



Welsh Government

SUSTAINABLE AND SECURE BUILDINGS ACT 2004 PROGRESS TOWARDS THE SUSTAINABILITY OF THE BUILDING STOCK IN WALES

December 2018

WG36676

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Executive Summary

Report Context

- 1.1 Section 6 of the Sustainable and Secure Buildings Act 2004 (the Act) requires that a report is produced on the sustainability of the building stock in Wales and laid before the National Assembly for Wales (“the Assembly”). This report covers progress during the period 2012 to 2016 on:
- furthering the conservation of fuel and power;
 - preventing waste, undue consumption, misuse or contamination of water;
 - furthering the protection or enhancement of the environment; and,
 - facilitating sustainable development.
- 1.2 Section 6 of the Act specifies the areas that the report must cover and these include Building Regulations made over the period and their expected impact, any planned legislation, and proposals for the setting of targets in relation to sustainable buildings. The report also covers changes in the energy and carbon efficiency of the existing building stock, the extent to which buildings have their own facilities for generating energy, and the recycling and reuse of construction materials over the period; and an estimate of the total number of dwellings in Wales at the end of the reporting period.

Legislative Changes

- 1.3 The following legislative changes to Building and other relevant Regulations, relevant in terms of sustainability, were made in the period of this report – details of these changes are set out in section 4.

Changes Applicable to both England and Wales;

- The Energy Performance of Buildings (England and Wales) etc. (Amendment) Regulations 2013 SI 2013/10
- The Energy Performance of Buildings (England and Wales) (Amendment) (Fees) Regulations 2013 SI 2013/603
- The Energy Performance of Buildings (England and Wales) (Amendment) Regulations 2014 SI 2014/880
- The Energy Performance of Buildings (England and Wales) (Amendment) Regulations 2015 SI 2015/ 609
- The Energy Efficiency (Private Rented Property) (England and Wales) Regulations 2015 (2015/962)
- The Energy Performance of Buildings (England and Wales) (Amendment) (No. 2) Regulations 2015 SI 2015/1681
- The Energy Efficiency (Private Rented Property) (England and Wales) (Amendment) Regulations 2016 (2016/660)
- The Energy Performance of Buildings (England and Wales) (Amendment) Regulations 2016 (SI 2016/284);

- The Energy Performance of Buildings (England and Wales) (Amendment) (No. 2) Regulations 2016 (SI 2016/888).

Changes Applicable to Wales only;

- The Building Regulations &c. (Amendment) (Wales) Regulations 2013 (2013/747);
- The Building (Amendment No. 2) (Wales) Regulations 2013 (2013/2621);
- The Building Regulations &c. (Amendment No. 3) and Domestic Fire Safety (Wales) Regulations 2013 (2013/2730);
- Building (Amendment) (Wales) Regulations 2014 (2014/110);
- Building (Amendment) (Wales) Regulations 2015 (2015/1486);
- Building (Amendment) (Wales) Regulations 2016 (2016/361);
- The Building Regulations &c. (Amendment) (Wales) Regulations 2016 (2016/611);
- The Building Regulations &c. (Amendment) (Wales) Regulations 2016 (2016/611)
- The Building Regulations &c. (Amendment Regulations 2016 (2016/285); and,

Data

1.4 This report presents changes in relation to the sustainability of buildings relation to:

- Energy efficiency
- Greenhouse gas emissions
- On-site energy generation
- Recycling and re-use of materials in construction
- The number of dwellings

1.5 This is provided in section 6 of the report.

1. Purpose and Structure of the Report

Purpose

- 1.1 Section 6 Sustainable and Secure Buildings Act 2004 (the Act) requires a report to be laid before the Assembly once every two years on progress made with regard to sustainability in the building stock of Wales. This report covers progress during the period of 2012 to 2016. It incorporates the data from the period 2012 to 2014 which has not previously been reported...
- 1.2 The scope of the report as set out in section 6 of the Act is:
- (i) The Secretary of State¹ must –
 - (a) for the period of two years beginning with the commencement of this section, and
 - (b) for each succeeding period of two years, prepare a report on progress during the period in connection with the purposes mentioned in section 1(1)(b) to (e) of the Building Act 1984 in the context of the building stock in England and Wales.
 - (ii) A report under this section must deal with –
 - (a) building regulations made during the period for any of those purposes;
 - (b) proposals current at the end of the period to make building regulations for any of those purposes;
 - (c) effects or likely effects of regulations or proposals dealt with in the report under paragraphs (a) and (b);
 - (d) proposals considered by the Secretary of State during the period for the setting of targets for any of those purposes in relation to buildings in England and Wales or services, fittings or equipment provided in or in connection with such buildings.
 - (e) overall changes during the period in –
 - (i) the efficiency of energy use in buildings in England and Wales.
 - (ii) levels of emissions from such buildings that are emissions considered by the Secretary of State to contribute to climate change.
 - (iii) the extent to which such buildings have their own facilities for generating energy.
 - (iv) the extent to which materials used in constructing, or carrying out works in relation to, such buildings are recycled or re-used materials.
- A report under this section must contain an estimate, as at the end of the period, of the number of dwellings in England and Wales.

