



Department for  
Communities and  
Local Government

# Sustainable and Secure Buildings Act 2004

Progress towards the Sustainability of the Building Stock in  
England: Fifth Parliamentary Report



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**Note:** All tables are England only unless stated otherwise

# 1. Executive Summary

## Report Context

Section 6 of the Sustainable and Secure Buildings Act 2004 (the Act) requires a biennial report on the sustainability of the building stock in England. This covers progress during the preceding two years in relation to:

- furthering the conservation of fuel and power;
- preventing waste, undue consumption, misuse or contamination of water;
- furthering the protection or enhancement of the environment;
- facilitating sustainable development.

The first biennial report was laid before Parliament in February 2007 as part of the report 'Monitoring the Sustainability of Buildings'<sup>1</sup> and covered progress made between November 2004 and November 2006. The second report<sup>2</sup> was laid before Parliament in February 2010 and covers progress made in the period between November 2006 and November 2008. The third report<sup>3</sup> covered progress made in the period between November 2008 and November 2010 and was laid before Parliament in July 2011. The fourth report<sup>4</sup> covers the period November 2010 to November 2012 and was laid before Parliament on 13 December 2013. This fifth report covers the period between November 2012 and November 2014.

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 should also cover 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 England at the end of the reporting period.

This report covers England only.

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<sup>1</sup> Monitoring the Sustainability of Buildings: Progress reports to Parliament on sustainability and measures to improve compliance with Part L of the Building Regulations, DCLG, February 2007.

<sup>2</sup> Progress towards the sustainability of the building stock in England and Wales; Second Parliamentary Report

<sup>3</sup> Progress towards the sustainability of the building stock in England and Wales; Third Parliamentary Report

<sup>4</sup> Progress towards the sustainability of the building stock in England Fourth Parliamentary Report

## Legislative Changes

The following legislative changes to Building Regulations, relevant in terms of sustainability, were made or planned in the two year period of this report:

- Building Regulations &c. (Amendment) (No.2) Regulations 2013 (S.I. 2013/1959)
- The Energy Performance of Buildings (England and Wales) (Amendment) (Fees) Regulations 2013 (S.I. 2013/603)
- The Energy Performance of Buildings (England and Wales) (Amendment) Regulations 2014 (S.I. 2014/880)

The main purposes of the changes introduced under S.I 2013/1959 was to strengthen the targets for carbon emission for new homes and non-domestic buildings, and introduce a requirement for all new dwellings to meet a target fabric energy efficiency rate. This ensures that robust fabric standards are embedded in all new homes.

S.I 2013/603 and S.I 2014/880 were both enacted to amend the amounts that have to be paid for lodgement on the energy performance certificate registers which the 2012 Energy Performance of Buildings requires the Secretary of State to maintain. These are subject to annual review to maintain the cost neutral approach to the application of these requirements.

The statistical report presents data on the sustainability of buildings in England up to November 2014 covering:

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

This report is not a statistical product but it incorporates publicly available 'official statistics' as a source of measurement of change for the above where the latest available for the period of the report are used. In some instances figures are only available for Great Britain or the United Kingdom.

## 2. Purpose of the Report

Section 6 of the Sustainable and Secure Buildings Act 2004 requires a report to be laid before Parliament once every two years on progress made with regard to sustainability in the building stock of England.

The scope of this biennial report is set out in section 6 of the Act:

- (1) The Secretary of State 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 up to the transfer of powers order in 2011 and England only thereafter.
- (2) 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 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.
    - (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.
- (3) A report under this section must contain an estimate of the number of dwellings in England.
- (4) The Secretary of State must lay before Parliament each report he prepares under this section.

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

- (i) furthering the conservation of fuel and power;
- (ii) preventing waste, undue consumption, misuse or contamination of water;
- (iii) furthering the protection or enhancement of the environment;
- (iv) facilitating sustainable development.

# 3. Sustainable and Secure Buildings Act 2004: Biennial Report to Parliament

This fifth report covers the period from 16 November 2012 to 15 November 2014. 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 report is structured in accordance with the paragraphs of Section 6 of the Act.

