



Department for
Business, Energy
& Industrial Strategy



Household Energy Efficiency

National Statistics

Detailed Report 2016

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Executive Summary

This annual report presents in-depth statistics on the Energy Company Obligation (ECO), the Green Deal (GD) and insulation levels in Great Britain (GB), up to the end of 2016. This also contains an update on progress against the one million insulated homes target, up to the end of January 2017. This is the second annual report, following the user consultation that took place in autumn 2015 on GD, ECO and insulation level statistics. See the [Headline statistics](#) release for more up-to-date key statistics.

Energy Efficiency Measures, Households and Carbon Savings

- Between the start of May 2015 to the end of January 2017 there were around 346,000 households that had installed an insulation measure under ECO or the GD.
- Around 2.14 million measures were installed in around 1.68 million properties through ECO or under the GD Framework to the end of 2016. Around 369,600 measures were installed in 2016 compared with 454,000 measures in 2015. The large majority of installed measures (96 per cent) were delivered through ECO.
- The provisional estimated lifetime carbon savings of all measures installed to the end of 2016 was between 29.6 – 31.1 MtCO₂ with provisional estimated lifetime energy savings between 119,300– 125,700 GWh.

ECO Measures Installed and Households

- There were 2,041,909 measures installed under ECO up to the end of 2016, with 360,879 installed in 2016, 12 per cent lower than the 410,848 installed in 2015.
- Around six per cent of all households had a measure installed under ECO funding (i.e. 61 per 1,000 households). The North West and North East had the highest amount with 96 and 85 households with ECO measures per 1,000 households respectively. In Scotland there were 84 per 1,000 households and 61 per 1,000 households in Wales. Around 12 per cent of measures were installed in rural areas.
- Around 89 per cent of ECO measures were installed in properties that used gas as their main fuel type (1,816,932 measures); however this has steadily decreased from 97 per cent in Q1 2013 to 76 per cent in Q4 2016.
- The 694,146 Affordable Warmth ECO measures are estimated to deliver around £8.25bn worth of notional lifetime bill savings.

Green Deal Assessments, Green Deal Plans, the Green Deal Home Improvement Fund (GDHIF) and the Green Deal Communities

- There were 684,343 GD Assessments in unique properties in GB up to the end of 2016. 56,947 were first lodged in 2016; a 68 per cent decrease on the 180,080 in 2015. A key reason for this would be that fewer ECO measures were delivered in 2016, and many GD Assessments were carried out for ECO.

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- The majority (90 per cent) of properties having a GD Assessment had an energy efficiency band rating of D or lower. This compares to 72 per cent of the overall domestic building stock in England in 2015. Proportionately more of these properties had a lower energy efficiency rating in 2016 compared to early years (a continued trend since 2013).
 - The most common single measure recommended following a GD Assessment was to install loft insulation which was recommended in 44 per cent of all GD Assessments.
 - Of the 13,759 'live' or 'completed' GD Plans (i.e. measures installed, billing commenced or paid off early) in GB up to the end of 2016, one-third were for properties in Scotland (4,576 Plans). This is much lower than the 50 per cent of 'live' or 'completed' Plans in Scotland as at the end of 2014, due to more GD Providers providing GD Plans in England and Wales over the last two years.
 - 35,347 households had measures installed through GDHIF (15 per 10,000 households in England and Wales). Yorkshire and The Humber had the highest number of households in receipt of GDHIF measures (25 per 10,000 households).
 - Green Deal Communities had contributed funding towards the installation of 17,901 measures in 15,564 properties. Around two-thirds of all measures installed were Solid Wall Insulation (11,473 measures).
 - Around six per cent of properties that had installed energy efficiency measures using GD Finance were in the private rented sector, compared with 20 per cent that used GD Communities funding and 28 per cent that used GDHIF. GDHIF allowed landlords and tenants to directly apply for funding to undertake improvements.

Home Insulation Levels

It is estimated that at the end of December 2016:

- There were 27.7 million homes in GB. Of these 19.2 million had cavity walls with the remaining 8.5 million having solid walls. 23.9 million properties had a loft.
- There were 254,000 more properties with cavity wall insulation, 201,000 more had loft insulation of at least 125mm, and 31,000 more had solid wall insulation, since December 2015.
- 15.8 million homes had at least 125mm loft insulation (66 per cent of homes with lofts).
- 13.3 million homes had cavity wall insulation (69 per cent of homes with cavity walls). Of the 5.4 million homes without cavity wall insulation, 4.1 million are easy to treat standard cavities, and 1.3 million are hard to treat
- 718,000 homes had solid wall insulation (eight per cent of homes with solid walls).

Section 1: Energy Efficiency Measures, Households and Carbon Savings

This commentary section provides detailed information on the overall number of energy efficiency measures delivered under central Government schemes, as well as reporting progress against the one million homes insulated target. It also reports estimates of the carbon savings achieved through these installed measures. Where the report refers to table numbers in brackets, these are included in the accompanying Excel tables [here](#).

Household Energy schemes

The Energy Company Obligation (ECO) and Green Deal (GD) are Government energy efficiency schemes which began operating in 2013. They replaced the previous schemes: Carbon Emissions Reduction Target, Community Energy Saving Programme and Warm Front. Their aim is to encourage the uptake of energy efficiency measures so that the efficiency of the building stock is improved. This has impacts such as reduced consumer bills and increased comfort in the home.

Between January 2013 and December 2016, energy efficiency measures were installed in:

- 1,628,200 properties under the Energy Company Obligation (ECO);
- 35,300 properties using the Green Deal Home Improvement Fund (GDHIF);
- 14,700 properties following the redemption of Cashback vouchers;
- 13,800 properties using a GD Finance Plan; and
- 15,600 properties using GD Communities funding.

There is a small amount of double counting between these mechanisms (around 23,900 households)¹, i.e. measures not installed in unique properties.

414,000 properties benefitted from Feed-in Tariffs installations, and there were 9,000 Renewable Heat Premium Payments, and 52,800 domestic Renewable Heat Incentive measures. In addition to this, 4.89 million domestic electricity and gas Smart Meters² have been installed in homes across Great Britain (GB) to the end of September 2016³.

¹ BEIS cannot fully assess the overlap where households benefitted from ECO & GD with FITs and RHPP/RHI, and therefore cannot estimate the number of unique properties receiving energy efficiency or renewable measures.

² Understanding the overlap with Smart meters is more complex as data on smart meters is collected at the meter level, and so are not available the property level. These are therefore excluded from the combined figure.”

³ Smart Meters statistics to the end December 2016 will be published on 30 March 2017.

One million homes insulated target

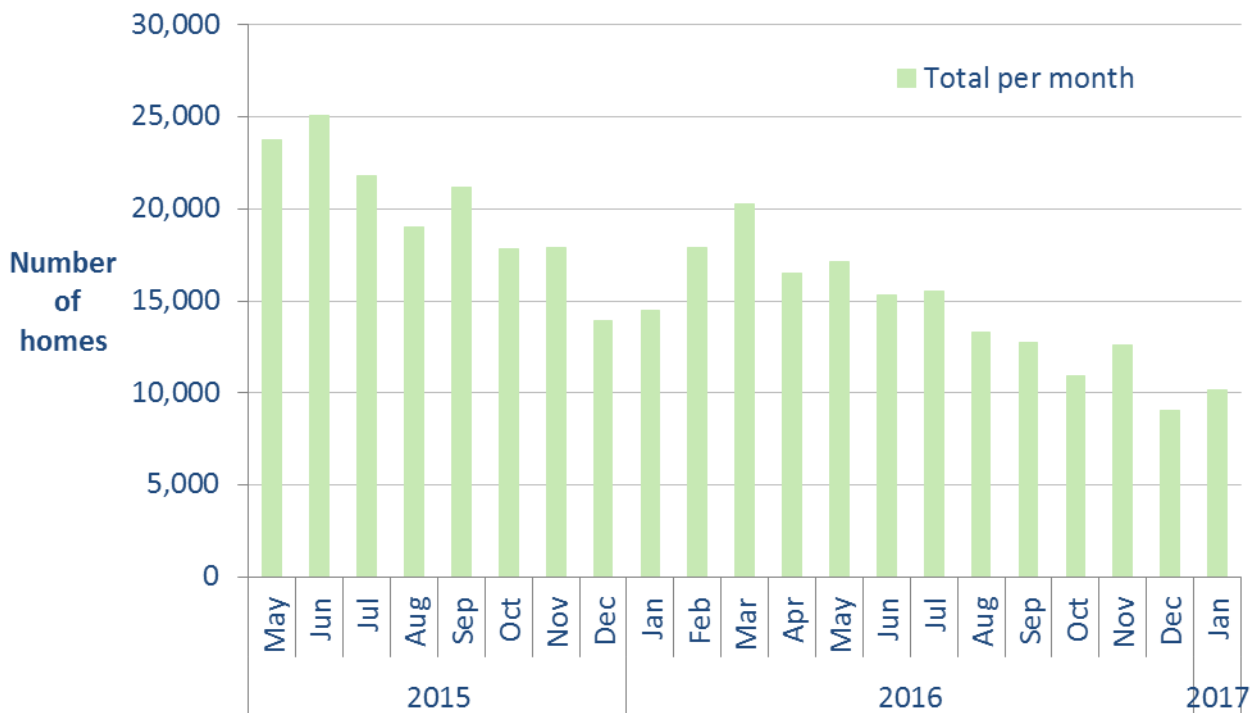
The Government has established a target to “support low-cost measures on energy efficiency, with the goal of insulating a million more homes over the next five years, supporting our commitment to tackle fuel poverty.” The period covered is for the five years of the current Government, which for the purpose of BEIS’s statistical reporting is from start of May 2015 through until the end of April 2020.

Between the start of May 2015 to the end of January 2017 (the latest month that we have complete data for) there were around 346,000 households that had installed an insulation measure under ECO or the GD (GD Plans, GDHIF or GD Communities). For the latest statistics please see the latest [Headline release](#).

Progress against the target remains broadly on course to be achieved by the end of April 2020. However, delivery rates have decreased in recent months as ECO 2 targets are reached, but are expected to increase during the ECO 2 extension period (see [Annex A](#) for more details on this).

Please see the methodology note [here](#) for more details of the measurement of this target.

Chart 1: Properties that had an insulation measure installed under ECO and GD, up to end January 2017



Estimated carbon and energy savings for measures installed

This section estimates savings derived from measures installed through ECO and GD.

Estimated carbon and energy savings relating to measures installed (Table 1.3)

Table 1.3 presents the estimated impact of measures installed under ECO⁴ (through the Carbon Saving Obligation and Carbon Saving Communities Obligation⁵), and through the GD framework up to the end of December 2016.

The provisional total estimated lifetime carbon savings of these measures (based on savings as set out in the Impact Assessment) is in the range 29.6 – 31.1 MtCO₂ with provisional estimated lifetime energy savings between 119,300– 125,700 GWh.

For GD Plans, GDHIF and Cashback measures⁶, the net estimated carbon savings has been calculated from the difference between that in the original EPC (pre-installation of measures) and the updated EPC (post installation of measures). For ECO measures, the estimated lifetime carbon savings has been adjusted to account for estimated levels of comfort taking, which better represent our understanding of the assumed net impact of the installed measures.