The purposes mentioned in section 1(1)(b) to (e) of the Building Act 1984 are:

- (b) Furthering the conservation of fuel and power;
- (c) Preventing waste, undue consumption, misuse or contamination of water;
- (d) Furthering the protection or enhancement of the environment;
- (e) Facilitating sustainable development.

¹ The Welsh Ministers (Transfer of Functions) (No 2) Order 2009 transferred the Secretary of State's powers under the Act to the Welsh Ministers in relation to Wales.

Structure

- 1.3 The report is structured in accordance with the paragraphs of Section 6 of the Act. Where documents or announcements published after this period subsequently update policy or regulatory information relevant to this report appropriate references are included together with up-to-date and explanatory narrative where required.

The Sustainable and Secure Buildings Act 2004: Progress Report to the National Assembly for Wales.

2. Section 6(2)(a): “building regulations made during the period for any of those purposes”

- 2.1 The following changes to Building Regulations, relevant in terms of sustainability in Wales, were made during the period covered by this report:
- The Building Regulations &c. (Amendment) (Wales) Regulations 2013 (2013/747);
 - The Building Regulations &c. (Amendment No. 3) and Domestic Fire Safety (Wales) Regulations 2013 (2013/2730);
 - The Building (Amendment No. 2) (Wales) Regulations 2013 (2013/2621);
 - The Building (Amendment) (Wales) Regulations 2014 (2014/110);
 - The Building (Amendment) (Wales) Regulations 2015 (2015/1486);
 - The Building (Amendment) (Wales) Regulations 2016 (2016/361); and,
 - The Building Regulations &c. (Amendment) (Wales) Regulations 2016 (2016/611).
- 2.2 In addition, the following changes to other regulations, relevant in terms of sustainability in both England and Wales, were made during the period covered by this report:
- The Energy Performance of Buildings (England and Wales) etc. (Amendment) Regulations 2013 (SI 2013/10);
 - The Energy Performance of Buildings (England and Wales) (Amendment) (Fees) Regulations 2013 SI 2013/603;
 - The Energy Performance of Buildings (England and Wales) (Amendment) Regulations 2014 (SI 2014/880);
 - The Energy Performance of Buildings (England and Wales) (Amendment) Regulations 2015 (SI 2015/ 609);
 - The Energy Efficiency (Private Rented Property) (England and Wales) Regulations 2015 (2015/962);
 - The Energy Performance of Buildings (England and Wales) (Amendment) (No. 2) Regulations 2015 (SI 2015/1681);
 - The Energy Efficiency (Private Rented Property) (England and Wales) (Amendment) Regulations 2016 (2016/660);

- The Energy Performance of Buildings (England and Wales) (Amendment) Regulations 2016 (SI2016/284);
- The Building Regulations &c. (Amendment) Regulations 2016 (2016/285);and,
- The Energy Performance of Buildings (England and Wales) (Amendment) (No. 2) Regulations 2016 (SI2016/888).

2.3 The intended effects of these regulations are discussed in section 4.

3. Section 6(2)(b): “proposals current at the end of the period to make building regulations for any of those purposes”

3.1 In March 2016 the Welsh Government published a sustainability consultation on incorporating aspects of the previous Sustainable Buildings National Planning Policy into the Building Regulations in Wales. This is available to view at <https://beta.gov.wales/building-regulations-sustainability-review> with the subsequent legislation change made in The Building (Amendment) (Wales) Regulations 2018 (SI 2018/552).

4. Section 6(2)(c): “effects or likely effects of regulations or proposals dealt with in the report under paragraphs 6(2)(a) and (b)”

Building regulations amendments applicable in Wales

The Building Regulations &c. (Amendment) (Wales) Regulations 2013

4.1 These Regulations implement the requirements of Directive 2010/31/EU on the energy performance of buildings (recast); make changes which facilitate the Green Deal; update schedule 3 to the Building Regulations 2010 (the 2010 Regulations) which provides for self certification schemes to reflect changes to scheme operators and to extend the types of work of scheme operators and make a number of amendments to the building control system.