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

The following legislative changes to Building Regulations, relevant in terms of sustainability, were made or planned in the two year period of this report. Their effects or likely effects are then discussed in section 3.3 of the report.

### **Building Regulations &c. (Amendment) (No.2) Regulations 2013 (S.I. 2013/1959) – England only**

These regulations strengthened the target for carbon emissions, delivering a 6% improvement on 2010 standards across the new homes build mix with compliance targets differentiated by home type to enable the most cost effective savings. For non-domestic buildings, the target was strengthened to deliver a 9% aggregate improvement on 2010 standards. The regulations introduced a new requirement for all new dwellings to meet a target fabric energy efficiency rate in addition to a target emission rate. The target fabric energy efficiency rate is the maximum space heating and cooling energy demand of the dwelling expressed in kWh/(m<sup>2</sup>year). The target fabric energy efficiency rate calculations include heat lost from the building envelope through insulation, construction joints and air leakage and also capture internal and external (solar) heat gains. The dwelling fabric energy efficiency rate must be calculated using the Government’s Standardised Assessment Procedure (SAP) before work commences and when work is complete and must not be greater than the target fabric energy efficiency rate.

### **The Energy Performance of Buildings (England and Wales) (Amendment) (Fees) Regulations 2013 (S.I. 2013/603)**

These regulations amended the amounts that must be paid for the lodgement on the registers which the Secretary of State is required to maintain under regulation 27 of the Energy Performance of Buildings (England and Wales) Regulations 2012. This provides the data from which Energy Performance Certificates, Display Energy Certificates, Recommendation Reports and Air-conditioning Inspection Reports may be produced.

### **The Energy Performance of Buildings (England and Wales) (Amendment) Regulations 2014 (S.I. 2014/880)**

These regulations set revised fees for entering data from which Energy Performance Certificates, Display Energy Certificates, Recommendation Reports and Air-conditioning Inspection Reports may be produced onto the register which the Secretary of State is required to maintain under regulation 27 of the Energy Performance of Buildings (England

and Wales) Regulations 2012; and to provide a more effective enforcement mechanism for regulations 10 and 11 of the Energy Performance of Buildings (England and Wales) Regulations 2012.

They also make amendments to regulation 32 of the of the Energy Performance of Buildings (England and Wales) Regulations 2012 to make changes to the individuals and organisation to whom the keeper of the register may disclose documents or data These Regulations also make a number of minor amendments to correct drafting errors in the the Energy Performance of Buildings (England and Wales) Regulations 2012.

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

#### **Zero Carbon Homes**

As noted in the previous report the Government reaffirmed its commitment to implement a zero carbon homes standard in England from 2016 in Budget 2013. The zero carbon homes standard will require all carbon dioxide emissions arising from energy use regulated under Building Regulations to be abated in new homes. Regulated energy may derive from sources such as fixed heating and lighting, hot water and other fixed building services, such as ventilation. However, it does not include carbon emissions from appliances or ‘white goods’.

The Government recognises that it is not always technically feasible or economically viable to eliminate all carbon emissions from new homes just through on-site measures. Government therefore intends to set a minimum on-site energy performance requirement for new homes and for the remainder of the zero carbon standard to be met through allowable solutions. Allowable solutions are off-site measures (for example. retrofit project of existing homes, district heating schemes) or further on-site measures that reduce carbon emissions which house builders may support to offset residual carbon emissions from the new houses they build.

The consultation ‘Next steps to zero carbon homes – Allowable Solutions’ was published on 6 August 2013 to set out, seek views and gather further evidence on the key design principles, price and processes for the delivery of allowable solutions. The Government published its response to the consultation and a report on the summary of responses on 8 July 2014.

Further progress made to support the implementation of the zero carbon homes standards in 2016 includes:

- legislation in the Infrastructure Act 2015 to provide the powers to implement the framework for ‘allowable solutions’ through the Building Regulations;
- Government announcement of a further strengthening of the energy performance requirements for new homes in the Building Regulations from 2016. This will be the minimum on-site element of the zero carbon homes standards;



- proposals to exempt certain small sites from the full requirements of the zero carbon homes standard;
- the publication of a report considering the issue of the 'design versus as built' performance of new homes.

