



Methodology Note

Methodology note accompanying headline and detailed National Statistics releases on the domestic Green Deal, Energy Company Obligation and Home Insulation Levels in Great Britain.

17 September 2015

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This note summarises the methodology used to produce estimates published in the headline and detailed [National Statistics releases](#) on the domestic Green Deal (GD) and Energy Company Obligation (ECO). It also summarises the methodology used to estimate the levels of home insulation in Great Britain, which is published in the regular detailed releases.

This methodology note is intended to help users understand the assumptions made in the compilation of these statistics and some of the limitations of the data sources.

This methodology note is regularly reviewed and updated to reflect additions, and changes to the reporting of the headline and detailed National Statistic series.

The statistics related to this methodology note have been assessed by the UK Statistics Authority against the Code of Practice for National Statistics. The Statistics Authority published its report on 12 June 2014:

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

The Statistics Authority has determined that these statistics can be designated as National Statistics following the implementation of a number of actions detailed in this methodology note (first addressed in the methodology note released on 23 September 2014). This includes documentation on the needs of users, improving methodology on assumptions, assessing risks to use of admin data, improving clarity and linkages between the range of statistics produced and review data release formats.

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Any enquiries or comments in relation to this statistical release should be sent to DECC's Green Deal Statistics Team at the following email address: EnergyEfficiency.Stats@decc.gsi.gov.uk

Contact telephone: 0300 068 5106

This document is also available from our website at:

<https://www.gov.uk/government/collections/green-deal-and-energy-company-obligation-eco-statistics>

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Summary of data sources

The estimates use administrative data generated as part of the Green Deal and Energy Company Obligation processes. In addition, the estimates of home insulation levels use data contained within the national housing surveys and published by the Department for Communities and Local Government to build up an overall picture of the housing stock in Great Britain.

There are a number of sources of administrative data used to produce these statistics – each report will state which sources have been used, based on the content being included:

- Landmark – who manage the national lodgement of Green Deal Assessments in England and Wales
- Energy Savings Trust Scotland (EST) – who manage the national lodgement of Green Deal Assessments in Scotland
- Green Deal Central Charge Database – which manages the recording and administration of Green Deal Plans
- Ofgem – who administer the Energy Company Obligation (ECO) and collect information from energy companies on measures installed under ECO.
- The Green Deal Oversight and Regulation Body (ORB) – who administer the certification of GD organisations (including assessors, installers and providers)
- Data on ECO brokerage is publically available following each auction.
- Capita – who administer the Green Deal Cashback Scheme and the [Green Deal Home Improvement Fund](#)
- Energy Savings Trust (EST) – who run the telephone Energy Saving Advice Service (ESAS) offering impartial energy-saving advice to homes in England and Wales
- National housing surveys – which collect data on the housing stock in England, Wales and Scotland
- Department for Communities and Local Government (DCLG) – which produce information on the number of properties in the housing stock and new builds
- Inbuilt – a report produced by Inbuilt is used to inform estimates on the number of hard to treat cavity wall properties in the housing stock

After appropriate quality assurance, DECC uses the data from these data sources to produce the headline and detailed estimates included in National Statistics releases.

We will continue to update the detail on each part of the methodology as we publish more information in the headline and detailed National Statistics releases.

In addition, the statistics on insulation levels which make use of National Statistics from national housing surveys/other data sources rely on the data quality assurance processes as published by the producing departments.

Data quality of data sources

The administrative data sources listed on Page 6 are all subject to a range of data quality checks employed by both data providers and DECC to ensure that data are as fit for purpose as possible. These checks are summarised below:

Landmark / Energy Savings Trust Scotland (EST)

Landmark manages the Energy Performance of Buildings Register and GDAR register in England and Wales, and Energy Savings Trust Scotland (EST) – manage the equivalent registers for Scotland properties.

The data quality of Energy Performance Certificates (EPC) is governed by DCLG, who issued revised [Scheme Operating Requirements](#) (SORs) for producers of EPCs. These requirements, effective from 1 July 2012 are to be implemented by ALL Certification Bodies to ensure and maintain consistency.

The revised SORs set out the audit and associated requirements for Energy Assessors. All assessors must sign up to the code of conduct. SORs describe actions all schemes must take if Code of Conduct failures are revealed during Quality Assurance activity.