The Building Regulations &c. (Amendment No. 3) and Domestic Fire Safety (Wales) Regulations 2013

4.2 These Regulations insert into the 2010 Regulations a requirement to fit automatic fire suppression systems. They prescribe the requirements of such systems for the purposes of the 2010 Regulations and the Domestic Fire Safety (Wales) Measure 2011.

The Building (Amendment No. 2) (Wales) Regulations 2013

4.3 These Regulations substitute a new Schedule 3 (self-certification schemes and exemptions from requirement to give building notice or deposit full plans) to the 2010 Regulations.

The Building (Amendment) (Wales) Regulations 2014

4.4 These Regulations insert new and extend the existing energy efficiency requirements on the construction, renovation or extension of buildings and on

the provision of controlled services or fittings in or in connection with a building as set out in the 2010 regulations.

The Building (Amendment) (Wales) Regulations 2015

- 4.5 These Regulations make amendments to schedule 3 of the 2010 Regulations to represent the desired position regarding authorised schemes and the types of work scheme operators and their members wish to carry out. The Regulations authorise a new scheme operator, extend the scope of work of five existing operators to types of work by adding their names to the appropriate paragraphs and remove the names of scheme operators from paragraphs where they no longer wish to operate a scheme for a type of work. They also implement an amendment to air permeability testing.

The Building (Amendment) (Wales) Regulations 2016

- 4.6 These Regulations make amendments to the 2010 Regulations to insert new provisions relating to proposal to implement European requirements for broadband in-building physical infrastructure

The Building Regulations &c. (Amendment) (Wales) Regulations 2016

- 4.7 These Regulations make amendments to the 2010 Regulations and the Building (Approved Inspectors etc.) Regulations 2010. The amendments concern the energy performance of buildings, revoke provisions concerning energy performance certificates, which are being consolidated elsewhere, and clarify provisions concerning minimum energy efficiency requirements. They also update the schedule of persons entitled to certificate the compliance of their own work with building regulations.

The Building (Amendment) (Wales) Regulations 2018

- 4.8 These Regulations amend the 2010 Regulations to introduce a new requirement that where a dwelling is erected the potential consumption of water by persons occupying the dwelling must not exceed 110 litres per person per day instead of the previous 125 litres. They also amend the water efficiency requirements of new buildings other than dwellings and insert security requirements on the erection of dwellings.

Other regulatory changes application to England and Wales

The Energy Performance of Buildings (England and Wales) etc. (Amendment) Regulations 2013 SI 2013/10

- 4.9 These regulations amend the Building Regulations and the Energy Performance of Buildings (England and Wales) Regulations 2012 (the 2012 Regulations) so that energy performance certificates on a property where there is a green deal plan are required to include certain information about that plan. They also make amendments to ensure that green deal information is added to the EPC register and to allow for the replacement of the green deal information stored on the EPC register and information about green deal plans to only be disclosed by the keeper of the EPC register in appropriate circumstances

The Energy Performance of Buildings (England and Wales) (Amendment) (Fees) Regulations 2013 SI 2013/603

- 4.10 These Regulations amend the 2012 Regulations to set revised fees for entering documents on the register.

The Energy Performance of Buildings (England and Wales) (Amendment) Regulations 2014 SI 2014/880

- 4.11 These Regulations amend the 2012 Regulations to set revised fees for entering documents onto the register, the enforcement provisions, and to allow the keeper of the register to disclose documents or data to the operator of the accreditation scheme through which the energy assessor entered the documents or data onto the register.

The Energy Performance of Buildings (England and Wales) (Amendment) Regulations 2015 SI 2015/ 609

- 4.12 These regulations amend the 2012 Regulations to set new fees for entering data, how data is obtained from the register, and the data packs available to authorised recipients.

The Energy Performance of Buildings (England and Wales) (Amendment) (No. 2) Regulations 2015 SI 2015/1681

- 4.13 These regulations amend the enforcement provisions in the 2012 Regulations.

The Energy Performance of Buildings (England and Wales) (Amendment) Regulations 2016

- 4.14 These regulations amend the provisions 2012 Regulations in respect of Energy Performance Certificates, Display Energy Certificates and the recommendation reports accompanying those certificates, to the effect that none of those documents should be entered on the register in respect of 'excluded' buildings; examples include prisons and buildings used by any of the armed forces. The other major change consolidated Regulation 29 of the 2010 Regulations, as a new regulation. This requires persons carrying out building work consisting of the erection of a building, or certain conversions of buildings, to give an energy certificate to the building owner, and notify their local authority to that effect.