## **Zero Carbon Homes and the Infrastructure Act 2015**

Energy performance requirements for new homes are set out in the Building Regulations 2010 and are made under powers in the Building Act 1984. While the powers existed to set a zero carbon target and a minimum on-site energy performance standard there were insufficient powers in the Building Act to enable off-site carbon abatement measures. Therefore the Government brought forward legislation through the Infrastructure Act 2015 to extend the scope of the Building Act to provide the powers needed to implement the necessary delivery framework for allowable solutions through the Building Regulations.

These powers are in Section 37 of the Infrastructure Act 2015:  
<http://www.legislation.gov.uk/ukpga/2015/7/section/37/enacted>

## **Design Versus as Built Homes**

Alongside delivering zero carbon homes, the Government wants to ensure that those homes are being built properly. There is some evidence that this is not always the case.

Working with the Zero Carbon Hub, Government and industry have been exploring the evidence and issues. This has resulted in a target that from 2020, 90% of all new homes should be meeting Part L energy efficiency requirements. An interim report has been published and the recommendations for industry and Government will be considered as part of the development of zero carbon policy.

## **Housing Standards Review**

Over the last two years the Government has undertaken a review of the many different technical standards currently applied by local planning authorities to new housing. The aim was to remove duplication and contradiction, and to rationalise all the key technical standards into a sensible group that are properly defined, simpler and fit for purpose. The review simplified 100 standards for new housing down to a set of five which protect essential quality, sustainability and accessibility matters, spanning water efficiency, access, energy, security, and space.

The necessary legislative changes are being made to the Building Act 1984 through the Deregulation Bill to enable Building Regulations to set what are called "optional requirements" in the areas of access and water efficiency. These are requirements set at a level above the basic minimum in the Building Regulations 2010, which can be applied by a planning authority as a planning condition, where justified by need and subject to viability.

A new building regulation for security is also proposed to be introduced which will apply to all new homes.

Standards covering energy efficiency will only be set out in the Building Regulations following the Review. Amendments are being made to section 1(1)(c) of the Planning and Energy Act 2008 to remove the power which enables local authorities to require (in their local plans) higher energy efficiency standards than those set in Building Regulations. These will be implemented when the zero carbon standard is introduced in 2016.

The new system of standards will be launched in Spring 2015, once the legislative changes have received Royal Assent.

### **Competent Person Schemes Extension**

Proposed regulations will also authorise a number of extensions to the types of work for which existing operators are authorised and one new scheme operator. These amendments will allow registered installers to self-certify that their work complies with the requirements of the Building Regulations for the types of work for which they are registered. The types of work include those where compliance with Part L of the Building Regulations (Conservation of Fuel and Power) or with Part G 2 (Water efficiency) is required. In addition, the proposed regulations will authorise one new registration body for air pressure testing and remove the name of another that no longer wishes to operate this type of scheme. National Occupational Standards have been developed for this type of work and are now available at <http://nos.ukces.org.uk/Pages/index.aspx>

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

### **Building Regulations &c. (Amendment) (No.2) Regulations 2013 (S.I. 2013/1959) – England only**

The impact assessment for these regulations (ref DCLG 0086) estimated savings of 6.4 million tonnes of carbon dioxide from policy impacts over the 10 year appraisal period and, taking account of energy bill savings for non-domestic buildings, an overall equivalent annual net benefit to business of £16 million.

Overall the changes to Building Regulations since 2010 can help achieve savings of £200 on the fuel bills for house-holds

### **Zero Carbon Homes**

As set out above the zero carbon homes standard will include a minimum energy performance requirement that will be set through the Building Regulations, and the remainder of the zero carbon homes standard will be met through allowable solutions. The Government announced in June 2014 that it intends to set the minimum on-site energy performance requirement at a level equivalent to level 4 energy standards of the outgoing Code for Sustainable Homes. This represents an overall improvement on current Building Regulations requirements of approximately 20% across the new homes build mix.