In addition, all Accreditation Schemes are regularly audited by independent auditors, appointed by DCLG against SORs to make sure that they work to a minimum standard. Failure to comply with SORs will result in corrective measures imposed on them in form of Disciplinary Notices and may result in eventual withdrawal of Secretary of State approval to operate as an Accreditation Scheme.

All assessors must declare complaints received from customers and others to the scheme or schemes, who will be obliged to investigate.

A minimum of 2% of all EPCs will be randomly selected for audit. In addition:

- All assessors will be subject to a minimum check of 1 EPC or Display Energy Certificate (DEC) per 6 months (unless no certificates have been lodged within that 6 month period);
- All new registrants will be assessed within 30 days of joining the scheme, or if no certificates issued within the 30 day period the first certificate will be assessed;

Assessors must provide the information requested within 3 working weeks of the request or have a clear reason for not complying with the request. Any energy assessor who fails to provide complete information will be suspended by their scheme.

Any audit failures should be judged to be correct if the absolute rating is either 5% of the rating calculated by the Quality Assurance (QA) Audits or within 5 absolute points. Any DEC that fail an audit will be replaced. It will also trigger a request for a further two certificates to be submitted for audit. There will be a charge for each additional QA check required subject, within reason, to the level of complexity.

If either of the additional certificates fails its QA checks the energy assessor must be suspended or asked to complete further training.

Accreditation bodies are also required to impose additional QA audits for other reasons including, excessive use of helpdesks, complaints from clients, high lodgements or "where a scheme forms a view, for whatever reason, that a particular energy assessor may be at high

risk of providing an erroneous certificate, the auditing of an energy assessors work should be brought forward to the next available certificate, and depending on the level of risk the sampling rate of that persons work should be increased".

Energy Assessors can be suspended or removed from the scheme at any time for failing a QA audit, typically for not supplying requested audit information, transgression of the code of conduct, failing to replace an EPC, DEC or Advisory/Recommendation report when requested to do so, or as the result of an upheld complaint, in such cases the notice of suspension or removal from a scheme is required to be sent to all other scheme operators and DCLG.

Summary of evidence required for QA audits of EPCs include:

- Data file and/or software data collection forms, relating to information used by Energy Assessors to calculate an EPC
- Design Floor plan, elevations, sections etc. which allows the EPC to be recalculated
- Site notes - paper or electronic file
- Minimum photographic and documentary evidence for existing premises (where practical)
- Supplementary calculations undertaken by the assessor
- Any other evidence required to justify the suppression or inclusion of additional recommendations

Green Deal Central Charge Database

The Green Deal Central Charge database is used by electricity suppliers and Green Deal Providers and was established under the Master Registration agreement (MRA). Gemserv are the service provider to the MRA Service Company (MRASCo) and have the role of ensuring that the required changes to the MRA to support the implementation of the Green Deal are carried out. A key part of the changes involves establishing the necessary framework and making the required amendments to the MRA and its associated products. Gemserv carried out an open Invitation To Tender (ITT) seeking a company to develop, build, test, implement and then maintain a Green Deal Central Charge (GDCC) database. The GDCC records and stores Green Deal Plan charge data that will facilitate the collection and remittance of Green Deal payments in Green Deal Plans. The database contains all financial information and controls the information/data flows which are required as part of the Green Deal. There are a large number of data checks to ensure that GD Plan data is accurately registered and can be accessed by the relevant participants. This database is mainly used to determine the Green Deal Plan Record Statuses. The GDCC provides for a status flag in relation to the Green Deal Plan record and has logical rules regarding status transition. So for example, for a Green Deal Plan to be "LIVE" there is a check to ensure the Green Deal Charge information has been sent to the Green Deal Licensee and the Green Deal Licensee has confirmed that the Supplier Verification has been successful in relation to that request. A full list of the agreed procedures for the Green Deal Central Charge database can be found [here](#).

The functions of the GDCC Database permit:

- Registering of a Green Deal Plan;
- Recording of relevant data for each Green Deal Plan;
- Updates to relevant data by organisations, including the validation of such data;
- Information exchange between relevant GDCC users, which information shall include confirmations and rejections as well as data exchange;
- Access to data records, flows, logs and any other relevant information as may reasonably be expected or required under any audit pursuant to the MRA

Ofgem

Ofgem undertake comprehensive validation checks on the ECO measures reported by energy suppliers in the month following receipt of data. These include data correction or completion of missing information. A number of minor changes and amendments are received by DECC, in the processed data a month after having received the unprocessed (unchecked) data. Ofgem also undertakes technical monitoring, longer-term audits that are completed over the obligation period to verify the installation of the measures, the quality of installations and to ensure compliance with the ECO guidelines. These involve further scrutiny of measures installed which may also involve site visits to properties. DECC receives another cut of data (which contain further checks and amendments) at six-monthly intervals.