The Building Regulations &c. (Amendment) Regulations 2016

- 4.15 These Regulations made technical changes to the wording of some of the definitions in the 2012 Regulations as regards the energy efficiency requirements in the Regulations. They affect Wales only so far as "excepted energy buildings".

The Energy Performance of Buildings (England and Wales) (Amendment) (No. 2) Regulations 2016

- 4.16 These Regulations updated references that were overlooked in earlier amendments to the 2012 Regulations on the disclosure of data for stated purposes.

Energy Efficiency (Private Rented Property) (England and Wales) Regulations 2015

- 4.17 The Energy Efficiency (Private Rented Property) (England and Wales) Regulations 2015 (the 2015 Regulations) fulfil a duty in the 2011 Energy Act. They enable domestic tenants to ask landlords to install reasonable energy

efficiency improvements in the property. They also require domestic and non-domestic privately rented properties in England and Wales to meet a minimum energy efficiency standard of Energy Performance Certificate (EPC) rating E in order to be let.

The Energy Efficiency (Private Rented Property) (England and Wales) (Amendment) Regulations 2016

- 4.18 The Regulations make a minor postponement to the implementation of the Private Rented Sector Exemptions Register under the 2015 Regulations.

5. Section 6(2)(d): “proposals considered by the Secretary of State during the period for the setting of targets for any of those purposes in relation to (i) buildings in England and Wales; or (ii) services, fittings or equipment provided on or in connection with such buildings”

Welsh Government

The Environment (Wales) Act 2016

- 5.1 The Environment (Wales) Act 2016 places a duty on the Welsh Ministers to ensure that in 2050 net emissions² are at least 80% lower than the baseline set in legislation. This will be achieved through the setting of interim targets for 2020, 2030 and 2040 and 5 yearly carbon budgets up until to 2050. The UK Committee on Climate Change (UKCCC) will provide advice on the latest scientific evidence and report progress made against budget targets.
- 5.2 A three stage programme has been established to implement the requirements of the Environment (Wales) Act. The Net Welsh emissions account (Stage 1) and Welsh Targets and Budgets (Stage 2) have been viewed by UKCCC and will be set in regulations by the end of 2018. Source:
<https://gov.wales/topics/environmentcountryside/climatechange/emissions/?lang=en>

Welsh Governments Warm Homes Programme³

- 5.3 Improving the energy efficiency of the homes of low income households is the most effective way in which we can tackle fuel poverty, whilst also reducing harmful emissions into the environment. The Welsh Government is working to improve home energy efficiency and tackle domestic fuel poverty by investing in our energy efficiency Warm Homes programme that includes Nest and Arbed. These schemes work to leverage additional funding into Wales from the Energy Company Obligation (ECO). The programme has a modelled carbon saving of 2.48Ktc and energy savings of 9.5 gigawatt hours⁴. The programme supports the Government’s commitment to:

² Defined under Section 37 of the The Environment (Wales) Act 2016

³ <https://gov.wales/topics/environmentcountryside/climatechange/publications/sustainable-development-and-climate-change-annual-report-2015/?lang=en>

⁴ <https://gov.wales/topics/environmentcountryside/climatechange/publications/sustainable-development-and-climate-change-annual-report-2015/?lang=en>

- reduce climate change,
- help eradicate fuel poverty,
- boost economic development and regeneration in Wales.

- 5.4 Both schemes consider a whole house approach to home energy efficiency improvements. This helps to tackle harder to treat homes where the impact of fuel poverty tends to be most severe. The Warm Homes Nest and Arbed contracts both stipulate whole house assessments are undertaken to ensure correct energy efficiency measures for the dwelling are identified and subsequent installations must be undertaken to PAS 2030⁵ 2017 standard.
- 5.5 Since 2012, more than £150 million has been invested in home energy efficiency measures. These improvements have reduced energy bills and helping households to heat their homes at a more affordable cost.
- 5.6 In 2016/17, more than 5,500 low income households received energy efficiency improvements through the Nest scheme saving about £410 per year on an average energy bill. After the installation of the home energy improvement package, 80% of properties were increased to a B to D-rating and a further 17% to an E-rating. Some properties which received improvements may remain in an E to G-rating because it has not been possible to demonstrate value for money for the more enhanced measures required.
- 5.7 This brings the total number of households benefiting from scheme improvements to more than 29,000⁶ since the scheme started in 2012. Additionally, in 2017/2018 more than 13,300 householders received energy advice and support, including referrals to third party services such as benefit entitlement checks to maximise their household income. This brings the total number of households who have been provided with energy advice and support to more than 90,000 during the six years the Nest scheme has been running. Investment in Arbed of £19 million in 2016/2017 improved 1971 properties.
- 5.8 We are investing a further £104 million in Welsh Government Warm Homes for the period (2017-2021). This will enable us to improve up to 25,000 homes (Arbed (3) contribution 6000 homes). Our investment will also lever in up to £24 million of EU funding, in addition to funding from the UK Energy Company Obligation (ECO). (<https://nest.gov.wales/workspace/uploads/files/nest-annual-report-2016-17-5abcb1a3c9848.pdf>)
- 5.9 **Non-statutory guidance on SuDS published by the Welsh Government**
In December 2015, the new recommended standards for SuDS were released by the Welsh Government. The aim of this interim guidance was to enable designers, property developers, local authorities and other interested parties to demonstrate that they have taken account of both the Welsh Government's planning advice on Development and Flood Risk and to pilot the standards for SuDS design.