Estimated carbon and energy savings relating to measures installed through ECO, Cashback, GDHIF and GD Plans are reduced by 15% to account for behavioural change following the installation of measures. This is consistent with the 2012 ECO/GD [Final Stage Impact Assessment](#) analysis, and in no way impacts on the progress reported in supplier obligations. Therefore, the carbon estimates for ECO may differ from those published through Ofgem. Also all carbon and energy savings from installed measures are adjusted by the relevant specific in-use factors for each measure type⁷ for ECO⁸ and for GD delivery mechanisms. More information on the methodology used is included [here](#).

⁴ The expected net reduction in carbon from ECO measures depends on the reductions in the traded sector emissions out-weighting any increase in non-traded sector emissions.

⁵ Affordable Warmth is excluded because carbon reductions are not the stated aim of this policy and difficulties in accurately estimating their carbon impact).

⁶ Carbon savings from Green Deal Communities have not been included due to the large amount of double-counting between this and other schemes (specifically ECO).

⁷ Domestic measures in-use factors, page 9

https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/48407/5505-how-the-green-deal-will-reflect-the-insitu-perfor.pdf

⁸ Ofgem ECO measures <https://www.ofgem.gov.uk/ofgem-publications/83100/energycompaniesobligation-measures.pdf>

Section 2: The Energy Company Obligation

This section provides detailed information on different elements of the Energy Company Obligation (ECO) including geographical breakdowns, ECO brokerage and ECO costs. Where the report refers to table numbers in brackets, these are included in the accompanying Excel tables [here](#).

Measures installed under ECO

The [Energy Company Obligation](#) (ECO) was introduced in January 2013 to reduce energy consumption and support people at greater risk of living in fuel poverty. The larger energy companies are set obligations to install insulation and heating measures in order to achieve reductions in energy usage and heating costs. All measures installed under ECO are provisional until the end of the obligation period as checks are undertaken by Ofgem.

Geographic location of measures installed under ECO (Tables 2.1.3, 2.2, 2.2.1, 2.2.2)

Table 2.1.3 presents the number of measures installed under ECO by measure type and region. Sixty-two per cent of solid wall insulation was installed in England, 29 per cent in Scotland and nine per cent in Wales. Forty-one per cent of all window glazing installed under ECO had been installed in London. Around one fifth of all cavity wall insulation installed up to end December 2016 was installed in the North West, as well as the highest proportion of boiler installs (23 per cent).

Tables 2.2, 2.2.1 and 2.2.2 present the number of measures installed under ECO, broken down by obligation, in each region (Table 2.2), Local Authority (Table 2.2.1) and Parliamentary Constituency (Table 2.2.2) up to end December 2016.

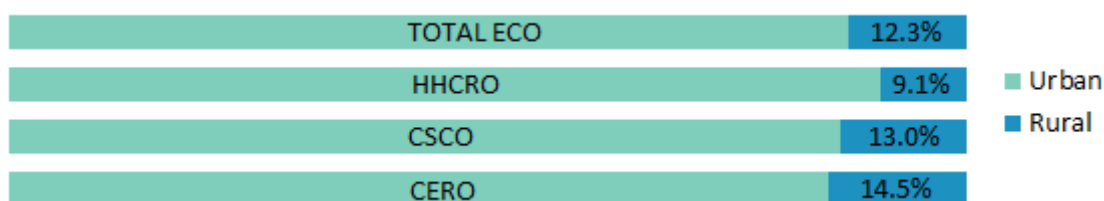
Around one fifth (19 per cent) of ECO measures were in the North West (384,857), the highest in any region. 12 per cent of ECO measures were installed in Scotland (239,672) and five per cent were in Wales (107,356).

Rurality of measures installed under ECO (Tables 2.1.4, 2.1.5 and Chart 2)

Tables 2.1.4 and 2.1.5 show the rurality and urbanity of measures installed under ECO by country, by obligation and by region. Across the whole of Great Britain around 12 per cent of measures were installed in “rural”⁹ areas. This varies across the country with 27 per cent of measures installed in Wales being located in rural areas. 14 per cent and 13 per cent of CERO and CSCO measures were in rural areas respectively, compared with 9 per cent of Affordable Warmth (HHCRO) measures.

⁹ Includes the groups, rural town and fringe, rural town and fringe in a sparse setting, rural village, rural village in a sparse setting, rural hamlet and isolated dwellings, rural hamlet and isolated dwellings in a sparse setting, or in Scotland Accessible Rural, remote rural, and very remote rural.

Chart 2: Percentage of ECO measures by rurality, by obligation, up to end December 2016



Geographic location of households receiving ECO measures (Tables 2.2.3, 2.2.4, 2.2.5, Map 1)

Up to the end of 2016, 1,628,222 unique properties¹⁰ had benefitted from having at least one ECO measure installed. See the [Headline statistics release](#) for the latest statistics.

When comparing areas, it is more representative to use the number of households in receipt of ECO measures per 1,000 households. In GB, on average, there were around 61 households in receipt of ECO measures per 1,000 households or, in other words, around six per cent of all households in GB had a measure installed under ECO funding.

The North West and North East had the highest amount with 96 and 85 households with ECO measures per 1,000 households respectively. In Scotland there were around 84 per 1,000 households and 61 per 1,000 households in Wales. Blackpool had the highest proportion of households with ECO measures in any Local Authority (LA) in GB with 182 per 1,000.

Further breakdowns of measures installed under ECO (Tables 2.3, 2.4, 2.5)

Tables 2.3 to 2.5 present further analysis of measures installed under ECO up to end December 2016, including breakdowns by fuel type, property type and tenure. Findings of note include that 98 per cent of Affordable Warmth Target measures were installed in gas-fuelled properties, compared to 89 per cent of all ECO measures and 85 per cent of all households in England¹¹. This suggests that a slightly higher proportion of measures installed under ECO were in gas-fuelled properties that would be expected from the housing stock. However, this has steadily decreased from 97 per cent in Q1 2013 to 76 per cent in Q4 2016.

Three quarters of properties with ECO measures were houses, 17 per cent were flats and the remainder were bungalows, maisonettes and park homes. However, this varies by obligation, with a greater proportion of properties with measures installed under Carbon Saving Target being flats (22 per cent), compared with properties with measures installed under Carbon Saving Communities (21 per cent) and Affordable Warmth (four per cent).

¹⁰ The number of unique properties by ECO obligation does not sum to the total number of unique properties (1,628,222) as a property can have a different measure installed under different ECO obligations.

¹¹ Table 11b, Fuel poverty statistics 2014, <https://www.gov.uk/government/statistics/fuel-poverty-detailed-tables-2014>

Map 1: Households in receipt of ECO measures by Local Authority per 1,000 households up to end December 2016

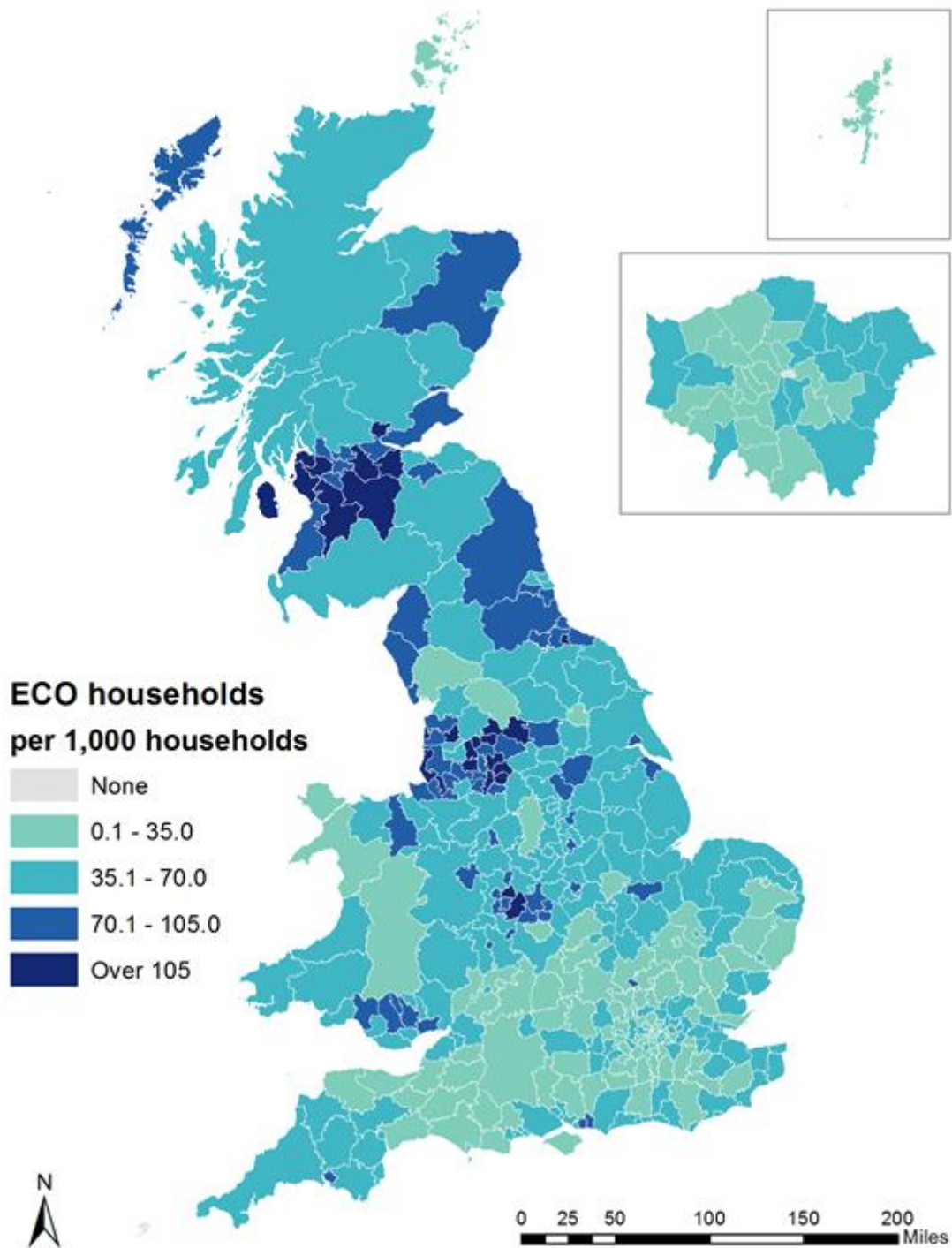


Table 2.2.4 and Map 1 shows the number of households in receipt of ECO measures by Local Authority per 1,000 households. This illustrates the concentration of households in receipt of ECO measures in the North West, North East and West Midlands in England as well as South Wales and parts of Scotland.

Estimated lifetime bill savings for Affordable Warmth measures installed (Table 2.6)

The 694,146 Affordable Warmth ECO measures installed up to the end of 2016 are estimated to deliver around £8.25bn worth of notional lifetime bill savings.

