article 5(6). With the 442.1 GWh of energy savings achieved up to 2018, the UK has so far achieved 475.4 GWh of energy savings in eligible buildings owned and occupied by Central Government. This exceeds the target that has been set for 2020 by 311.8 GWh.

Table 1: Summary of energy savings in Central Government buildings

Savings up to 2018 (GWh)	Savings in 2019 (GWh)	Total Savings up to 2019 (GWh)	2020 Target (GWh)	Position against target (GWh)
442.1	33.3	475.4	163.6	+311.8

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 Energy Efficiency Annual Report 2019.

In order to calculate energy savings, energy consumption data for buildings within scope of the above policies has been collected for 2018 and 2019. Energy savings in 2019 have then been calculated by subtracting energy consumption in 2019, from energy consumption in 2018. 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 m².

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 saving of 385 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 Obligation⁴⁴ (excluding micro-generation)

	2013	2014	2015	2016	2017	2018	2019	Total
Boiler	167,600	115,500	73,500	102,100	43,900	34,400	66,500	603,500
Cavity Wall Insulation	166,200	316,500	149,100	89,700	68,800	80,000	41,300	911,600
Loft Insulation	126,400	206,200	100,200	66,100	37,100	41,300	26,300	603,600
Other Heating	30,100	52,900	50,900	69,100	33,100	33,900	44,300	314,300
Other Insulation	1,600	8,500	2,100	1,200	800	2,100	30,800	47,100
Solid Wall Insulation	27,500	49,000	32,500	29,900	17,800	19,400	12,400	188,500
Window Glazing	300	1,900	2,200	1,000	200	800	10	6,410
Total number of measures	519,800	750,300	410,600	359,000	201,800	211,900	221,610	2,675,010

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 2018 and the latest available evidence on the impact of measures.⁴⁵ 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.⁴⁶ A summary of changes to policy savings of at least 500 GWh are provided below.

⁴⁴ Source: BEIS Household energy statistics www.gov.uk/government/collections/household-energy-efficiency-national-statistics

⁴⁵ Source: Energy and Emissions Projections 2017 <https://www.gov.uk/government/publications/updated-energy-and-emissions-projections-2018>

⁴⁶ Source: Green Book supplementary guidance [Green Book supplementary guidance: valuation of energy use and greenhouse gas emissions for appraisal - GOV.UK](http://www.gov.uk/government/uploads/system/uploads/attachment_data/file/684423/green-book-supplementary-guidance-valuation-of-energy-use-and-greenhouse-gas-emissions-for-appraisal-2017.pdf)

Table 3: Summary of changes in energy savings since April 2019

Policy	Revised Saving 2014-20 (TWh)	Change	Reasons for Change
Home Energy Efficient Programmes (Scotland)	2	-3.2	Updates in modelling and inputs have led to a more conservative approach being taken, which has seen a reduction in savings counted under Article 7.
Private and Social Sector Regulation (Scotland)	3	+1.7	New inputs have been added since policies have come into force under PSSR which has led to an increase in savings.
Private Rented Sector Regulation (England & Wales) - non-domestic	1	-4.5	A more conservative approach in the modelling has seen a reduction in savings under Article 7.
Re: Fit	0	-0.6	A more conservative approach has been taken for RE:FIT meaning BEIS no longer considers savings under article 7.
Small Scale Renewable (FiT)	7	+1.6	New inputs from the most recent year has seen an increase in savings from the past year. A surge in uptake was also recorded in March 2019 just before the scheme closed.