⁵ PAS 2030 sets out requirements that all installers will follow to ensure that the installation of the energy efficiency measures under Green Deal or ECO is completed properly. PAS 2030 was developed by BSI & the Department of Energy and Climate Change.

⁶ Nest Annual report 2017/2018

- 5.10 Since this publication of the non-statutory standards, a consultation, 'Implementation of sustainable drainage systems on new developments: draft regulations and national standards' was issued. This seeks views on the statutory instruments and national standards needed to implement Schedule 3 of the Flood and Water Management Act 2010 for the use of Sustainable Drainage Systems (SuDS) on new developments.
<https://beta.gov.wales/implementation-sustainable-drainage-systems-new-developments-draft-regulations-and-national>

UK Government

The Green Deal

- 5.11 The Green Deal has enabled households to take out loans ("Green Deal Plans") to pay for energy efficiency improvements in their homes, with repayments made through their energy bill. Repayments are made on a "Pay As You Save" (PAYS) basis: after the improvement has been made, the household begins to save energy, their energy bills are less than they would have been without the improvement, and these savings are used to repay the loan. In July 2015, the Government announced that no further public money would be invested in the Green Deal Finance Company (GDFC). The volume of new Green Deal Plans created subsequently reduced to minimal levels with 75 privately financed Plans created in the 12 months to November 2016. In January 2017, the business and assets of the GDFC were purchased by private investors who have indicated that they intend to resume lending through the framework. As of November 2016, 13,759 Plans were either still live or had at some stage been live. Source:
https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/730705/6th_Biennial_Report_Sustainability_Building_Stock_for_Web.pdf

The Roll out of Smart Meters

- 5.12 The Great Britain programme to roll out of smart meters will ensure every home and small business in the country is offered smart meters by the end of 2020, delivered as cost effectively as possible. The roll-out of smart meters is an important national modernisation programme that will save Great Britain £5.7 billion by modernising our energy system and helping customers avoid wasting energy and money. It will contribute to the sustainability of housing stock in Wales as all domestic households will be offered an In-Home Display (IHD) enabling them to see what energy they are using and how much it is costing in near real time. Energy suppliers are required to provide energy efficiency advice during smart meter installations.
- 5.13 The Department for Business, Energy and Industrial Strategy in partnership with IPSOS Mori and the Energy Saving Trust has published materials to support delivery of tailored energy efficiency advice to domestic households, which includes a toolkit guide to help energy suppliers develop their training and guidance for their installers and ten factsheets covering a range of energy advice that installers can pick from to match customers' circumstances. By the end of 2016 nearly 5 million smart and advanced meters were operating in

homes and businesses across Britain. Source:

[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/730705/6th Biennial Report Sustainability Building Stock for Web.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/730705/6th_Biennial_Report_Sustainability_Building_Stock_for_Web.pdf)

Energy Company Obligation

- 5.14 The Energy Company Obligation is a statutory obligation on energy suppliers to make reductions in their carbon emissions. The programme is delivering domestic energy efficiency measures, such as insulation and heating improvements, to households in fuel poverty or in areas of low income, or homes which are particularly hard to treat with regards to insulation.
- 5.15 The Energy Company Obligation scheme was launched in January 2013. As of November 2016, it has delivered over 2 million measures in about 1.6 million properties in Great Britain. The UK Government's Spending Review 2015 announced plans for a supplier obligation to run for five years from April 2017 at an estimated level of £640m per year, rising with inflation. A reformed ECO scheme will be extended from April 2017 to September 2018, before a new longer term scheme is developed. Source:
[https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/730705/6th Biennial Report Sustainability Building Stock for Web.pdf](https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/730705/6th_Biennial_Report_Sustainability_Building_Stock_for_Web.pdf)

6. Section 6(2)(e): “Overall changes during the period in (i) to (iv)”

- 6.1 The Act does not stipulate how to measure the factors listed in sub-paragraphs (i) to (iv) of section 6(2)(e). Where appropriate this report incorporates publicly available ‘official statistics’ as a source of measurement of change but the report is not an official statistics product. The statistics and information used are the latest available for the period of the report and references to source data are given. Where relevant official statistics are not available to provide measurement of overall change the report relies on alternative data sources that have been judged fit for purpose.