The ECO extension period (April 2017 – September 2018) will be more focused on the Affordable Warmth Group (which is expected to increase to around 4.7m rather than 4m households). This will include more households who are in fuel poverty, and those on lower incomes, who may be struggling to meet heating and other bills;

ECO Brokerage

The [ECO Brokerage](#) system (Tables 2.7, 2.7.1 and 2.7.2) operates as a fortnightly anonymous auction where providers can sell 'lots' of future measures of ECO Carbon Saving Obligation, ECO Carbon Saving Communities and ECO Affordable Warmth, to energy companies in return for ECO subsidy.

Table 2.7.1 presents the clearing prices of all lots sold through ECO brokerage. To the end of December 2016 there were 99 auctions with a total value of contracts let worth £476 million. In over half of all 25 auctions in 2016 (auction 75 to 99), there were no contracts let. The low levels of brokerage activity since March 2014 are likely to have been affected by a number of factors, including uncertainty around the period following the announced reduction in the obligation before new legislation came into force in December 2014, as well as uncertainty around the ECO extension period (April 2017 to September 2018).

Trading levels have also been affected as a result of reaching the end to the first ECO obligation period and end of the second ECO period, because contracts under brokerage are for future delivery. New lot types have been introduced over time to reflect changes to the policy. Since Auction 72 the value of contracts let has increased due to improvements to the ECO brokerage platform¹². The average price paid for lots has been decreasing for the Carbon Saving Obligation, Carbon Saving Communities (CSCO) and ECO Affordable Warmth. For more detail on the results of each auction, please see [ECO Brokerage](#).

For the latest statistics please see the latest [Headline release](#).

¹² Auction 72 was the first auction to take place following the introduction of Version 3.0 of the Bi-lateral Off-take Contract that was published in October 2015 and came into force on 6 November 2015:
<https://www.gov.uk/guidance/energy-companies-obligation-brokerage>

ECO Costs

As with any scheme there are costs associated with delivering the ECO scheme. BEIS receives summary information, reported by energy suppliers, covering the costs associated with delivering ECO for all obligated energy suppliers at the end of each quarter. For more information on ECO costs please see [Annex A](#) and full definitions are included in the [Methodology note](#).

The latest aggregate delivery costs (up to the end of 2016, covering the whole of ECO 1 period and first 21 months of ECO 2 period) are included in Table 2.8, and include some revisions as reported by energy suppliers. Revisions were made to reflect the final ECO 1 costs related to measures approved by Ofgem in September 2015 in their [final compliance report](#). These are historic costs and future costs may go up or down depending on a range of factors.

The Government announced proposals for a set of changes to ECO in December 2013. These included: introducing ECO targets for the two-year period to the end of March 2017; reducing the March 2015 CERO by 33%; and allowing additional measures (loft and standard cavity wall insulation, and district heating) to be eligible under the CERO target. The revised regulations were passed by Parliament on 5 December 2014. Measures that were installed since 1 April 2014 have been included in this release, and the costs associated with these measures are also included.

This ECO amendment order reduced delivery costs, particularly under CERO. Other factors which could impact on costs are carry-forward to ECO from previous obligation schemes, the estimated impact of the levelisation mechanism (which would provide uplift to CERO carbon scoring) and that some suppliers have exceeded some of their obligations for ECO 1, so these measures (and their costs) count towards ECO 2 targets (April 2015 to March 2017).

Table 2.8 shows that the total delivery costs for ECO 1 and ECO 2 (January 2013 – December 2016) were around £3.19bn, with an additional £318m in administrative costs. This meant that the total cost of ECO for the first three years was £3.5 billion.

Table 2.8.1 shows the average cost by obligation and the highest average cost and lowest average cost reported by suppliers for each obligation as at the end of December 2016. The suppliers have not been identified to protect commercial confidentiality. This shows that some energy suppliers are discharging their obligation more cost effectively than others. This includes cost revisions submitted from some energy companies as previously reported where energy companies have been informed of rejected ECO measures (by Ofgem), or other changes they need to reflect in their ECO costs and carbon and bill savings.

Section 3: The Green Deal

This section provides detailed information on different elements of the Green Deal (GD), including a geographic breakdown of GD Assessments, Green Deal Home Improvement Fund (GDHIF), Green Deal Communities and GD Plans and the characteristics of these properties. The report refers to table numbers in brackets, which are included separately in the accompanying Excel tables [here](#).

Green Deal Assessments

The first step in the GD process involves a GD Assessor coming to the home, talking to the owner/occupier about their energy use and seeing if they can benefit from making energy efficiency improvements to their property; this is known as a GD Assessment. Following this a Green Deal Advice Report (GDAR) is produced for the householder and lodged on a national register. The customer is then able to view the recommended energy efficiency measures and understand the potential costs and savings. See [here](#) for information on the GD Assessment process.

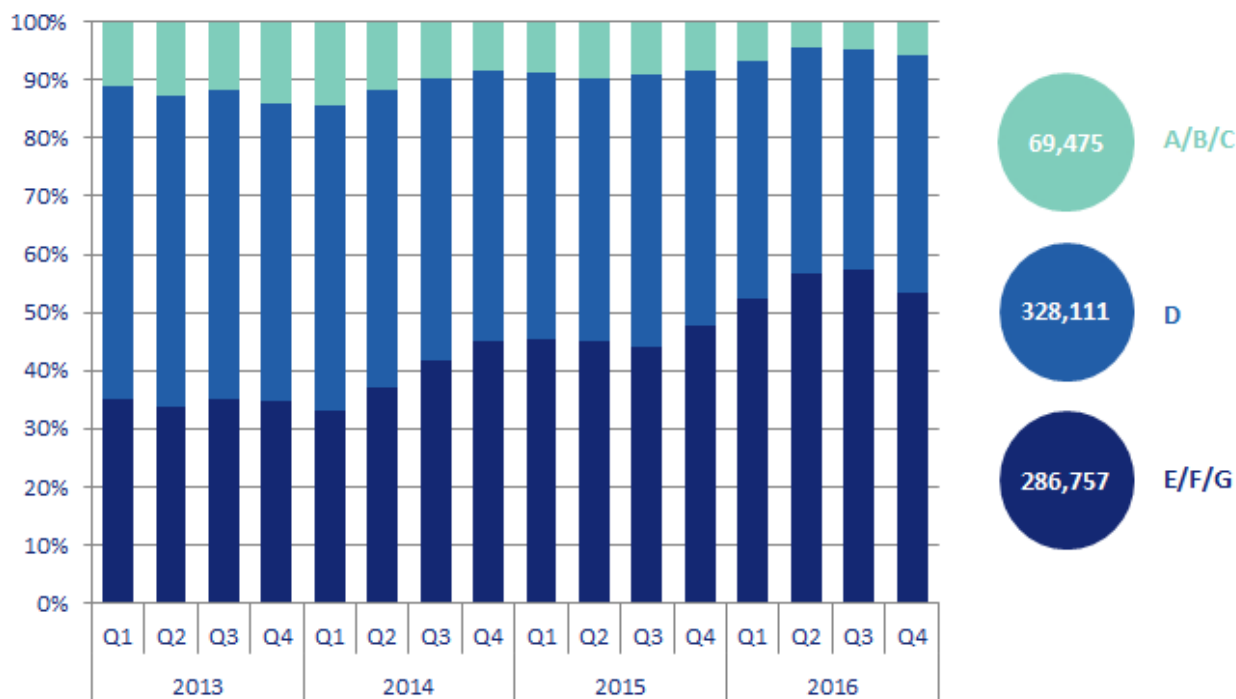
There were 684,343 GD Assessments in unique properties in GB up to the end of 2016. 56,947 were first lodged in 2016; a 68 per cent decrease on the 180,080 in 2015; and an 82 per cent decrease on the 317,488 in 2014. A key reason for this is that fewer ECO measures were delivered in 2016, and many GD Assessments were carried out for ECO.

Energy Efficiency Rating (EER) Bands (Table 3.1.1, Chart 3)

The EER is presented in an A-G banding system for an Energy Performance Certificate, where Band A rating represents low energy costs (i.e. the most efficient band) and Band G rating represents high energy costs (i.e. the least efficient band). The majority (90 per cent) of properties getting a GD Assessment were band D or lower, suggesting that GD Assessments are generally happening in properties which could benefit most from energy efficiency measures. Proportionately more of these properties had a lower energy efficiency rating in 2016 compared to 2013. This compares to 72 per cent of the overall domestic building stock in England in 2015 reported in the English Housing Survey (EHS)¹³.

¹³ The equivalent split is not available for Welsh and Scottish properties, which make up around 14 per cent of the housing stock in GB. DCLG, English Housing Survey, Annex Table 2.7: Energy efficiency rating bands, by tenure, 2015, <https://www.gov.uk/government/statistics/english-housing-survey-2015-to-2016-headline-report>

Chart 3: Percentage of properties with a GD Assessment, up to end December 2016, by grouped Energy Efficiency Band, by quarter



Over the period 2013 to 2016 an increasing proportion of properties obtaining a GDAR had a lower energy efficiency rating, as shown in the percentage breakdowns in Chart 3; this may be as a result of improved targeting of the least energy efficient properties.

Property Type (Table 3.1.2)

Around three-quarters (75 per cent) of GD Assessments were in houses (516,587), 12 per cent were in bungalows (82,255), 11 per cent were in flats (72,813), two per cent were in maisonettes (10,859) and the remaining 1,829 were park homes. The housing stock in England¹⁴ (as reported in the EHS 2015-to-2016¹⁵) shows that 71 per cent of property types were houses, 20 per cent were flats and/or maisonettes (purpose built flat or converted flat), and nine per cent were bungalows. It is estimated less than one per cent of properties are park homes.

Tenure (Table 3.1.3)

Over three-quarters (78 per cent) of GD Assessments were in owner-occupied properties (531,593), 12 per cent were in the private rented sector (83,256) and 10 per cent were in

¹⁴ The equivalent split is not available for Welsh and Scottish properties on a comparable basis. These make up around 14 per cent of the housing stock in GB.

¹⁵ DCLG, English Housing Survey, Annex Table 2.1: Stock profile, 2015, <https://www.gov.uk/government/statistics/english-housing-survey-2015-to-2016-headline-report>

the social rented sector (66,372). In comparison, according to property stock by tenure figures released by Department for Communities and Local Government¹⁶ for GB in 2014, 63 per cent were owner-occupied, 19 per cent were private rented sector and 18 per cent were social rented sector. This suggests that a higher proportion of GD Assessments were in owner-occupied properties than would be expected from the distribution of the housing stock.

On or off the Mains Gas Grid (Table 3.1.4)

In 2015, it was estimated 2.34 million households do not have mains-gas supply in GB¹⁷. This is around nine per cent of all properties in GB, which is lower than the 17 per cent of properties which had a GD Assessment and were off the mains-gas grid. This has increased slightly over time from around 12 per cent in 2013 to around 23 per cent in 2016. This may be as a result of CSCO ECO properties that had a GD Assessment, targeting more in rural areas.

Recommended measures (Tables 3.1.5, 3.1.6, 3.1.7)

There were over 2 million (2,033,296) improvements recommended in the 684,343 GDARs, so on average there were around three recommended measures per GDAR. In 41 per cent of GDARs (280,684) only one measure was recommended (Table 3.1.7). The most common single measure recommended was to install loft insulation. This accounted for 15 per cent of all recorded measures and was recommended in around 44 per cent of all GDARs (Table 3.1.6).