The Government recognises that meeting the zero carbon homes standard will be particularly challenging to small home builders and it also wants to ensure that they do not face unreasonable extra costs. In regard to this the Queen's Speech 2014 announced there would be an exemption for small sites, which are commonly developed by small house builders, from the full requirements of the zero carbon homes standard.

The consultation 'Next steps to zero carbon homes – small sites exemption' was published on 18 November 2014 and closed on 7 January 2015. The scope of the consultation was to set out, seek views and gather further evidence on the proposed exemption for smaller housing sites from the total cost burden of delivering zero carbon homes. The consultation sought views on:

- whether the exemption should be defined in terms of site size, developer size or both;
- the threshold for the exemption – in terms of floor area or number of units for site size, and what criteria should apply for developer size exemption;
- whether the exemption should be from allowable solutions scheme only or an additional exemption from Building Regulations requirements; and
- the review period of the exemption.

The Government is currently considering the responses to the consultation and will publish its response in due course.

## **Housing Standards Review**

The effects or likely effects anticipated from delivery of the Housing Standards Review are to

- reduce bureaucracy and costs on house builders and local authorities;
- reform and simplify the existing confusing tangle of regulations, guidance, local codes and standards;
- consolidate essential requirements into a national framework centred on the Building Regulations;
- make the house building process easier to navigate by reducing overlap and confusion between the Planning and Building Regulations regimes and between standards in different local authority areas and reduce compliance problems; and
- allow choice to meet local needs, but within sensible parameters.

The Review will remove costs and complexity for house builders and councils, with estimated savings of around £100 million per annum once the policy is fully implemented.

## **Other Policy or Legislative Changes**

### **Sustainable Drainage Systems**

In December 2014 the Government strengthened existing planning policy by making it clear that from April 6 2015 sustainable drainage systems should be provided in major new developments (10 dwellings or more or equivalent non-residential or mixed) wherever this is appropriate. Under these arrangements, in considering planning applications, local planning authorities should consult the relevant lead local flood authority on the

management of surface water; satisfy themselves that the proposed minimum standards of operation are appropriate and ensure through the use of planning conditions or planning obligations that there are clear arrangements in place for ongoing maintenance over the lifetime of the development. The sustainable drainage system should be designed to ensure that the maintenance and operation requirements are economically proportionate.

## **The Green Deal and the Energy Company Obligation**

The Government has set a target date of March 2015 to deliver energy efficiency improvements to one million homes through the Energy Company Obligation and the Green Deal package and this was achieved in November 2014. At the end of December 2014, these programmes had delivered new boilers, windows and insulation to 1,086,000 homes, and there were 473,666 Green Deal Assessments carried out up to the end of January 2015. The Green Deal programme helps householders make energy-saving improvements to their home and identify the best way to pay for them. This can be through paying for the upfront costs of the improvements via Green Deal finance where repayments are made through expected savings on energy bills. Other options include the Green Deal Home Improvement Fund which has allowed households, including those on low incomes, to more affordably make energy efficiency improvements, whilst the Green Deal Communities scheme is helping Local Authorities deliver Green Deal energy efficiency measures on a street-by-street basis.

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.

The Obligation consists of three separate parts:

- the Carbon Saving Obligation: covers the installation of insulation measures to any house which requires them;
- the Carbon Saving Community Obligation: This provides insulation measures (e.g. loft, cavity, solid wall insulation) to households in specified areas of low income. It also makes sure that 15% of each supplier's obligation is used to upgrade more hard-to-reach low-income households in rural areas;
- the Affordable Warmth Obligation: this provides heating (e.g. repair and installation of boilers) and insulation measures to consumers living in private tenure properties that receive particular means-tested benefits. This obligation supports low-income consumers that are vulnerable to the impact of living in cold homes, including the elderly, disabled and families.