(i) “the efficiency with which energy is used in buildings in Wales”

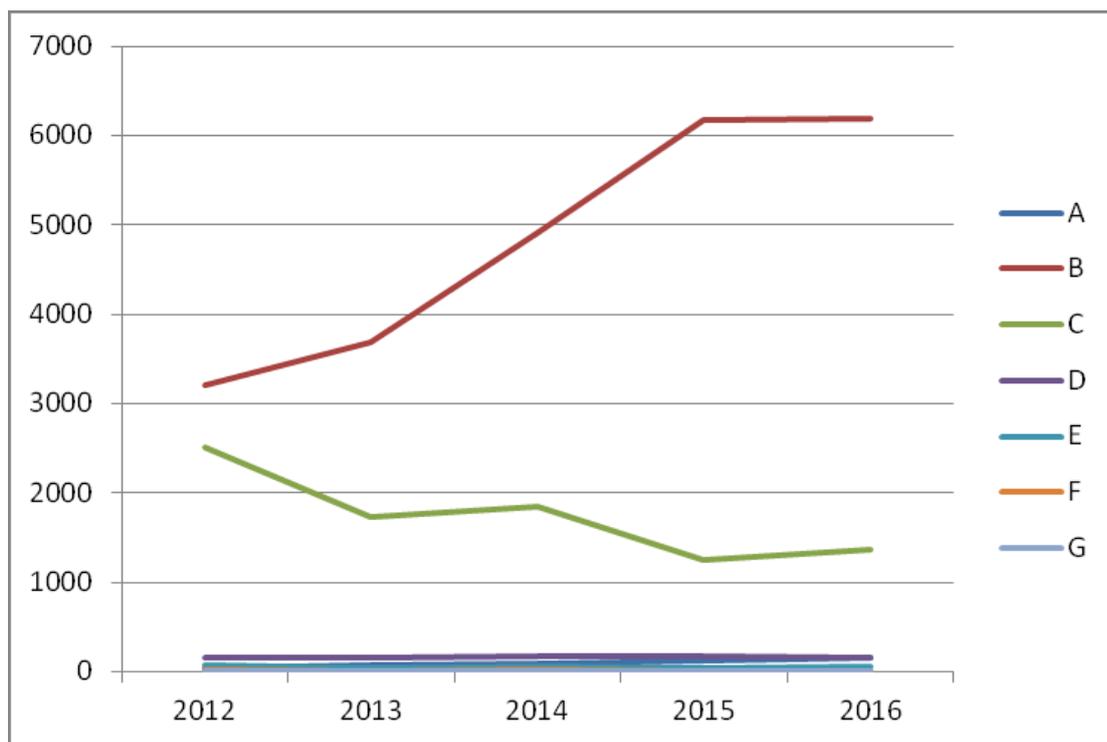
Domestic Properties / Dwellings

- 6.2 Since April 2008 all new homes have had to have an Energy Performance Certificate (EPC). EPCs provide a rating of the energy use of the home, using the Standard Assessment Procedure (SAP) which is the Government's methodology for assessing and comparing the energy and environmental performance of dwellings. Its purpose is to provide accurate and reliable assessments of dwelling energy performances that are needed to underpin energy and environmental policy initiatives.
- 6.3 SAP quantifies a dwelling's performance in terms of a fuel cost based energy efficiency rating - the SAP rating. This is taken from energy costs associated with space heating, water heating, ventilation and fixed lighting less cost

savings from energy generation technologies. SAP rating is expressed on a scale from 1 (highly inefficient) to 100 (highly efficient with 100 representing zero energy cost).

6.4 An Energy Performance Certificate is required for properties when constructed, sold or let. The Energy Performance Certificate provides details on the energy performance of the property with a rating from A (most efficient) to G (least efficient).

Table 01: Average Energy Efficiency (EPC) ratings of new homes (Wales)



Source: <https://www.gov.uk/government/statistical-data-sets/live-tables-on-energy-performance-of-buildings-certificates>

Heating and Insulation Measures

6.5 For a dwelling to provide optimum energy performance, a high level of thermal insulation needs to be present alongside an efficient heating system. The following tables provide data on the percentage of homes with loft, cavity or solid wall insulation.