Green Deal Oversight and Regulation Body

The Green Deal Oversight and Registration Body (GD ORB), manages the authorisation scheme for participants in the Green Deal and is responsible for a number of functions aimed at providing effective administration and oversight of the scheme.

The GD ORB is responsible for maintaining a register of all authorised Green Deal Providers, Certification Bodies, Assessors and Installers; maintaining the Green Deal Code of Practice and controlling the use of the Quality Mark; on-going monitoring of Green Deal Participants against the Code of Practice; and gathering evidence of non-compliance and referring participants to the Ombudsman or the Secretary of State where appropriate and imposing sanctions when directed. The ORB's checks can lead to an organisation's authorisation being suspended and / or withdrawn, or organisations can voluntarily withdraw (e.g. by not renewing their certification).

ECO brokerage

The Crown Commercial Service hosts an e-auction online platform that allows energy companies to bid in real-time between 9.00 - 12.00 and 13.00 - 16.00 on each auction day. Information on [ECO brokerage](#) is collated as part of the administrative system of the ECO brokerage platform. This records all bids, and the amounts for those successful bids.

Capita

When the Cashback scheme was still in operation, Capita under contract to DECC verifies Cashback data by ensuring that all redemptions are accompanied with a GDAR/EPC, and also checks to confirm that the measures which are being applied for appear as recommended measures on their GDAR/EPC. DECC did further checks on Cashback vouchers redeemed by making comparisons with the Landmark dataset to ensure that a valid Green Deal Advice Report (GDAR) has been lodged. Any issues resulting from this validation check were investigated by Capita.

A similar checking process is also conducted by Capita in relation to the Green Deal Home Improvement Fund (which they also administer). The main difference is that only an EPC is required. Also if the application is claiming for a GDAR refund, or home buyers bonus premium then additional checks are undertaken by Capita to ensure a GDAR has been lodged and that the home was bought within the last 12 months, by checking against the land registry.

DECC's assessment of the quality and comprehensiveness of the number of measures not captured by administrative data sources is detailed on pages 21-23 of this note.

Users/uses of the report

Statistics publication in the headline release (currently published monthly) are used by analytical and policy colleagues in DECC to monitor the roll-out of the GD/ECO policy through regular, quality assured figures. Detailed GD/ECO statistics include breakdowns that have particular relevance to specific policy areas. Both series are also used by Cabinet Office and HM Treasury to monitor the GD/ECO programme.

There has been considerable media coverage and Parliamentary interest in GD/ECO since the schemes began in early 2013. The routine publication of these statistics following National Statistics guidelines has allowed reporting to be based on the latest, independently-published, figures. We have also reflected policy and external interest by, for instance, gradually expanding our detailed series to include geographic breakdowns. As well as providing a regular evidence base for users, this enables Parliamentary Questions and other enquiries to be answered in a robust and transparent manner.

The publication of regular findings also helps the GD market (including trade bodies, individual installations companies and manufacturers) to establish the likely demand for specific energy efficiency measures. For example, the number of GD Assessments (published monthly), the recommendations made and remaining potential (currently published quarterly) will help GD participants (such as assessor and installer organisations) gauge the likely take up of specific measures.

There has also been a sustained demand for figures on ECO. These are used by colleagues in DECC and across Government to evaluate the numbers and type of measures being installed and, in conjunction with [Ofgem's compliance report](#) energy suppliers' delivery against their obligations. Figures on ECO delivery were heavily used by analysts who worked on the proposals for a [set of changes to ECO](#) in December 2013. Information on the costs of delivering ECO, published in the detailed release (currently published quarterly), is used across Government to estimate the overall cost of the scheme. This facilitates public accountability and allows energy suppliers to benchmark their own costs against the average for each obligation.