In extending the Energy Company Obligation out to 2017 Government has safeguarded support for low income and vulnerable households and made improvements to both increase rates of delivery to non-gas homes and provide additional customer protections.

## Energy Efficiency Directive

The European Union Energy Efficiency Directive was agreed in 2012 and Member States were required to transpose its provisions into national law by June 2014. The Directive was introduced to help ensure the EU meets its target to reduce primary energy consumption by 20% by 2020, compared to a 2007 business-as-usual projection. It contains a broad range of requirements, which extend to energy efficiency in the public sector and industry and covers the entire energy system, from generation and transmission to final energy use. From the UK's perspective, the most notable requirements of the Directive are:

- Article 3: to set a non-binding national energy efficiency target for 2020, taking into account the EU's overarching 2020 target. The UK Government notified the Commission of its target on 30 April 2013, which was set at the level of an 18% reduction in final energy consumption (equivalent to a 20% reduction in primary energy consumption). The UK is on track to achieve its target.
- Article 4: to establish a long-term strategy for mobilising investment in the renovation of residential and commercial buildings. The UK Government published its Building Renovation Strategy in April 2014, in accordance with the Directive's requirements.
- Article 5: to meet a binding target to renovate 3% of the total floor area of heated and/or cooled buildings owned and occupied by central government buildings each year to meet the minimum energy performance requirements set out in the application of Article 4 of the Energy Performance of Buildings Directive or to introduce alternative measures which will deliver equivalent energy savings by 2020. The UK is on track to achieve this target.
- Article 7: a binding cumulative end-use energy savings target by December 2020 equivalent to 1.5% of annual energy sales to final energy users relative to the average energy sales over the period 2010-12. The UK is on track to achieve this target.
- Article 8: all "large enterprises" undertake an energy audit by 5 December 2015 and every four years thereafter. The Government has introduced the Energy Savings Opportunity Scheme to comply with this requirement. The scheme will capture around 10,000 of the UK's largest enterprises.

The UK Government worked closely with all interested parties on the transposition of the Directive and formally notified the Commission of its approach to transposing the Directive in June 2014.

**3.4 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 (ii) services, fittings or equipment provided on or in connection with such buildings"**

## **The Climate Change Act 2008 and Carbon Budgets**

The Climate Change Act commits Government to reducing greenhouse gas emissions by at least 80% on 1990 levels by 2050. It established a system of statutory carbon budgets as steps to meeting this target. Four carbon budgets have been set, for the years 2008-12, 2013-17, 2018-22 and 2023-27.

The first three carbon budgets were set in May 2009. These respectively require emissions reductions to 3,018 MtCO<sub>2</sub>e over the first carbon budget period, 2,782 MtCO<sub>2</sub>e in the second, and 2,544 MtCO<sub>2</sub>e in the third. Parliament agreed in June 2011 a fourth budget (for the period 2023-2027) of 1,950 million tonnes of carbon dioxide – representing a 50% reduction in emissions on 1990 levels by 2025.

The final statement for the first carbon budget period confirmed that the UK had met its first carbon budget with emissions 36 MtCO<sub>2</sub>e below the target level.

The Government's latest emission projections indicate that the second and third carbon budgets for 2013-17 and 2018-22 will be met, with emissions reduced below each respective carbon budget by 76 and 80 Million tonnes of carbon dioxide equivalent. However, current policies are unlikely to be sufficient to meet the fourth carbon budget (2023-2027) and additional abatement will be necessary to keep the United Kingdom on track to meet this budget.

### **3.5. Section 6(2)(e): “Overall changes during the period in ...”**

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 this purpose.

Some of the statistics used in this report have been drawn from new data sources not available for the Second and Third report. This will mean some discontinuity in the data provided in this report from the previous reports. Where possible, historic data for the periods covered by the First and Second reports have been provided.

#### **(i) “the efficiency with which energy is used in buildings in England”**

Since April 2008 all new homes have had to have an Energy Performance Certificate. They provide a rating of the energy use of the home, using the Standard Assessment Procedure 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. The Standard Assessment Procedure quantifies a dwelling's performance in terms of a fuel cost based energy efficiency rating.