Table 02: percentage of homes with loft, cavity or solid wall Insulation in 2014-15 (Wales)

	Yes %	No %
Roof / loft Insulated	94	6
Cavity Walls Insulated	74	25
Solid walls insulated	31	69

Source: <https://statswales.gov.wales/Catalogue/Housing>

Table 03: Insulated homes, March 2013 to December 2017, cumulative totals (Great Britain)

End of:	Cavity wall insulation	Loft insulation >=125mm	Solid wall insulation
March 2013	12,010*	14,859	541
June 2013	12,077	14,920	549
September 2013	12,157	14,973	557
December 2013	12,261	15,032	572
March 2014	12,403	15,092	597
June 2014	12,511	15,170	606
September 2014	12,616	15,252	621
December 2014	12,720	15,347	636
March 2015	12,814	15,424	648
June 2015	12,893	15,482	662
September 2015	12,965	15,531	677
December 2015	13,037	15,582	687
March 2016	13,102	15,633	696
June 2016	13,169	15,687	705
September 2016	13,231	15,737	713
December 2016	13,293	15,786	718
March 2017	13,358	15,843	723
June 2017	13,418	15,889	727
September 2017	13,478	15,933	731
December 2017	13,542	15,981	734

Source: <https://www.gov.uk/government/statistics/household-energy-efficiency-national-statistics-headline-release-march-2018>

*figures in thousands

Table 04: Display Energy Certificates for Wales

Year	Total	Operational rating*							
		A	B	C	D	E	F	G	Not Recorded
2008	554	3	24	130	193	132	27	45	0
2009	1,347	14	72	339	409	256	88	169	0
2010	1,822	19	79	489	652	277	107	199	0
2011	1,988	25	152	559	681	351	112	100	8
2012	2,119	10	176	649	725	353	119	87	0
2013	2,190	26	185	622	743	362	146	106	0
2014	2,669	36	259	806	909	399	157	103	0
2015	2,036	24	203	675	686	250	78	120	0
2016	1,861	25	210	633	607	258	79	49	0

Source: <https://www.gov.uk/government/statistical-data-sets/live-tables-on-energy-performance-of-buildings-certificates>

* The Operational Rating is a numerical indicator of the actual annual carbon dioxide emissions from the building, which is shown on a scale from A to G, where A is the lowest (best) and G is the highest (worst).

(ii) “levels of emissions from such buildings that are emissions considered by the Welsh Ministers to contribute to climate change”

6.6 The following tables provide data on Carbon Dioxide emissions and their sources. The data in tables 05 and 06 show end-use consumption of energy and therefore differ from the emissions reported in the table 07 ‘Sources of carbon dioxide emissions, 2006-2016’.

Table 05: Estimated total annual domestic CO2 emissions (Wales)

2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
7,828*	7,908	7,497	7,659	6,985	7,466	6,460	6,872	6,715	5,643	5,475	5,178

source: <https://www.gov.uk/government/collections/uk-local-authority-and-regional-carbon-dioxide-emissions-national-statistics>

*kt CO2

Table 06: Estimated total annual industrial, commercial and public sector CO2 emissions (Wales)

2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
10.8*	10.7	10.1	9.9	8.7	9.2	8.2	8.7	8.4	7.7	6.9	6.3

* (million tonnes CO2) Data excludes carbon emissions resulting from large industrial installations and agricultural combustion.

Table 07: Sources of carbon dioxide emissions, 2006-2016 (million tonnes CO2) (Wales)

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Business	9.9	9.9	9.4	7.7	9.4	8.4	7.3	9.0	8.9	8.7	8.3
Energy Supply	18.1	15.9	18.8	15.9	16.3	15.5	18.8	20.6	16.8	17.1	19.7
Residential	4.5	4.3	4.4	4.2	4.7	3.7	4.0	4.0	3.4	3.5	3.5
Transport	6.7	6.8	6.6	6.3	6.2	6.1	6.0	6.0	6.0	6.1	6.2
Other	2.7	2.5	2.4	1.2	2.0	1.6	1.3	2.8	2.9	2.5	2.0

Grand Total	41.8	39.4	41.5	35.2	38.5	35.3	37.4	42.5	38.1	37.8	39.8
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(iii) “the extent to which such buildings have their own facilities for generating energy”

6.7 The Microgeneration Certification Scheme (MCS) certifies microgeneration technologies used to produce electricity and heat from renewable sources. They publish statistics on the installations registered on the MCS Installation Database.