Geographic location (Tables 3.1.8, 3.1.9, 3.1.10, Map 2)

GD Assessments by region, Local Authority (LA) and Parliamentary Constituency are reported in tables 3.1.8, 3.1.9, and 3.1.10 respectively. Map 2 shows LAs in Southern England (the South East, London, the South West, and the East) have fewer GD Assessments per 1,000 householders compared to LAs in other regions.

The number of GD Assessments per 1,000 households gives a better indication of the areas which have had the most GD Assessments in relation to the number of households in that area. There were on average 26 GD Assessments per 1,000 households in GB. Scotland had the highest number of GD Assessments per 1,000 households with 42. Wales had 22 GD Assessments per 1,000 households (Map 2).

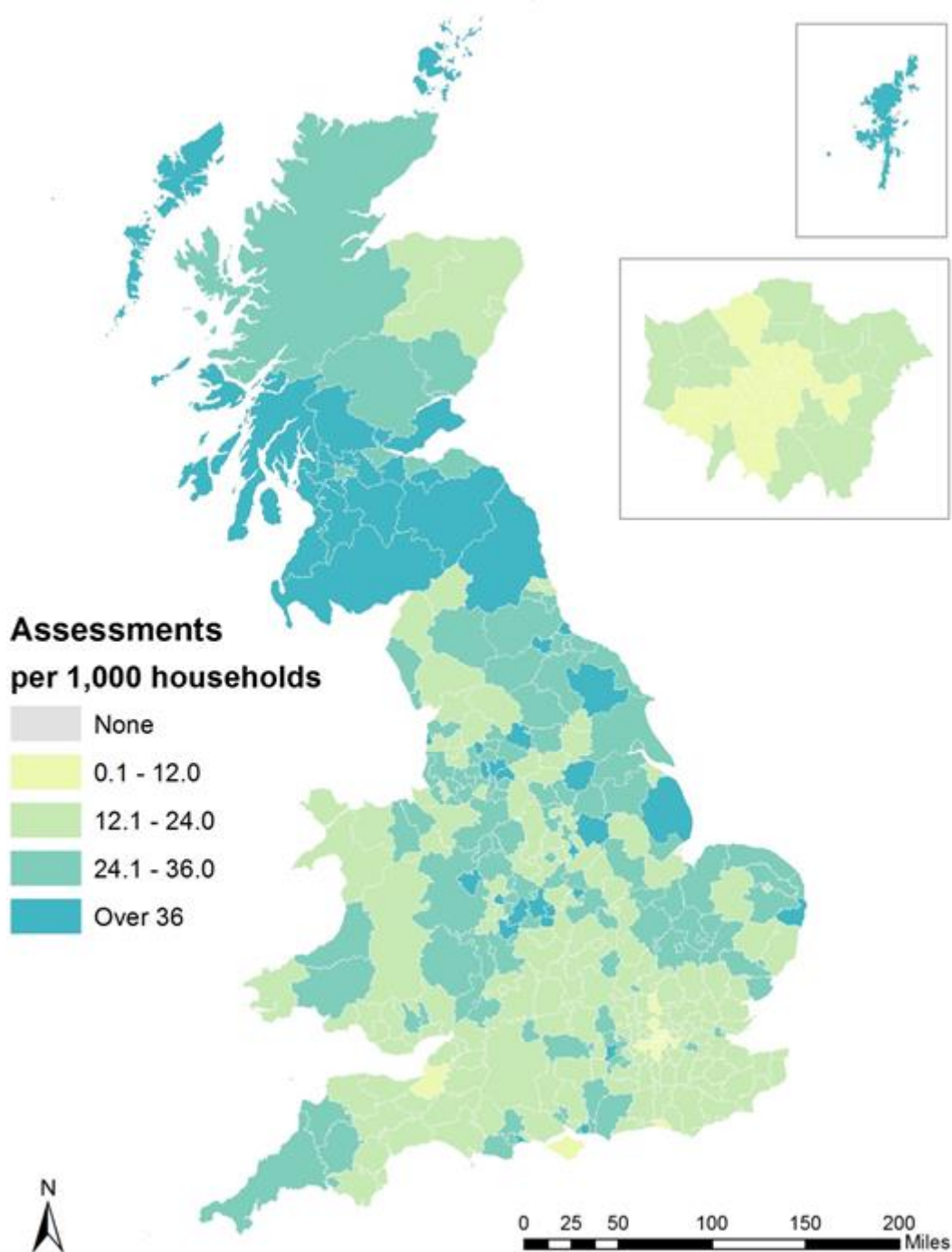
¹⁶ DCLG, Live tables on dwelling stock, by tenure, Great Britain Table 102

<https://www.gov.uk/government/statistical-data-sets/live-tables-on-dwelling-stock-including-vacants>

¹⁷ BEIS, Sub-national estimates of households not connected to the gas network, 2015

<https://www.gov.uk/government/statistics/sub-national-estimates-of-households-not-connected-to-the-gas-network>

Map 2: Number of GD Assessments per 1,000 households lodged by Local Authority up to end December 2016



Map 2 shows that within England, Nottingham LA had the most GD Assessments per 1,000 households (59). In Scotland, seven Local Authorities had more GD Assessments per 1,000 households: South Lanarkshire (62), North Ayrshire (62), Midlothian (64), South Ayrshire (64), East Ayrshire (71), Argyll and Bute (75), and Clackmannanshire (84).

Green Deal Finance Plans

The Green Deal (GD) is a government initiative that is designed to help home owners install energy efficiency measures into their properties, and the costs of these measures are paid back through their energy bill over a period of time; this is in the form of a Green Deal Finance Plan (GD Plan). This is unlike a conventional loan because the loan stays with the property where the measures have been installed rather than moving with the individual who took out the loan.

On 23 July 2015 it was [announced](#) that there will be no further public funding to the Green Deal Finance Company (GDFC). This decision had no impact on existing GD Plans in the system. Therefore Plans in the system continued to progress. On 15 January 2017 it was [announced](#) that the business and assets of the GDFC, as well as its existing loan book, had been acquired by a private investor. This will again mean that consumers will be able to choose GD Plans as a route.

At the end of 2016 there were 13,759 'live' or 'completed' GD Plans in unique properties in GB (i.e. measures were installed, billing had commenced or had been paid off early), with 12,844 of these plans 'live', in unique properties. 42 properties had two 'live' GD Plans, so there are 12,886 'live' GD Plans, in total, at the end of 2016. We estimate that the total initial loan amounts (i.e. excluding APR interest payments) associated with these 'live' Plans was around £46.5m and 'completed' Plans was around £2.7m. Therefore the average initial loan amount per GD Plan was around £3,600. For the latest statistics please see the latest [Headline release](#).

Geographic location of properties where measures were installed using Green Deal Finance, (Tables 3.2.3, 3.2.4 and 3.2.5)

Of the 13,759 unique properties with 'live' or 'completed' GD Plans, 62 per cent were for properties in England, one-third were for properties in Scotland and five per cent were for properties in Wales (see Table 3.2.3). The proportion of these Plans has changed in England from less than half in 2014 to 69 per cent in 2015 and 74 per cent in 2016. This is mainly due to a GD Provider starting to operate in England. Tables 3.2.4 and 3.2.5 present the number of 'live' or 'completed' GD Plans in each Local Authority (LA) and Parliamentary Constituency respectively.

The tenure of properties with measures installed using Green Deal Finance (Table 3.2.6)

Around 94 per cent of properties that had installed measures using Green Deal Finance were owner-occupied. Six per cent were in the private rented sector and a very small number were in the social rented sector (see Table 3.2.6). The number of owner-occupied properties with measures installed using Green Deal Finance has remained high over the last three years.

Green Deal Home Improvement Fund

The Green Deal Home Improvement Fund (GDHIF) was an incentive scheme open to all householders in England and Wales wanting to improve the energy efficiency of their homes. The scheme enabled participants to claim cashback for installing energy efficiency measures, for example solid wall insulation. It was open to applicants at various times between June 2014 and September 2015.

35,347 individual households had a measure installed using GDHIF funding up to the end of the scheme (end of June 2016)¹⁸.

Geographic location of households in receipt of GDHIF measures (Tables 3.3.2, 3.3.3, 3.3.4)

Table 3.3.2 presents the regional breakdown of households in receipt of GDHIF measures up to the end of the scheme. Tables 3.3.3 and 3.3.4 present these breakdowns of GDHIF properties by LA and Parliamentary Constituency in England and Wales¹⁹.

There were around 15 households in receipt of GDHIF measures per 10,000 households in England and Wales. The area with the highest number of households in receipt of GDHIF measures per 10,000 households was Wales with 45 (accounting for 17 per cent of all GDHIF vouchers paid, see Table 3.3.2).

Within England, Wolverhampton Local Authority had the most households in receipt of GDHIF measures per 10,000 households (141). In Wales, three Local Authorities had more households in receipt of GDHIF measures per 10,000 households; Merthyr Tydfil (285), Blaenau Gwent (190) and Rhondda Cynon Taf (149) (Table 3.3.3).

The tenure of properties where measures were installed using GDHIF (Table 3.3.5)

Around 68 per cent of properties with measures installed using GDHIF were owner-occupied. 29 per cent were in the private rented sector and four per cent were in the social rented sector (see Table 3.3.5). In comparison, in Great Britain²⁰ there were 63 per cent owner-occupied, 19 per cent were private rented sector and 18 per cent were for social rented sector. This suggests that there were a much lower proportion of measures installed using GDHIF in the social rented sector than would be expected from the distribution of the housing stock (see Table 3.3.5).

¹⁸ More than one voucher can be issued and payment made per household.

¹⁹ These figures only present breakdowns for England and Wales. A number of different separate Cashback schemes operated in Scotland (see [website](#) for the latest statistics).