This is taken from energy costs associated with space, heating, water heating, and ventilation and fixed lighting less cost savings from energy generation technologies. This rating is expressed on a scale from 1 (highly inefficient) to 100 (highly efficient with 100 representing zero energy cost).

Since the beginning of 2010 the Government has used the average Standard Assessment Procedure ratings of new homes as its measure for the efficiency with which energy is used in new homes.

**Table 1: Average Energy Efficiency Ratings of New Homes**

	Average Rating for New Homes					
	2008	2009	2010	2011	2012	2013
England	79.0	79.4	80.8	80.6	80.6	81.2

There has been an improvement of 2.2 percentage points for new homes in England since the method of measuring it using SAP ratings was introduced. There was a small decline in the average energy ratings shown in the middle years of this data-set but they have increased again to reach a new peak level in 2013. This fluctuation reflects the average energy efficiency standard to which new homes are being built and is therefore affected by changes in the build mix for new homes and the time-lag between new Building Regulation standards coming into force and them then becoming the main standard against which private sector new homes will be being built.

Source: ONS Publication Sustainable Development Indicators July 2014.

<http://www.ons.gov.uk/ons/rel/wellbeing/sustainable-development-indicators/july-2014/sustainable-development-indicators.html>

**Table 2: Average Energy Efficiency Rating of all dwellings in England**

	Average Rating for all Dwellings									
	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
England	48.7	49.4	50.2	51.5	52.7	54.1	55.6	56.9	58.6	59.7

In England there has been an improvement of 2.8 percentage points since 2011 and 11 percentage points over the period since the introduction of the Sustainable and Secure Buildings Act in 2004.

Source: English Housing Survey 2013-14 Headline Report.

<https://www.gov.uk/government/statistics/english-housing-survey-2013-to-2014-headline-report>

## Heating and Insulation Measures

For a dwelling to provide optimum energy performance, a high level of thermal insulation needs to be present alongside an efficient heating system. The English Housing Survey collects information about insulation measures, double glazing and boiler types.

The table below, taken from data in the English Housing Survey Headline Report 2013/14, shows the changes in the percentage of dwellings with given insulation measures in England from 2005 to 2013 which have all shown year on year improvements:

**Table 3: Percentage of Homes with Insulation Measures**

	Percentage of Homes with Measure								
	2005	2006	2007	2008	2009	2010	2011	2012	2013
Cavity walls with insulation	27.4	30.2	32.7	33.4	34.5	37.1	38.4	40.1	41.2
200mm or more of loft insulation	13.4	16.0	19.2	21.1	24.0	26.7	30.1	34.1	37.2
Entire house double glazing	61.9	63.3	66.9	70.8	72.9	74.2	76.3	78.8	80.0

Source: English Housing Survey 2013-14 Headline Report.

<https://www.gov.uk/government/statistics/english-housing-survey-2013-to-2014-headline-report>.

**Table 4: Percentage of Homes with Boilers**

	Percentage of Homes with Type of Boiler								
	2005	2006	2007	2008	2009	2010	2011	2012	2013
Standard boiler (floor or wall)	43.3	41.0	39.6	36.3	32.7	29.2	26.1	24.3	22.6
Back boiler (to fire or stove)	10.0	9.7	8.8	7.6	6.6	5.7	5.1	4.2	3.4
Combination boiler	28.7	28.7	28.3	27.3	24.6	21.6	19.4	16.8	14.1
Condensing boiler	1.4	2.1	3.1	4.3	6.0	7.9	9.6	11.9	13.5
Condensing-combination boiler	3.3	5.9	8.3	12.5	18.2	23.7	28.3	31.6	35.2
No boiler	13.3	12.6	11.9	12.0	11.9	11.8	11.5	11.2	11.2

Source: English Housing Survey 2013-14 Headline Report

<https://www.gov.uk/government/statistics/english-housing-survey-2013-to-2014-headline-report>.