There is also strong local and regional interest in the figures. Detailed releases present GD Assessments, 'live' Green Deal Plans, Cashback, Green Deal Home Improvement Fund (GDHIF) and ECO measures and individual households by Local Authority and Parliamentary Constituency. These breakdowns help demonstrate to the GD market where demand for energy efficiency measures is focussed. ECO is also a Great Britain-wide policy and the regular publication of these figures are used by the Devolved Administrations and Local Authorities to demonstrate how many measures have been installed in specific areas.

The insulation levels section of the detailed release are used by DECC and industry to find out how many homes in Great Britain currently have cavity wall insulation, loft insulation and solid wall insulation. The statistics also allow monitoring of how many homes have been insulated through the rollout of various Government schemes since April 2008. It can also be used to estimate the number of homes that have the potential to receive insulation in the future (including a split by easy and hard to treat properties) – this is important when new policies are being developed as it is possible to estimate the number of homes that could receive insulation under a specific policy. Similarly, this information can be used by the supply chain to gauge the likely demand for specific energy efficiency measures.

Green Deal Assessments

The GD Assessment process

A Green Deal Advisor will come to the property and using the [Standard Assessment Procedure \(SAP\)](#) will assess the energy and environmental performance of the property, and produce an Energy Performance Certificate (EPC). This only needs to be done where a valid EPC has not already been completed – EPCs are valid for 10 years. The Green Deal Advisor will then carry out an Occupancy Assessment (OA) relating to the energy usage of the household.

The Advisor will then ‘lodge’ the EPC and OA on the central register as a Green Deal Advice Report (GDAR). As stated in the Specification for GD Organisations¹, Advisors must lodge the EPC and OA within two weeks of the assessment taking place.

Once any measures have been installed in the property through a GD, then a final EPC will be lodged, showing the updated energy efficiency of the property with the new measures included.

An Advisor can lodge an EPC or OA more than once – reflecting possible mistakes being corrected, or a change in recommended measures.

Reporting GD Assessments (headline and detailed releases)

Landmark and EST Scotland provide DECC with a monthly extract from their EPC register which includes the underlying data from each EPC and OA in order for us to fully quality assure the data.

We count each property only once in order to report the number of GD Assessments and this is based on the first date when a GDAR was lodged. Any further analysis is based on the latest GDAR that was lodged for the given period in question. Therefore, the analysis for the **headline** release is based on EPC and OA data extracts for the latest period. An additional check is performed to ensure that each GDAR is only recorded once in either of the two national registers (one in England and Wales, and one in Scotland). If a GDAR is lodged in more than one register, then this is only counted once against the correct register based on the location of the property.

The analysis for the **detailed release** is based on EPC and OA data extracts up to the end of the month following the end of each quarter (i.e. for the first quarter of 2013, January to March, extracts are taken up to the end of April). For the detailed releases up to March 2014, GDARs lodged in more than one register have not been removed so there is a very small level of double counting. Therefore the detailed figures do not exactly match the headline figures on GDARs.

In order for the coverage of the statistics to be up to the end of each quarter and to ensure there is no double counting, the following steps are taken:

1. Any GDARs lodged after the end of the quarter (i.e. for the first quarter of 2013, 31 March 2013) are removed using the OA lodgement date to identify these.
2. Duplicates from the resulting file are identified using Unique Property Reference Number (UPRN) and removed so that only the latest GDAR lodged is included (i.e. by sorting in descending order using the “lodgement_date_time” variable).
3. EPCs which relate to these GDARs are included in analysis. Any subsequent EPCs lodged, which do not have a GDAR lodged by the end of the quarter (i.e. for the first quarter of 2013, 31 March 2013) are not incorporated in this analysis.

¹ Point 6.14.1 https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/68627/003-2012_Specification_for_Organisations_providing_the_Green_Deal_Advice_Service.pdf

The further breakdowns presented in the detailed report are all based on the data provided in the data extract files and are outlined below.

Property characteristics (detailed release)

Information relating to the characteristics of properties getting GD Assessments is taken from the Energy Performance Certificate relating to the GD Assessment.

Energy Efficiency Rating (detailed release)

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 SAP² are:

- Band A (92 plus)
- Band B (81-91)
- Band C (69-80)
- Band D (55-68)
- Band E (39-54)
- Band F (21-38)
- Band G (1-20)

Property type (detailed release)

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 dwellings. 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.

A house or bungalow has a complete heat loss ground floor and a completely exposed roof. A dwelling without a heat loss floor cannot be a house and must be treated in the GD Assessment as a flat or maisonette. A flat or maisonette does not have both a heat loss ground floor and a heat loss roof.