²⁰ DCLG, Live tables on dwelling stock, by tenure, Great Britain Table 102

<https://www.gov.uk/government/statistical-data-sets/live-tables-on-dwelling-stock-including-vacants>

Green Deal Communities

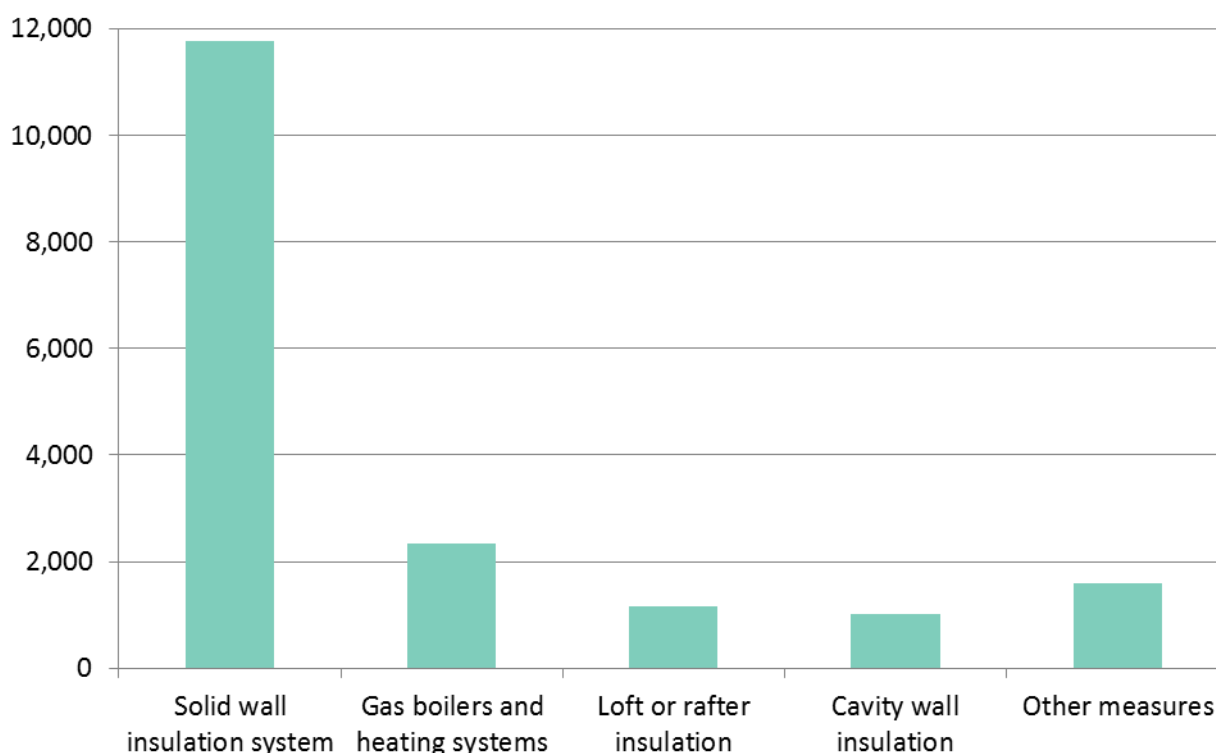
Green Deal Communities was a BEIS programme that gave grant funding to Local Authorities to develop energy efficiency schemes targeting local households. 23 Lead Local Authority areas (covering nearly 100 individual Local Authorities) in England were awarded £85 million in March 2014. The scheme ran from April 2014 until the end of September 2016. Many of the areas used some of their funding to help households in fuel poverty.

Total funding given to the 23 lead areas (covering 98 Local Authorities) was £85 million, which included £8 million specifically ring-fenced for the private rental sector (split between 4 areas) and £1.8 million for installer training (across 15 areas). Map 3 shows all the lead areas and other LAs covered as part of a consortium. Measures installed as part of the programme included solid wall insulation, cavity wall insulation, loft insulation, energy efficient boilers, heating controls, and replacement glazing.

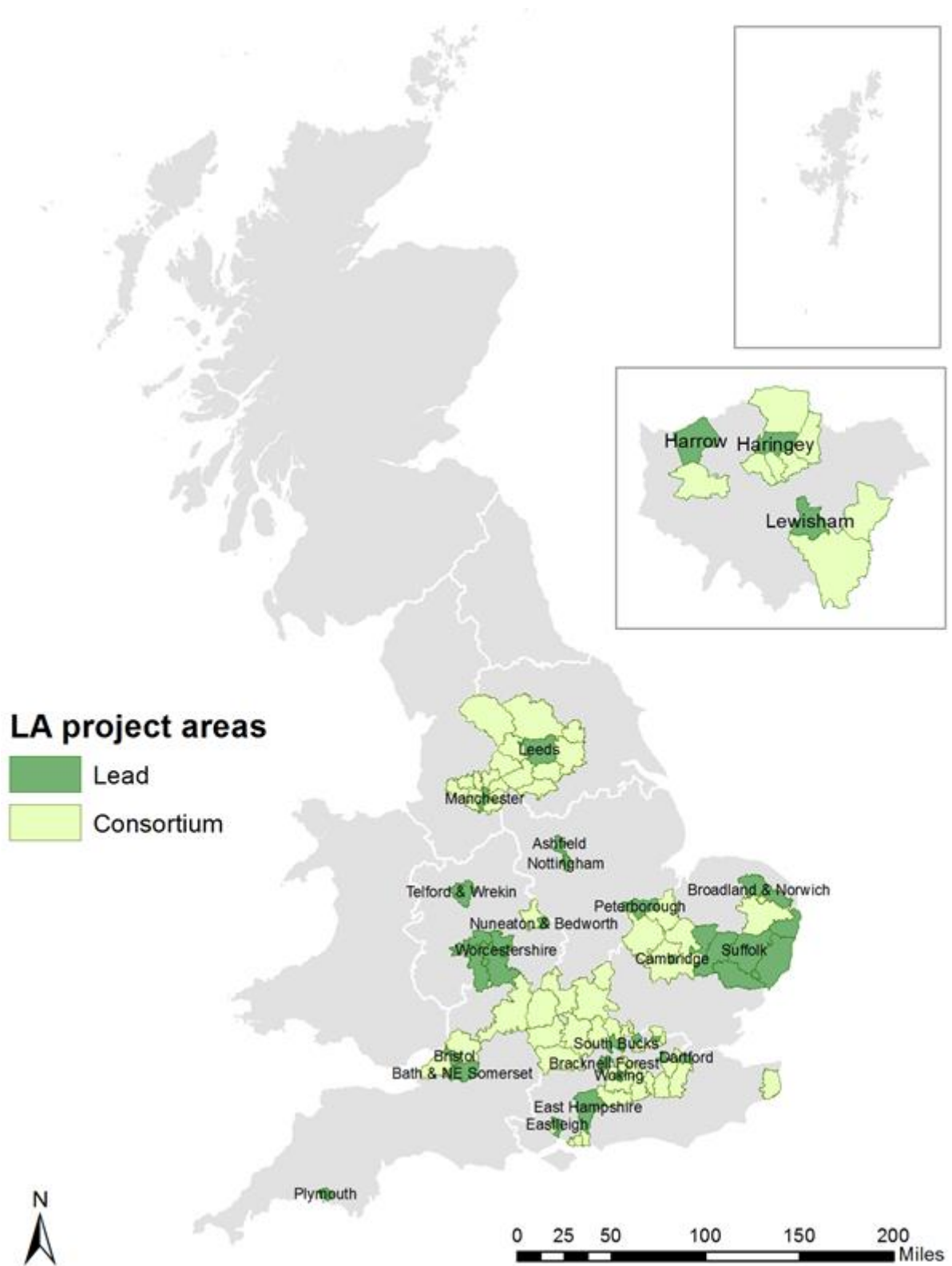
Delivery under Green Deal Communities Programme (Table 3.5, 3.5.1 and Chart 4)

At the end of the Green Deal Communities Programme, 17,901 energy efficiency measures funded by Green Deal Communities were installed in 15,564 properties, (see Table 3.5). Of the 17,901 energy efficiency measures installed, around two-thirds (11,473) were external solid wall insulation, around 10 per cent were gas boilers (1,753) and six per cent were loft insulation (1,163) (see Table 3.5.1). The Green Deal Communities scheme also funded 192 show homes.

Chart 4: Number of measures installed using Green Deal Communities funding



Map 3: Green Deal Community areas



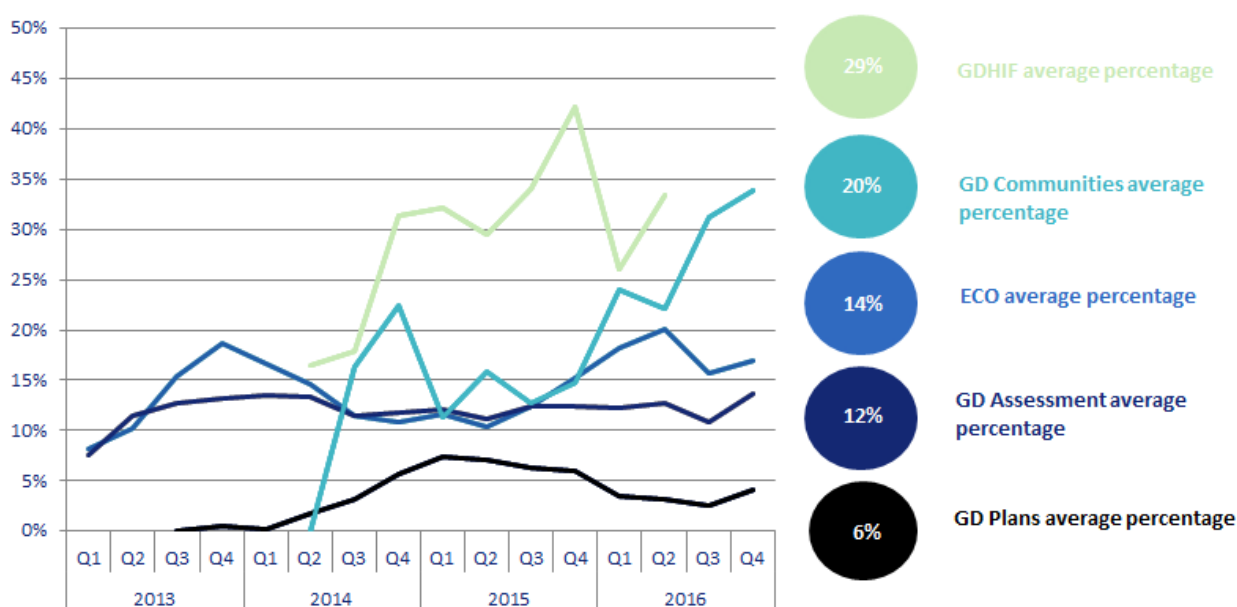
The tenure of properties with measures installed using Green Deal Communities funding (Table 3.5.2)

Around three-quarters (76 per cent) of properties that had installed measures using Green Deal Communities funding were owner-occupied. 20 per cent were in the private rented sector and four per cent were in the social rented sector (see Table 3.5.2). The high proportion of energy efficiency measures being installed in the private rented sector was partly due to the design of the Programme, with this specific intention.

Government scheme delivery in the private rented sector (Chart 5)

Around six per cent of households that had installed energy efficiency measures using GD Finance were in the private rented sector, compared with 12 per cent of households with a Green Deal Assessment, 14 per cent of ECO households, 29 per cent that used GDHIF and 20 per cent that used Green Deal Communities funding. This compares with around 19 per cent of housing stock in Great Britain²¹. A reason why the percentage of GDHIF private rented households was much higher is that GDHIF allowed landlords and tenants to directly apply for funding to undertake energy efficiency improvements. A reason this has increased over time (particularly in 2015) is that it could take landlords more time to arrange for work to be carried out; especially if they owned multiple properties and therefore GDHIF applications made in 2014 may only be installed in 2015, due to supply chain constraints and landlords getting permission/funding to carry out work at a later date.

Chart 5: Percentage of households receiving ECO, a GD Assessment, with a GD Plan or GDHIF or GD communities funded measure, in the private rented sector, by quarter



²¹ DCLG, Live tables on dwelling stock, by tenure, Great Britain Table 102 <https://www.gov.uk/government/statistical-data-sets/live-tables-on-dwelling-stock-including-vacants>

The Supply Chain

The supply chain to support the Green Deal (GD) developed in various ways since October 2012. This includes individual Advisors (who carry out and produce GDARs) and Assessor organisations (who employ authorised GD Advisors), GD Providers (who quote for and arrange GD Plans with customers), and Installer organisations (who install energy efficiency improvements under the GD finance mechanism).