Annex A: UK statistics for energy consumption and activity data⁴⁷

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

	Data for	Data for	Data for	Units
	2007	2017	2018	
(i) primary energy consumption;	212.1	177.7	177.3	mtoe (ncv)
(ii) total final energy consumption;	145.2	132.6	134.0	mtoe (ncv)
(iii) final energy consumption by sector				
— industry mtoe	28.9	21.4	21.4	mtoe (ncv)
— transport (passenger) ⁴⁸	43.7	40.1	40.1	mtoe (ncv)
— transport (road freight transport)	12.8	13.7	13.7	mtoe (ncv)
— households	41.7	36.8	38.1	mtoe (ncv)
— services;	17.2	19.0	19.2	mtoe (ncv)
— agriculture;	0.9	1.5	1.5	mtoe (ncv)
(iv) gross value added by sector ⁴⁹				
— industry	446	411	427	billion € cash prices
— services;	1580	1680	1730	billion € cash prices
(v) disposable income of households;	1745	1555	1577	billion € cash prices
(vi) gross domestic product (GDP);	2265	2363	2424	billion € cash prices
(vii) electricity generation from thermal power generation;	32.9	23.1	21.9	mtoe (ncv)
(viii) electricity generation from combined heat and power;	2.2	1.7	1.8	mtoe (ncv)
(ix) heat generation from thermal power generation;	2.2	2.6	2.5	mtoe (ncv)
(x) heat generation from combined heat and power plants, including industrial waste heat;	4.0	3.3	3.3	mtoe (ncv)
(xi) fuel input for thermal power generation;	77.7	51.2	48.6	mtoe (ncv)
(xii) passenger kilometres (pkm), if available;	803.9	802.1	802.8	billion kms
(xiii) tonne kilometres (tkm), if available ⁵⁰	244.8	188.9	193.4	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	66.0	66.5	millions

⁴⁷ 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>

⁴⁸ Includes freight activity for rail, aviation and shipping

⁴⁹ Economic series are presented in real prices in euros converted using the exchange rate observed in the individual years.

⁵⁰ 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 UK's position against the Article 7 2020 target.

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	11.0	45
Building Regulations - domestic (Existing build)					3.7	7.4	8.4	9.3	10.2	11.1	12.2	62
Building Regulations - domestic (New build)					1.0	1.9	3.0	3.9	4.8	5.7	6.6	27
Building Regulations - non-domestic (New build)					0.7	1.4	2.0	2.7	3.4	4.0	4.7	19
Climate Change Agreements					2.0	2.3	2.6	2.7	1.9	1.8	1.8	15
Climate Change Levy					1.6	1.9	2.2	2.4	1.9	2.9	4.1	17
CRC Energy Efficiency Scheme					1.8	2.5	3.4	4.2	5.1	5.1	5.1	27
Energy Savings Opportunity Scheme					-	-	3.3	3.3	3.3	3.2	3.2	16
Greening Government Commitment					0.4	0.5	0.5	0.6	0.7	0.7	0.7	4
Home Energy Efficient Programmes (Scotland)					0.1	0.2	0.2	0.3	0.4	0.5	0.5	2
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)					0.1	0.2	0.3	0.4	0.5	0.6	1.1	3
Private Rented Sector Regulation (England & Wales) – domestic					-	-	-	-	-	-	0.5	1
Private Rented Sector Regulation (England & Wales) - non-domestic					-	-	-	-	-	-	0.8	1
Rail electrification					0.0	0.0	0.0	0.0	0.7	0.7	0.7	2
Public Sector Energy Efficiency Loan Scheme					-	0.1	0.2	0.3	0.5	0.7	0.9	3
Smart metering (Non-domestic)					0.0	0.0	0.1	0.2	1.1	1.2	1.7	4
Sustainable Energy Programme (Northern Ireland)					0.1	0.1	0.1	0.2	0.3	0.3	0.4	2
Re:Fit Cymru**					-	-	-	-	0.0	0.0	0.0	1
Green Growth Wales**					-	-	0.0	0.1	0.1	0.1	0.1	
Warm Homes Programme**					0.0	0.0	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)					-	-	-	-	-	1.8	2.4	4
Small Scale Renewables (FiT)					0.8	1.1	1.2	1.3	1.3	1.6	-	7
Total	3	6	10	10	25	35	46	52	60	68	76	385

Policies marked (*) are Energy Obligations, **Welsh Government policies have been summed together and rounded to zero decimal places. Some future policy savings may be affected by the ongoing uncertainty surrounding Covid-19. Figures may not sum due to rounding.

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.⁵¹The 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).⁵²

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.⁵³ The data in Annex A is reported as million tonnes of oil equivalent (mtoe); 1 Mtoe = 11.63TWh.

⁵¹ 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

⁵² 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

⁵³ From 2015 the UK statistics only include tonne-kms for vehicles over 3.5 tonnes.