Reduced Standard Assessment Procedure (RdSAP) makes no distinction between a flat and a maisonette as regards calculations; it is acceptable to select either type as definitions vary across the UK.

Built form (detailed release)

All property types have a built form (not just houses). The four main types of build are detached, semi-detached, end-terrace and mid-terrace.

Mid-terrace has external walls on two opposite sides (this category also includes any 'Enclosed³ Mid-Terrace' properties which have an external wall on one side only); End-terrace has three external walls (this category also includes any 'Enclosed End-Terrace' properties which have two adjacent external walls).

² Information on the Standard Assessment Procedure is here: <https://www.gov.uk/standard-assessment-procedure>

³ 'Enclosed' is typically applicable for 'back-to-back' terraces.

Recommended measures (detailed release)

The detailed statistical release reports the number of improvements by measures recommended in GDARs. These are the final recommendations an assessor will make to the household following an EPC and an Occupancy Assessment. Recommended improvements are listed in the Occupancy Assessment Technical Appendix, where further details about each of these measures can be found.

See http://www.bre.co.uk/filelibrary/SAP/2009/GD_OA_software.pdf for more details.

Pioneer Places (detailed release)

The Green Deal Pioneer Places Fund of £10m was allocated to Local Authorities and/or consortia of Local Authorities in England to demonstrate ambitious approaches to kick starting local Green Deal activity in both the domestic and non-domestic sectors. Activities that were supported by the DECC funding included:

- funding the Green Deal Assessment by Authorised Assessors;
- piloting local marketing approaches, including a street by street approach to roll out;
- establishing a network of local Green Deal (GD) show homes;
- area wide events to publicise the Green Deal;
- working with local partners such as the local NHS to drive demand for the Green Deal;
- working with community and other civil society groups to deliver demand for the GD.

A number of reported Assessments which were funded under Pioneer Places were not matched against the register of domestic Green Deal Assessment Reports, and so were not included in this release. The following is a list of reasons why these (circa 500) assessments were not included:

- a) They were non-domestic assessments.
- b) They were produced by a Chartered surveyor (not a GD Advisor).
- c) They were ECO assessments.
- d) A fabric assessment (the EPC) was conducted without there being an Occupancy Assessment (OA). Without an OA, these would not be considered as a GD Assessment.
- e) The data quality was poor, and no match was possible.

The following table is the full list of lead Local Authorities and/or consortia of Local Authorities which form part of these projects.

Lead Authority	Other Participating Local Authorities
Barnsley Metropolitan Borough Council	
London Borough of Brent	
Brighton and Hove City Council	
Broadland District Council	South Norfolk Council
Cambridgeshire County Council	South Cambridgeshire District, Cambridge City Council, Huntingdonshire District Council, Fenland District Council, East Cambridgeshire District Council,
London Borough of Camden 1 (PRS)	Over 20 local authorities in London and the South East
London Borough of Camden 2 (non PRS)	

Cherwell District Council	
Cheshire East Council	
Cheshire West & Chester Borough Council	
Derbyshire County Council	Nottinghamshire County, Amber Valley Borough Council, Bassetlaw District Council, Bolsover District Council, Broxtowe Borough Council, Chesterfield Borough Council, Derbyshire Dales District Council, Erewash Borough Council, Gedling Borough Council, High Peak Borough Council, Mansfield District Council, Newark & Sherwood District Council, North East Derbyshire District Council, Rushcliffe Borough Council, South Derbyshire District Council,
East Hampshire District Council	
East Riding of Yorkshire Council	
Eastleigh Borough Council	Portsmouth City Council, Southampton City Council
Greater London Authority	London Borough of Bexley, London Borough of Bromley, City of London, London Borough of Croydon, London Borough of Enfield, Royal Borough of Greenwich, London Borough of Hackney, London Borough of Havering, Royal Borough of Kingston, London Borough of Lambeth, London Borough of Lewisham, London Borough of Merton, London Borough of Redbridge, London Borough of Richmond upon Thames, London Borough of Southwark, London Borough of Sutton, London Borough of Wandsworth, City of Westminster,
London Borough of Haringey	London Borough of Islington, London Borough of Enfield, London Borough of Waltham Forest
Herefordshire Council	Telford and Wrekin Council, Shropshire Council
Hinckley and Bosworth Borough Council	Rutland County Council, Blaby District Council, Charnwood Borough Council, Harborough District Council, Melton Borough Council, North West Leicestershire District Council, Oadby & Wigston Borough Council
London Borough of Hounslow	London Borough of Ealing, London Borough of Harrow, Royal Borough of Kensington & Chelsea, London Borough of Hammersmith & Fulham
Isle of Wight Council	
Kent County Council	Ashford Borough Council, Canterbury City Council, Dartford Borough Council, Dover District Council, Gravesham Borough Council, Maidstone Borough Council, Medway Council, Sevenoaks District Council, Shepway District Council, Swale Borough Council, Thanet District Council, Tonbridge & Malling Borough Council, Tunbridge Wells Borough Council
Kingston upon Hull City Council	
Lichfield District Council	
Milton Keynes Council	
North Devon Council	Mendip District Council, Torrington District Council, Teignbridge District Council