The Supply chain (Table 3.4)

The number of accredited GD Assessor organisations decreased from 254 at the end of 2015 to 105 at the end of 2016. The number of active individual Advisors completing their training and becoming accredited also decreased from 3,191 to 2,043. The main reasons cited were non-renewal of membership, non-compliance and voluntary withdrawal. The number of GD Providers decreased from 172 to 170.

There were 1,387 Green Deal accredited installer organisations at the end of 2016; this was a 25 per cent decrease since the end of 2015. This decrease was due to the decision by some installer organisations to not renew their membership which was due for annual renewal, or due to installer organisations choosing to voluntarily exit, or withdrawal by certification body for non-compliance, or due to suspension/ceasing to trade. These organisations will provide a wide range of different measures and in different geographical locations

Supply chain operational coverage (Table 3.4.1)

The Green Deal Oversight and Regulation Body (ORB) produces publically available information on the supply chain, and the latest figures are available by using the search tool on the [ORB website](#). There is also information available on [contacts in local areas](#).

The ORB website holds self-reported operational coverage of GD Providers, Assessor organisations and Installers, by Local Authority, that they are expecting to operate within²². These figures are based on information submitted²³ to the ORB consumer search tool by a number of these participating organisations. These organisations operate in different geographical locations and provide a wide variety of offers to consumers. The geographical coverage of the number of active authorised participants²⁴ (excluding withdrawn and suspended participants) is available in Table 3.4.1.

²² Businesses are flexible and may travel further to other areas.

²³ GD accredited organisations are able to provide their operational coverage information onto the ORB consumer search tool on a voluntary basis. Some organisations have waited until they are ready to delivery GD services before providing their details. Separate entries have been submitted for each individual sub-division of an organisation which has its own certification ID.

²⁴ Individual Installers within an installer organisation do not need to register.

Section 4: Estimates of Home Insulation Levels in Great Britain

This section presents estimates of the number of homes in Great Britain (GB) with loft, cavity wall and solid wall insulation. It gives headline estimates for the number of insulated properties and sets out the remaining potential for insulation in properties in GB. Estimates of insulation levels have been re-based to April 2013 to reflect more up to date information available in the English and Scottish Housing Surveys. Full details on how these estimates are constructed, based on the new methodology, can be found in the [Methodology note](#).

Housing stock

The housing stock in Great Britain is made up of different types of properties, for example cavity wall and solid wall properties. It is important to understand the profile of the housing stock since different insulation measures are suitable for different property types.

At the end December 2016 there were:



Levels of insulation

Estimating levels of different types of insulation in the housing stock makes it possible to see progress to date and how much work there is left to do.

At the end of December 2016:

- 13.3 million properties had cavity wall insulation (69 per cent of properties with a cavity wall)
- 15.8 million had loft insulation (66 per cent of properties with a loft)
- 718,000 had solid wall insulation (eight per cent of properties with solid walls)

Progress over the last twelve months:

Taking into account retro-fit insulation delivered through Government schemes²⁵ and new properties²⁶ built with insulation during the last year, in December 2016 there were:

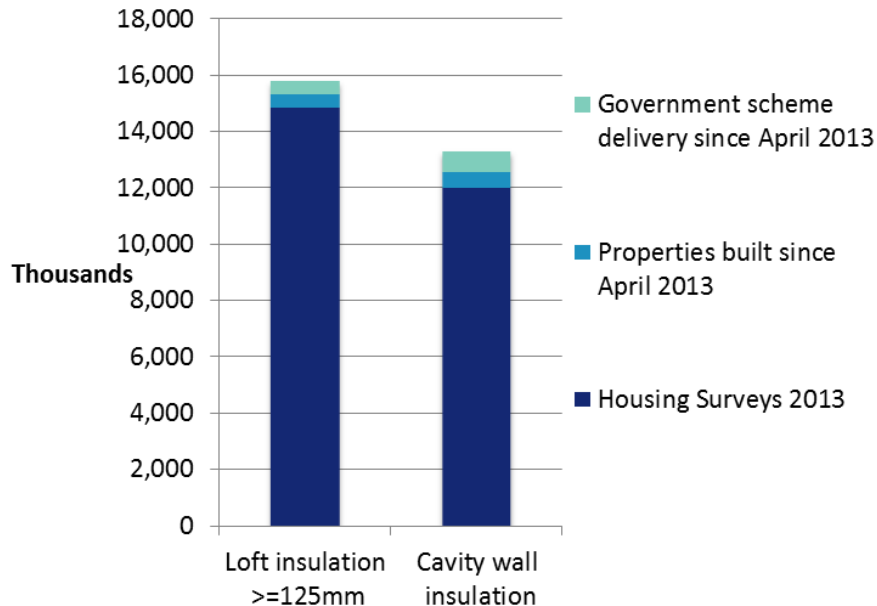
- 254,000 more homes with cavity wall insulation (a 2 per cent increase between the end of December 2015 and December 2016)
- 201,000 more homes with at least 125mm of loft insulation (a 1 per cent increase between the end of December 2015 and December 2016)
- 31,000 more homes with solid wall insulation compared with December 2015 (a five per cent increase between the end of December 2015 and December 2016)

Sources of increase in insulation levels

Increases in the number of properties with insulation result from new properties being built and from retro-fit insulation, predominately through Government schemes.

ECO has made the largest contribution of loft insulation, cavity wall insulation and solid wall insulation measures installed since April 2013.

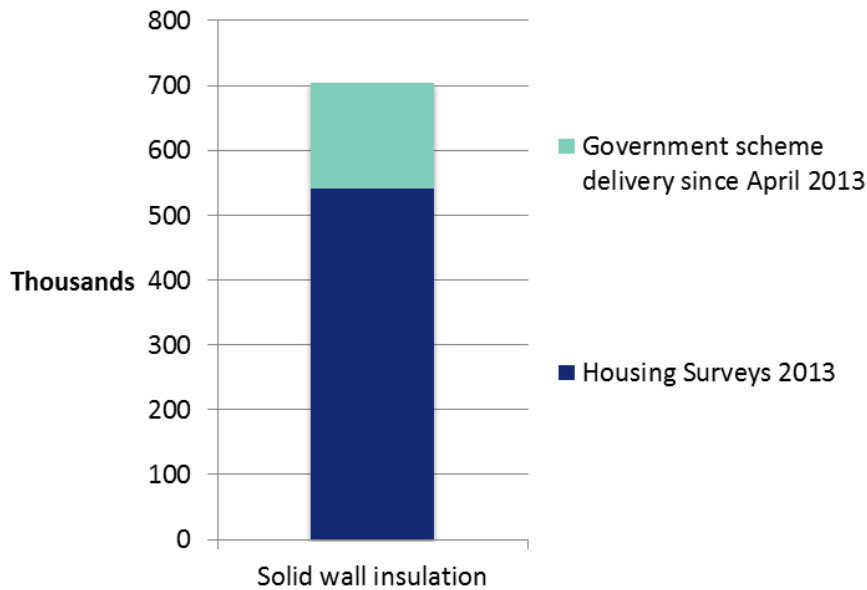
Chart 6: Number of homes in GB with cavity wall insulation and loft insulation by source, December 2016



²⁵ Insulation measures delivered in Scotland exclusively under the Green Homes Cashback scheme are excluded from the figures.

²⁶ Information is not available on the wall construction of new homes. Typically building regulations would be met by insulated cavity walls but other construction types could be used. In this publication it is assumed that all new builds since April 2013 have cavity wall insulation. It is estimated around 162,560 new builds were completed in 2016. DCLG, Live tables on house building, by country (Tables 212 to 215) <https://www.gov.uk/government/statistical-data-sets/live-tables-on-house-building>

Chart 7: Number of homes in GB with solid wall insulation by source, December 2016

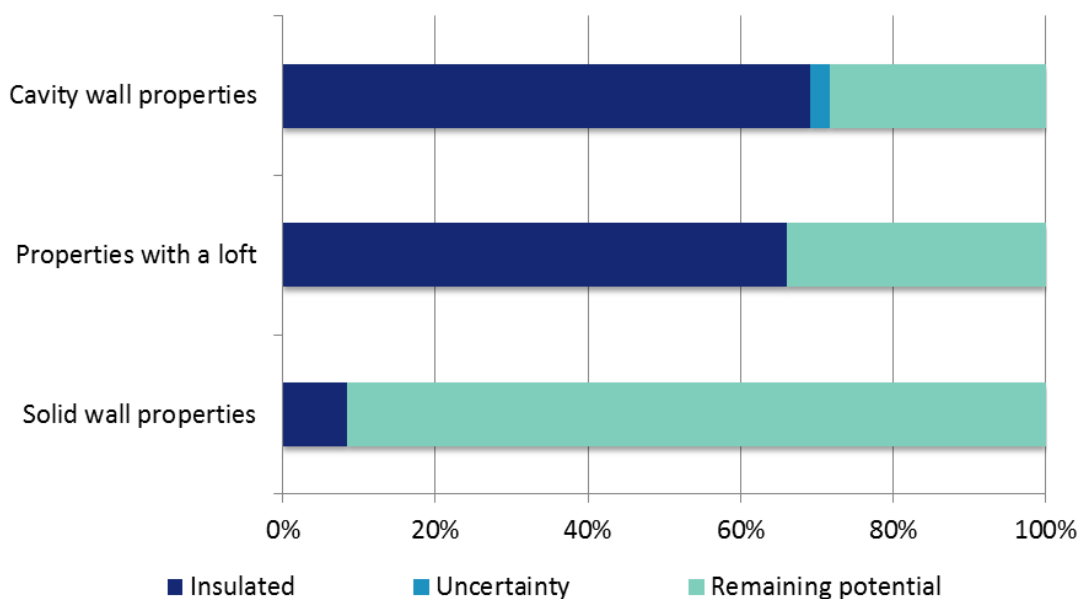


Remaining potential

A key use of these estimates for BEIS is to identify homes that have the potential to receive cavity wall, loft and solid wall insulation in the future to aid the design of future policies.

Chart 8 give a summary of the remaining potential for insulating properties in GB. It shows around two-thirds of properties with cavity walls (69 per cent) and properties with a loft (66 per cent) are insulated. In comparison only eight per cent of properties with solid walls are insulated.

Chart 8: Remaining potential to insulate the housing stock in GB, end December 2016



Historical figures and more detailed breakdowns of remaining potential figures are available in Table 4.4, 4.5 and 4.6 of the accompanying [Excel tables](#).

Cavity wall insulation

It is estimated that at the end of December 2016 there were 13.3 million homes with cavity wall insulation (69 per cent of homes with cavity walls). Of the 5.4 million homes without cavity wall insulation, 4.1 million are easy to treat standard cavities, and 1.3 million are hard to treat²⁷ (including standard cavity wall property with issues such as structural faults or presence of a conservatory, creating access issues and some unfillable cavity walls). There are around 0.5 million properties which may or may not have cavity wall insulation (Chart 6, Table 4.4).

Loft insulation

In this publication lofts are defined as insulated if they have 125mm or more of insulation. Lofts with less than 125mm of insulation are defined as uninsulated as they would benefit most from top up insulation.