Condensing boilers are generally the most efficient boiler type and are recommended for new and replacement boilers. The table above shows the percentage of dwellings with the less efficient standard and back boilers decreasing over the period with the percentage with combination boilers falling from a peak of 29% in 2006 to 14% in 2013. The percentage of dwellings with condensing, and particularly, condensing-combination boilers continued to increase and by 2013 approximately forty nine percent of the housing stock had one of these types of boiler.

**Table 5: Display Energy Certificates for Government Departments 2013**

Number of properties with a DEC	Percentage of properties with a DEC that have Operational Rating						
	A	B	C	D	E	F	G
1,294	0	4	22	30	16	7	20

Source: Energy Consumption in the United Kingdom, Service Sector Data Tables (Department for Energy and Climate Change), original source Office of Government Commerce.

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).

Spreadsheet – Chapter 5: Services data tables – Table 5.26

<https://www.gov.uk/government/statistics/energy-consumption-in-the-uk>

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

**Table 6: Estimated total annual domestic carbon dioxide emissions**

	Total Domestic Emissions (million tonnes CO2)							
	2005	2006	2007	2008	2009	2010	2011	2012
England	128.1	128.2	124.3	123.3	112.3	120.5	105.8	116.9

Explanatory Notes: Coverage is based on guidelines set out by the Intergovernmental Panel on Climate Change. Estimates are by source, assigning all carbon dioxide produced by a power station to that power station for instance. To produce national estimates, data are collected that allow either direct reporting, calculation, or modelling of by source emissions.

Domestic use covers electricity use, gas use and other fuels. The increase in emissions in 2012 resulted primarily from an increase in residential gas use. Residential emissions are heavily influenced by external temperatures, and 2012 was a colder than average year.

Further information on the methodology behind this data can be found at:

[https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/400749/20140624\\_Methodology\\_summary\\_Local\\_Authority\\_CO2\\_emissions.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/400749/20140624_Methodology_summary_Local_Authority_CO2_emissions.pdf)

**Table 7: Estimated total annual industrial, commercial and public sector carbon dioxide emissions**

	<b>Total industrial, commercial &amp; public sector emissions (million tonnes CO<sub>2</sub>)</b>							
	2005	2006	2007	2008	2009	2010	2011	2012
England	190,394	190,132.	184,594	178,548	153,510	160,542	145,393	155,183

Explanatory Notes: Coverage is based on guidelines set out by the Intergovernmental Panel on Climate Change. Estimates are by source, assigning all carbon dioxide produced by a power station to that power station for instance. To produce national estimates, data are collected that allow either direct reporting, calculation, or modelling of by source emissions.

Industrial and commercial use covers electricity use, gas use, large industrial installations, other fuels and agricultural combustion.

Further information on methodology can be found at:

[https://www.gov.uk/government/uploads/system/uploads/attachment\\_data/file/400749/20140624\\_Methodology\\_summary\\_Local\\_Authority\\_CO2\\_emissions.pdf](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/400749/20140624_Methodology_summary_Local_Authority_CO2_emissions.pdf)

**Table 8: Sources of UK carbon dioxide emissions, 2006 to 2013 (provisional)**

	<b>Sources of UK Carbon Dioxide Emissions (million tonnes)</b>							
	2006	2007	2008	2009	2010	2011	2012	2013
Energy supply	224	219	213	190	196	182	193	179
Transport	130	133	126	121	119	117	117	117
Residential	82	78	80	75	87	67	75	77
Business	95	93	88	77	77	73	73	75
Other	22	22	21	16	17	15	16	17
Total	552	545	527	478	495	454	474	464

Source: UK greenhouse gas emissions statistics, Department of Energy & Climate Change.

Explanatory Notes: Coverage is based on guidelines set out by the Intergovernmental Panel on Climate Change. Estimates are by source, assigning all carbon dioxide produced by a power station to that power station for instance. To produce national estimates, data are collected that allow either direct reporting, calculation, or modelling of by source emissions.