North Somerset Council	Bath and North East Somerset District Council, West Somerset District Council, South Somerset District Council, Taunton Deane Borough Council, Sedgemoor District Council, Mendip District Council
North Yorkshire County Council	
Oxford City Council	
Reading Borough Council	
Solihull Metropolitan Borough Council	
Stoke on Trent City Council	
Suffolk County Council	Babergh & Mid Suffolk District Councils, Ipswich Borough Council, Forest Heath District and St Edmundsbury Borough Councils, Suffolk Coastal District Council, Waveney District Council
Warrington Borough Council	
West Oxfordshire District Council	Aylesbury Vale District Council, Buckinghamshire County Council, Central Bedfordshire Council, Cherwell District Council, Chiltern District Council, Cotswold District Council, London Borough of Ealing, Guildford Borough Council, Hertsmere Borough Council, Luton Borough Council, South Bucks District Council, South Oxfordshire District Council, Three Rivers District Council, Vale of White Horse District Council, Watford Borough Council, West Berkshire Council, Wycombe District Council
West Sussex County Council	Adur & Worthing Borough Council, Crawley Borough Council, Horsham District Council, Mid Sussex Borough Council, Chichester District Council, Arun District Council
Wiltshire Council	Tewkesbury Borough Council, South Gloucestershire Council, Cheltenham Borough Council, Gloucestershire County Council
Winchester City Council	
Woking Borough Council	Guildford Borough Council, Surrey Heath Borough Council, Mole Valley District Council, Tandridge District Council, Spelthorne Borough Council, Surrey County Council, Waverley Borough Council, Elmbridge Borough Council, Epsom & Ewell Borough Council, Reigate & Banstead Borough Council, Runnymede Borough Council
Worcestershire County Council	Worcester City Council

Core Cities (detailed release)

Eight cities across England received funding of £10.8m in total to trial early aspects of the Green Deal process and support them to help kick-start the Green Deal. The projects included retrofitting properties across whole communities.

The cities were:

- Birmingham
- Bristol
- Leeds (includes Leeds, Kirklees, Bradford, York and Calderdale)
- Liverpool (includes Wirral, St Helens, Knowsley, Sefton and Liverpool City Council)
- Manchester (includes Bolton, Bury, Oldham, Rochdale, Manchester, Salford, Stockport, Tameside, Trafford and Wigan)
- Newcastle (includes Darlington, Durham CC, Newcastle, Northumberland CC and South Tyneside)
- Nottingham
- Sheffield

The projects provided feedback and data on the elements of the Green Deal framework such as assessment and installation.

The cities' projects also generated match funding. This work is supporting future Green Deal activity in these cities, including raised awareness of the Green Deal through community engagement and show homes, and a stimulus to local supply chains such as trained Green Deal advisors and registered installers.

Further information on Core Cities and Pioneer Place can be found here

<https://www.gov.uk/local-authorities-and-the-green-deal>

Green Deal Communities (detailed release)

23 Lead Local Authorities (covering 95 individual Local Authority areas) in England received £83.5 million to help deliver energy efficiency improvements and the Government's Green Deal home energy efficiency improvement programme through a programme called Green Deal Communities.

Local Authorities had flexibility in how they developed and delivered their own project locally and were encouraged to develop innovative solutions to drive demand e.g. Incentives, marketing, supply chain procurement. The focus of the programme was on delivering hard to treat energy efficiency measures and/or delivering in hard to reach properties, predominantly but not limited to solid wall insulation. The scheme was to engage with and deliver to private households and private landlords, maximising local knowledge to identify appropriate property and support development of the supply chain locally where possible.