At the end of December 2016 it is estimated that there were 8.1 million uninsulated lofts (34 per cent of homes with lofts). Of these, around 5.8 million of these homes require easy to treat loft insulation and 2.3 million are considered to be hard to treat or unfillable which means the loft would be hard/costly to insulate or could not be insulated. This can occur in properties with a flat roof, room in roof properties, or in properties where the roof has a very shallow pitch which makes the loft space inaccessible. (Chart 6, Table 4.5).

Solid wall insulation

It is estimated that at the end of December 2016 there were 7.8 million uninsulated solid walls (92 per cent of homes with solid walls), with around 718,000 with solid wall insulation in GB. Prior to 2013, Government schemes have focused on insulating homes with cavity walls due to the costs involved with insulating solid wall properties; however in recent years with policies such as ECO, the focus has switched to harder or more expensive to treat properties, including solid wall properties. Of the remaining potential it may not be possible to insulate all uninsulated solid wall properties, it is likely that some of these will be too costly to treat or be within conservation areas and will therefore never be insulated. Solid wall insulation has been defined throughout this report as internal or external wall insulation installed through Government programmes.

²⁷ Hard to treat cavities are ones that are more difficult or more expensive to fill than standard cavities. This includes properties with a narrow cavity, and properties of either concrete or metal frame construction. The definition of hard to treat used in this publication is based on the definition used in the 2013 Housing Surveys. The ECO definition of hard treat differs from this definition slightly as it also includes partial fill cavities and cavity wall properties over three storeys (compared to over four) and excludes some cavities which assessors would not be able to identify as hard to treat, such as properties with high exposure to wind and rain.

Annex A – Background

Energy Company Obligation

The [Energy Company Obligation](#) (ECO) started on 1 January 2013 (although energy companies were able to count measures delivered since 1 October 2012, against their targets) and ran to 31 March 2015 for the ECO 1 period. ECO 2 commenced from April 2015 and is set to run until 31 March 2017. It broadly takes over from two previous schemes (Carbon Emissions Reduction Target - CERT - and Community Energy Saving Programme - CESP) and focuses on providing energy efficiency measures to low income and vulnerable consumers and those living in 'hard-to-treat' properties.

There are three main ECO obligations – The Carbon Saving Target (CERO); Carbon Saving Communities (CSCO) and Affordable Warmth (also known as The Home Heating Cost Reduction Obligation HHCRO):

Carbon Saving Target – This covers the installation of measures like solid wall and hard-to-treat cavity wall insulation, which ordinarily can't be financed solely through GD Plans.

Carbon Saving Communities Obligation – This provides insulation measures to households in specified areas of low income. It also makes sure that 15 per cent of each supplier's obligation is used to upgrade more hard-to-reach low-income households in rural areas.

Affordable Warmth Obligation – This provides heating and insulation measures to consumers living in private tenure properties who receive particular means-tested benefits. This obligation supports low-income consumers who are vulnerable to the impact of living in cold homes, including the elderly, disabled and families.

On 30 January 2017 BEIS published the [response to the ECO: Help to Heat consultation](#) (which ran from 29th June 2016 to 17th August 2016). This covered the future ECO scheme which will follow the end of ECO 2 (on 31 March 2017). Key policy decisions made include:

- An 18 month extension to the ECO scheme (April 2017 – September 2018).
- Introduction of a more simplified and targeted scheme. The Affordable Warmth Group will be increased to around 4.7m rather than 4m households. This will include more households who are in fuel poverty, and those on lower incomes, who may be struggling to meet heating and other bills;
- eligibility for certain measures under Affordable Warmth will be extended to social housing in EPC bands E, F or G;
- Local authorities will have a role in determining eligible homes, following the introduction of the 'flexible eligibility' mechanism, which suppliers can use for up to 10% of their Affordable Warmth obligation;
- The requirement to deliver a minimum level of solid wall insulation will be increased from the proposed equivalent of 17,000 measures per year to 21,000 per year;

-
- Rural delivery will be protected as 15% of Carbon Emission Reduction Obligation will be delivered in rural areas.
 - Administration will be simplified. 'Deemed scores' will be introduced in place of the current Standard Assessment Procedure (SAP) methodology.

ECO Brokerage

The [ECO Brokerage](#) system operates as a fortnightly anonymous auction where GD Providers can sell 'lots' of future measures of ECO Carbon Saving Obligation, ECO Carbon Saving Communities and ECO Affordable Warmth, to energy companies in return for ECO subsidy. New lot types have been introduced over time to reflect changes to the policy.

This market-based mechanism is to support an open and competitive market for the delivery of the ECO. Brokerage allows a range of GD Providers to fairly compete on price to attract ECO support and enables energy suppliers to deliver their obligations at the lowest possible cost, thereby reducing the impact on customer energy bills.

Sellers (GD Providers) can make a competitive offer on brokerage by leveraging additional sources of finance, such as part funding measures through GD Finance, partnerships with local authorities, or driving down costs by economies of scale.

ECO delivery costs

ECO delivery costs are reported by obligated energy suppliers following each reporting quarter.

ECO delivery costs are defined as the cost of installing an ECO measure in a property. This includes the costs of technical monitoring, cost of assessment, costs involved with searching for ECO properties, installation costs and marketing costs by delivery partners involved with promoting the ECO obligations. Administrative costs are not included in delivery costs.

In addition, **administrative costs** are collected from suppliers and include: reporting and compliance, own marketing and direct administrative costs (such as development of IT / reporting systems to support delivery of the scheme). Figures up to the end of December 2016 show aggregate expenditure of £318m. Suppliers make returns on delivery and administrative costs at the end of the month following each reporting quarter.

Full definitions on ECO costs are included [here](#).

Green Deal

The [Green Deal](#) (GD) was launched on 28 January 2013 in England and Wales (and on 25 February 2013 in Scotland) with the aim of tackling a number of the key barriers to the take-up of energy efficiency measures.

Customers having GD Assessments undertaken have the choice of how they proceed. They might take the view that their home is sufficiently energy efficient, or that they wanted to finance work through a GD Plan or that they wanted to use alternative funding arrangements (e.g. use of savings).

On 23 July 2015 it was [announced](#) that there will be no further public funding to the Green Deal Finance Company. This decision had no impact on existing GD Finance Plans in the system so these continued to progress. On 15 January 2017 it was [announced](#) that the business and assets of the GDFC, as well as its existing loan book, had been acquired by a private investor. This will again mean that consumers will be able to choose GD Plans as a route.

A brief description of how the GD process works is shown below:

Step 1 – Assessment – A GD Assessor will come to the home, talk to the owner/occupier about their energy use and see if they can benefit from making energy efficiency improvements to their property.

Step 2 – Recommendations – The GD Assessor will recommend improvements that are appropriate for the property and indicate whether they are expected to pay for themselves through reduced energy bills.

Step 3 – Quotes – GD Providers will discuss with the owner/occupier whether a GD Plan is right for them and quote for the recommended improvements, including the savings estimates, savings period, first year instalments and payment period for each improvement. A number of quotes can be obtained.

Step 4 – Signing a Plan – The customer chooses to proceed with a given provider and package of measures. The owner/occupier needs to obtain the necessary consent to make improvements to the property before they can agree terms with the GD Provider of a GD Plan²⁸, at which stage they enter a cooling-off period²⁹.

Step 5 – Installation – Once a GD Plan has been agreed, the Provider will arrange for the improvements to be made by a GD Installer. Once the installation has been completed a letter is sent to the Bill Payer and, at this stage, the GD Plan goes 'live'.

²⁸ The Plan is a contract between the owner/occupier and the Provider – it sets out the work that will be done and the repayments.

²⁹ For example, in the case of a GD Plan that is regulated by the Consumer Credit Act 1974, the consumer will have 14 days to withdraw from the part of the GD Plan which provides credit.

Step 6 – Payment ends - ‘live’ GD Plans can be paid off before their expected last payment date. These are known as ‘completed’ GD Plans.

Repayments will be no more than what a typical household should save in energy costs.

Following a GD Assessment there have been a range of delivery mechanisms which could be used to improve the energy efficiency of the property. Using record level data matching we have estimated the number of households that have benefitted from energy efficiency installations through more than one delivery mechanism. Full details of this are available in the accompanying [Methodology note](#).

Green Deal Home Improvement Fund

On 23 July 2015 it was [announced](#) that there will be no future funding releases of the Green Deal Home Improvement Fund (GDHIF).

The GDHIF was an incentive scheme open to all householders in England and Wales wanting to improve the energy efficiency of their homes. The scheme allowed householders to choose one or both of two offers and they were eligible to claim up to £7,600. Householders could also claim a refund of up to £100 for a GDAR. GDHIF release 1 closed to new applicants at 6:30pm on 24 July 2014. GDHIF release 2 commenced on 10 December 2014 (and closed to new Solid Wall Insulation applicants on 11 December 2014) and GDHIF release 3 commenced on 16 March 2015 (and closed to new Solid Wall Insulation applicants on 26 March 2015) and closed for the “two-measure” offer on 30th September 2015. The scheme closed down in June 2016. A number of different separate Cashback schemes operated in Scotland (see [website](#) for the latest statistics).

Green Deal Communities

Twenty-three areas in England (covering 98 individual Local Authorities) received £85 million to help deliver the Government’s Green Deal home energy efficiency programme. The Green Deal Communities scheme was in operation from April 2014 until September 2016³⁰.

Participating areas have installed a range of energy efficiency measures, including solid wall insulation, and other insulation and heating measures. Many areas are providing funding to householders in rural areas, to the private rented sector and in fuel poverty.

³⁰ Some installations were until end of November 2016.

The Green Deal Communities are:

- Ashfield
- Bath & North East Somerset
- Bracknell
- Bristol Consortium
- Broadland Consortium
- Cambridgeshire
- Dartford Consortium
- East Hampshire Consortium
- Eastleigh Consortium
- Haringey Consortium
- Harrow
- Leeds Consortium
- Lewisham Consortium
- Greater Manchester
- Nottingham
- Nuneaton & Bedworth Consortium
- Peterborough
- Plymouth
- South Buckinghamshire Consortium
- Suffolk
- Telford & Wrekin
- Woking and Surrey Consortium
- Worcestershire

The accompanying [Methodology note](#) includes a full list of the participating Local Authorities.

The Supply Chain

To understand more about the organisations and infrastructure underpinning the GD, this report also includes a section summarising the number of GD Advisors (and Assessor organisations), the number of GD Providers and the number of GD Installer organisations.

Property Characteristics

Information relating to the characteristics of properties getting GD Assessments is taken from the Energy Performance Certificate relating to the GD Assessment. Properties can be built in a large variety of configurations. A basic division is between free-standing or single-family houses and various types of attached or multi-user properties. Both sorts may vary greatly in scale and amount of accommodation provided. Many variations are purely matters of style rather than spatial arrangement or scale.

Energy Efficiency Rating

The Energy Efficiency Rating (EER) is presented in an A-G banding system for an Energy Performance Certificate, where Band A rating represents low energy costs (i.e. the most efficient band) and band G rating represents high energy costs (the least efficient band).