The differences of total figures between tables 6 to 8 may be attributed to a number of reasons. Firstly, table 8 presents figures for the UK as a whole while tables 6 and 7 display them for England only. Secondly, the calculation, sector splits and geographical splits may be different as they come from separate statistical publications.

(p) 2013 estimates are provisional. All figures are for the UK and crown dependencies only and exclude overseas territories.

There are three source data-reports for tables 6 to 8

Final UK Greenhouse gas statistics (going up to 2013)

<https://www.gov.uk/government/publications/final-uk-emissions-estimates>

Provisional UK greenhouse gas emissions (going up to 2013)

<https://www.gov.uk/government/publications/provisional-uk-emissions-estimates>

Local Authority carbon dioxide emissions (going up to 2012)

<https://www.gov.uk/government/organisations/department-of-energy-climate-change/series/sub-national-greenhouse-gas-emissions-statistics>

**(iii) “the extent to which such buildings have their own facilities for generating energy”**

The Department of Energy and Climate Change produces statistics on the number of sites generating electricity from renewable sources:

**Table 9: Sites Generating Electricity from Renewable Sources in England**

Sites Generating Electricity from Renewable Sources in England							
	2007	2008	2009	2010	2011	2012	2013
England	2,553	3,433	5,518	25,374	192,121	323,389	394,681

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

The above data includes major renewable electricity installations, as well as smaller-scale installations, including those supported by the Feed in Tariff scheme. The main reason for the dramatic increase in the number of sites in 2011 was due to the huge explosion in the number of domestic solar photovoltaic installations, as a result of the introduction of the Feed in Tariff scheme in April 2010, and the subsequent sudden fall in the cost of these systems. In addition to the above figures, there are a number of sites in Great Britain, mainly solar photo-voltaic, that the Department of Energy and Climate Change currently does not have location information for. At the end of 2013, these amounted to over 40,000.

**Table 10: Number and Capacity of Feed in Tariff installations confirmed on the Central Feed in Tariffs Register (Great Britain) at the end of 2014.**

Technology	Number		Capacity	
	Number	Percentage	kW	Percentage
Anaerobic digestion	134	0	106,738	4
Hydro	528	0	65,568	2
Micro Combined Heat and Power	483	0	494	0
Photovoltaics	556,187	99	2,525,420	84
Wind	6,129	1	295,959	10
Total	563,461	100	2,994,179	100

Source: Sub-regional Feed-tariff statistics

Not all these installations will be on or in buildings, but all micro-combined heat and power, most solar Photovoltaic and some wind and hydro will be.

The regional statistics can be found on the United Kingdom Government website: <https://www.gov.uk/government/statistical-data-sets/sub-regional-feed-in-tariffs-confirmed-on-the-cfr-statistics> should readers be interested in breakdown by region, local authority or Parliamentary constituency.

The Feed in Tariff scheme was introduced on 1 April 2010 and is a financial support scheme for eligible low-carbon electricity technologies, for small-scale installations in Great Britain up to a maximum capacity of 5 MW. At the end of 2014, 2,994 MW of capacity across 563,461 installations had been included under the scheme. This is an increase of 29% in number of installations and 30% in capacity compared with the total reported in the fourth Sustainable and Secure Buildings Act report which reflected the position at September 2013.

Domestic schemes represent 63 per cent (1.87 GW) of total capacity and 96 per cent (542,936) of installations.

**(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**

The European Union has identified construction and demolition waste as a priority waste stream as many of its components have a high resource value and there is high potential for recycling and this type of waste is one of the heaviest and most voluminous waste streams generated in the European Union.

UK estimates of recovery rates from non-hazardous construction and demolition waste have been calculated for reporting against the Waste Framework Directive and under this directive there is a target for the UK to recover at least 70 per cent of non-hazardous

construction and demolition waste by 2020 a target which the UK has met since the directive came into force.

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

The estimated number of dwellings in England stood at 23,236,000 at 31 March 2013, a 0.5 percent increase on the position as at 31 March 2012, and an increase of 1.71% compared with the figure in the 3<sup>rd</sup> report which reflected the position on 31 March 2010.