Table 08: Number of micro generation installations under the certified scheme (UK)

Year/ Technology	2009	2010	2011	2012	2013	2014	2015	2016
Air Source Heat Pumps	325	2,591	4,930	8,450	9,910	8498	9266	7,323
Biomass	68	242	745	1,364	2,140	5960	5,628	1,133
Exhaust Air Source Heat Pumps	0	27	166	129	14	91	5	1
Ground Source Heat Pumps	682	1,962	1,945	2,308	1,380	1552	2,196	1,972
Micro CHP	0	125	331	116	34	26	18	100
Micro Hydro (Discontinued)	0	18	37	12	1	0	0	0
Small Wind	89	588	969	2,189	417	564	136	105
Solar PV	1,216	24,514	205,547	167,937	105,384	140976	187,528	59,178
Solar Keymark	697	3,363	4,697	4,941	3,114	2506	1,562	805
Solar Thermal	242	642	1,783	1,792	1,601	1244	871	620
Grand Total	3,319	34,072	221,150	189,238	123,995	161,417	207,210	71,237
Source https://www.microgenerationcertification.org/about-us/statistics/								

6.8 This MCS data is only available for the UK. The Department for Business, Energy & Industrial Strategy (BEIS) produces statistics on the number of sites generating electricity from renewable sources, and is available on a Wales only basis. The data from BEIS does not include technology which produces heat, for example Ground Source Heat Pumps.

Table 09: Sites generating electricity from renewable sources (Wales)

year	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
No. of Sites	145	141	246	236	432	1,519	17,209	28,931	34,538	40,762	51,280	53,629

Source: <https://www.gov.uk/government/statistics/regional-renewable-statistics>

6.9 The above data includes major renewable electricity installations, as well as smaller-scale installations, including those supported by the Feed in Tariff scheme. The table below shows the number, type and capacity of Feed in Tariff installations in Wales.

Table 10: Number and Capacity of Feed in Tariff installations confirmed on the Central Feed in Tariffs Register at the end of 2016 (Wales).

Technology	Number		Installed Capacity	
	No.	%	KW	%
Anaerobic Digestion	10	0	5,315	1.8
Hydro	150	0.3	6,775	2.3
Micro Combined Heat and Power	21	0	25	0
Photovoltaics	51,677	98.7	234,102	80.4
Wind	512	1	44,812	15.4
Total	52,370		291,029	

Source: <https://www.ofgem.gov.uk/publications-and-updates/feed-tariff-installation-report-31-december-2016>

(iv) “the extent to which materials used in constructing, or carrying out works in relation to, such buildings are recycled or re-used materials”

Construction and Demolition Waste

6.10 Towards Zero Waste (TZW) is the overarching waste strategy document for Wales. TZW sets a target for the preparation for reuse, recycling and other material recovery of construction and demolition waste to be at least 70% by weight by 2015-16, and 90% by 2019-20. This incorporates the target set in Article 11 of the Waste Framework Directive for reuse, recycling and other material recovery of construction and demolition waste to be 70% by 2020. The table below shows progress against these targets:

Table 11: reuse, recycling and other material recovery of construction and demolition waste (Wales)

Year	Estimated percentage of total waste recycled
2005-06	79%
2012	87%

Source: <https://gov.wales/docs/desh/publications/150724-towards-zero-waste-progress-report-en.pdf>

6.11 The industry provides data on the amount of aggregate produced and bought in the UK. The table below shows they report 57 million tonnes of the total 259 million tonnes as recycled or reused. Further, recycled materials now account for 28% of the GB aggregates market sales.

source: https://mineralproducts.org/documents/mpa_facts_at_a_glance_2014.pdf

Table 12: Estimates of Aggregates Production in 2016 (UK)

Total Number of Producers (companies)	Total Number of Extraction Sites (Quarries and Pits)	Sand & Gravel (millions tonnes)	Crushed Rock (millions tonnes)	Marine Aggregates (millions tonnes)	Recycled Aggregates (millions tonnes)	Re-Used on Site (millions tonnes)	Manufactured Aggregates (millions tonnes)	Total Production (millions tonnes)
648	1389	50	130	12	54	3	12	259

Source: <http://www.uepg.eu/statistics/estimates-of-production-data/data-2016>

7. Section 6(3) “an estimate, as at the end of the period, of the number of dwellings in Wales”

7.1 The estimated number of dwellings in Wales stood at 1,400,073 at 2013/2014 and 1,419,371 at 2016/17, an increase of 1.4%. Source:

<https://statswales.gov.wales/Catalogue/Housing/Dwelling-Stock-Estimates/dwellingstockestimates-by-year-tenure>