The EER bands based on SAP³¹ are:

- Band A (92 plus)
- Band B (81-91)
- Band C (69-90)
- Band D (55-68)
- Band E (39-54)
- Band F (21-38)
- Band G (1-20)

Insulation statistics

The following types of insulation which are included in the estimates of home insulation levels.

Cavity wall insulation

Many homes built in GB have external walls made up of an inner and outer wall with a small cavity in between. These have been typical since the 1930s, but some older properties will also have them. Cavity walls were used initially because they were cheaper (as the inner leaf could use non-decorative brick) and had a greater resistance to moisture moving from outside to inside. The presence of a cavity also improves the thermal performance of the wall, especially if the cavity is insulated. Since the mid-1980s, homes have been increasingly built with pre-insulated cavity walls, though the type of blockwork used for the inner leaf has also contributed to the improved thermal performance required by Building Regulations.

Loft insulation

Some loft insulation has been installed in new homes since 1965. Current building regulations for new homes require a roof to have a thermal transmittance (U-value) of at least as low as 0.13 W/m².K, which would typically be achieved with 300mm of loft insulation. There is a strong 'diminishing returns' effect with savings from increasing the depth of loft insulation, so the first inch gives about half the savings from full insulation. Therefore, a threshold of 125mm is used in these statistics since homes with less than this would expect to see significant improvements in energy efficiency from a top-up.

³¹ Information on the Standard Assessment Procedure can be found here <https://www.gov.uk/standard-assessment-procedure>

Solid wall insulation

It is possible to improve the thermal performance of solid walls by adding insulation either internally or externally. There is a wide variety of technical solutions that can be used to insulate either the internal or external face of the wall. Current building regulations require a target U-value of 0.35 W/m².K to be reached if this modification to the wall is made. It is likely that installations of solid wall insulation before 2002 (i.e. before the first phase of the Energy Efficiency Commitment) may not achieve this level of thermal performance, so these are recorded separately in the statistics.

Annex B – Sources and Methodology

More information on the methodology is included [here](#).

Green Deal and ECO data sources

Administrative data generated as part of ECO and GD processes is used for this statistical release.

The following are the main sources of information:

- Landmark – who manage the national lodgement of GD Assessments in England and Wales
- Energy Savings Trust (EST) – who manage the national lodgement of GD Assessments in Scotland
- Green Deal Central Charge Database – which manages the recording and administration of GD Plans
- Ofgem – who administer the Energy Company Obligation (ECO) and collect information from energy companies on measures installed under ECO.
- Data on ECO brokerage is publically available following each auction.
- The Green Deal Oversight and Regulation Body (ORB) – who administer the certification of GD organisations (including assessors, installers and providers)
- Capita – who administered the [Green Deal Home Improvement Fund](#)
- Green Deal Communities – Lead Local Authority areas submitted data returns with record level information on properties having energy efficiency assessments and measures installed.

This report uses data from Landmark and the Energy Savings Trust (Scotland) for numbers of lodged Assessments and on measures installed using GD finance, data from the Central Charge Database on GD Plans, data from Capita on vouchers issued and measures installed under the GDHIF, data from Ofgem on ECO measures and available data on ECO brokerage, data from the ORB for the supply chain, and data from Lead Local Authorities on Green deal Communities.

Revisions

All data in this release should be treated as provisional and subject to revision.

On occasions, previously published data will need to be revised due to changes to source data, methodology or correcting of errors. Explanation will be provided for any significant revisions.

Annex C - Household Energy Efficiency schemes

This section of the report presents activity levels on the Energy Company Obligation (ECO) and Green Deal (GD) between January 2013 and December 2016 alongside figures on Feed-In Tariffs installations, Renewable Heat Premium Payment voucher redemptions, and on Smart Electricity and Gas Meter installations that have been previously published in their own statistical releases.

ECO and the Green Deal

It is estimated that around 1,628,200 households benefitted from ECO between January 2013 and December 2016. Around 14,700 households installed measures and received money from the Cashback scheme, around 13,800 households had funded measures through GD Finance Plans, 35,300 households had funded measures through GDHIF and 15,600 households had measures funded under the Green Deal Communities. There is a small amount of double counting between these mechanisms (around 23,900 households). For the latest statistics please see the latest [Headline release](#).

Feed-In Tariffs

The Feed-in Tariff (FITs) scheme was launched in April 2010 and is a financial support scheme for eligible low-carbon electricity technologies, aimed at small-scale installations with a capacity of less than 5 megawatts (MW). FITs support new anaerobic digestion (AD), solar photovoltaic (PV), small hydro and wind, by requiring electricity suppliers to make payments (generation tariffs) to these generators based on the number of kilowatt hours (kWh) they generate. An additional guaranteed export tariff is paid for electricity generated that is not used on site and exported to the grid. The scheme also supports micro combined heat and power installations with an electrical capacity of 2 kW or less.

The majority of the installations installed under FITs are in the domestic sector (96 per cent) but as these tend to be smaller in size, the capacity of domestic schemes makes up 49 per cent of the total capacity installed under FITs. The majority of the domestic schemes are solar PV (99 per cent).

Between January 2013 and the end of December 2016, 413,544 domestic installations were confirmed onto the Central FIT Register. The total number of domestic installations confirmed onto the FIT scheme by the end of December 2016 was 758,652.

Renewable Heat Premium Payment

Renewable Heat Premium Payment (RHPP) scheme was introduced as an interim measure in the absence of the domestic Renewable Heat Incentive (RHI). It was designed to support the uptake of domestic renewable heat and maintain the supply chain, to learn about renewable heat technologies and the way consumers use them to better shape the domestic RHI policy and contribute to the renewable energy target. The scheme encompasses three components: the householder's scheme, social landlord competition and community's scheme. These components were designed to give greater coverage across the different parts of the housing market.

Householders' scheme

The RHPP scheme distributed vouchers as a one off grant to eligible applicants installing renewable heating systems to offset some of the cost of installation. The technologies supported were: ground and water source heat pumps, air-to-water heat pumps, solid biomass boilers and solar thermal systems. There were three phases, run over three financial years; Phase 1 ran from the 1 August 2011 to the 31 March 2012, Phase 2 opened on the 1 May 2012 and closed on the 31 March 2013 and Phase 2 Extension opened on the 1 April 2013 and officially closed on the 31 March 2014. The RHPP scheme was succeeded by the domestic RHI scheme which launched on 9 April 2014. Information on homes benefiting from the domestic RHI is included below.

Between January 2013 and September 2014 (end of scheme), 8,991 vouchers were redeemed under phase 2 or phase 2 extension.

A total of 15,364 vouchers had been redeemed under all phases of the Renewable Heat Premium Payment voucher schemes – 5,230 under Phase 1, 5,315 under Phase 2, and a further 4,819 under Phase 2 Extension.

Solar Thermal and Air Source Heat Pumps are the most popular technologies in all phases, accounting for over two thirds of redeemed or claimed vouchers in total. Social landlord competitions

The social landlord competitions were designed to accelerate the deployment of renewable heating technologies in the social housing sector. Registered Providers of social housing were invited to bid for grants to support projects installing eligible renewable heating systems.

Since August 2011, seven social landlord competitions have been run, of which five have concluded with 3,763 renewable heating systems being installed in tenants' homes via £10 million in grants to social landlords across Great Britain (GB).

Communities scheme

DECC launched the Renewable Heat Premium Payments Communities Scheme on 24 July 2012. The scheme was a funding mechanism to assist communities in England, Wales and Scotland to support domestic renewable heat installations in privately owned homes.

Twenty eight community groups, representing 31 projects, received £910,809 in grant funding towards the cost of installing the renewable technology. From this, 365 renewable heating technologies were installed.

Domestic RHI

The domestic Renewable Heat Incentive (RHI) is a financial incentive scheme introduced to encourage a switch to renewable heating systems in the domestic sector. Launched on the 9 April 2014 in GB, participants of the scheme receive tariff payments for the heat generated from an eligible renewable heating system which is heating a single property. The scheme covers single domestic properties and is open to owner-occupiers, private landlords, social landlords and self-builders. There are four renewable heating technologies covered by the scheme - Air-source heat pumps; Ground and water-source heat pumps; Biomass-only boilers and biomass pellet stoves with integrated boilers; and Solar thermal panels.

Up until the end of December 2016, 52,847 systems have been accredited to the scheme³². These data refer to installations accredited to the legacy and new domestic RHI. "New" installations refer to applications for systems installed after the launch of the domestic RHI scheme on 9 April 2014. "Legacy" refers to all applications for systems installed before the launch of the domestic RHI scheme on 9 April 2014. Some legacy installations also claimed RHPP vouchers, so there will be some overlap with the numbers installed under the Renewable Heat Premium Payment.

Smart Meters

The rollout of smart meters³³ is one of the largest and most complex engineering infrastructure Programmes within the EU. The strategic aim of the programme within GB is to rollout over 50 million smart electricity and gas meters to all domestic households by 2020. This will impact approximately 30 million properties.

³² This is based on data to the end of January 2017.

³³ The definition of a 'Smart Meter' is an electricity or gas meter that is compliant with the [Smart Meter Equipment Technical Specification \(SMETS\)](#) and has functionality such as being able to transmit meter readings to suppliers and receive data remotely. Each larger energy supplier reports the number of smart meters it has installed and is operating in smart mode to BEIS. This includes both meters that are SMETS compliant and those they expect to upgrade to become SMETS compliant. Some smart meters currently installed will need to receive updates before they are fully SMETS compliant.

Smart meters are the next generation of electricity and gas meters and offer a range of intelligent functions. Consumers will have near real time information on their energy consumption to help them control and manage their energy use, save money and reduce emissions. Smart meters will also provide consumers with more accurate information and bring an end to estimated billing. Further information can be found on the gov.uk website. By end September 2016³⁴, there were over 4.89 million smart and advanced meters operating across homes and businesses in Great Britain, by both large and small energy suppliers.

³⁴ Smart Meters statistics to the end December 2016 will be published on 30 March 2017.



National Statistics

This is a National Statistics publication.

The United Kingdom Statistics Authority has designated these statistics as National Statistics, in accordance with the Statistics and Registration Service Act 2007 and signifying compliance with the UK Statistics Authority: Code of Practice for Official Statistics. The Statistics Authority published its report on 12 June 2014:

<http://www.statisticsauthority.gov.uk/assessment/assessment-reports/index.html>.

Designation can be broadly interpreted to mean that the statistics:

- meet identified user needs
- are well explained and readily accessible
- are produced according to sound methods, and
- are managed impartially and objectively in the public interest

Once statistics have been designated as National Statistics it is a statutory requirement that the Code of Practice shall continue to be observed.

Accompanying tables

All accompanying tables for this statistics release are located [here](#).

Methodology Note and Background Quality Report

The methodology note and background quality report summarising the methodology used to produce estimates for this statistical series and to summarise the quality assurance of these statistics, can both be found here:

<https://www.gov.uk/government/statistics/household-energy-efficiency-statistics-methodology-note>

Next Releases

The next Headline release on the gov.uk website is planned for publication at 9.30am on **20 April 2017** and will contain the latest available information on headline ECO measures only.

The next detailed (annual) report, including the next update on home insulation levels, will be published on **22 March 2018**.