Each Local Authority project lead was required to submit their data at a designated interim point and will be required to submit data again upon completion of the project to enable effective evaluation of the programme approach and to inform future policy. This included a largely qualitative self-evaluation report to help understand each project area's model of delivery, enabling understanding as to which approaches to delivery were found to be the most successful. In addition to this, Local Authorities were required to populate a quantitative data template; including data on Green Deal Assessments⁴ carried out and completed installations funded through the Green Deal Communities scheme. Interim data returns were submitted to DECC covering the period up until the end of January 2015 when projects were in the main at an early stage of delivery. Thorough quality assurance of the data was conducted by DECC,

⁴ The total provisional number of Green Deal Assessments funded through the Green Deal Communities in all project areas is not currently available.

with figures verified by each Lead LA. The final evaluation of the Green Deal Community Programme will be carried out in 2016/17.

The following table is the full list of lead Local Authorities and/or consortia of Local Authorities which form part of these projects.

Lead Local Authority	Other Participating Local Authorities
Ashfield District Council	
Bath & North East Somerset Council	
Bracknell Forest	
Bristol City Council	
Broadland District Council	South Norfolk Council, Norwich City Council
Cambridge City Council	East Cambridgeshire District Council, Fenland District Council, Huntingdonshire District Council, South Cambridgeshire District Council, Cambridgeshire County Council
Dartford Borough Council	Kent County Council, Sevenoaks District Council, Dover District Council
East Hampshire District Council	Havant Borough Council
Eastleigh Borough Council	Portsmouth City Council, Gosport Borough Council, Southampton City Council
Leeds City Council	City of Bradford Metropolitan District Council, City of Wakefield Metropolitan District Council, City of York Council, Barnsley Metropolitan Borough Council, The Borough Council of Calderdale, Harrogate Borough Council, Kirklees Council, Selby District Council, Craven District Council
London Borough of Haringey	London Borough of Camden, London Borough of Enfield, London Borough of Waltham Forest, London Borough of Islington, London Borough of Hackney
London Borough of Harrow	
London Borough of Lewisham	London Borough of Bromley, London Borough of Bexley
Manchester City Council	Bolton Metropolitan Borough Council, Bury Metropolitan Borough Council, Oldham Metropolitan Borough Council, Rochdale Metropolitan Borough Council, Salford City Council, Stockport Metropolitan Borough Council, Tameside Metropolitan Borough Council, Trafford Metropolitan Borough Council, Wigan Metropolitan Borough Council
Nottingham City Council	
Nuneaton & Bedworth Borough Council	North Warwickshire Borough Council
Peterborough	
Plymouth City Council	
South Buckinghamshire District Council	Aylesbury Vale District Council, Buckinghamshire County Council, Cherwell District Council, Chiltern District Council, Cotswold District Council, London Borough of

	Ealing, Milton Keynes Council, South Oxfordshire District Council, Three Rivers District Council, Vale of White Horse District Council, Watford Borough Council, West Berkshire Council, West Oxfordshire District Council, Wycombe District Council
Suffolk County Council	Babergh District Council, Mid Suffolk District Council, Forest Heath District Council, St Edmundsbury Borough Council, Ipswich Borough Council, Suffolk Coastal District Council
Telford & Wrekin Council	
Woking Borough Council and Surrey Coalition	Epsom & Ewell Borough Council, Elmbridge Borough Council, Guildford Borough Council, Spelthorne Borough Council, Waverley Borough Council, Reigate & Banstead Borough Council, Mole Valley District Council, Tandridge District Council, Runnymede Borough Council, Surrey Heath Borough Council, Surrey County Council
Worcestershire County Council	Bromsgrove, Malvern Hills District Council, Worcester City Council, Redditch Council, Wyre Forest District Council, Wychavon District Council

Green Deal Plans (headline and detailed releases)

The Green Deal Plan process

Green Deal Plans are reported at different stages (see below for more detail) and these are based on all potential Green Deal Plans that are currently in the system. It is expected that all of these Green Deal Plans will have a Green Deal Advice Report (GDAR); although some more recent 'new' Green Deal Plans may not have had an Occupancy Assessment lodged on the EPC register (as there is a 14 day window in which this must occur).

The data used comes from two sources – The Green Deal Central Charge Database and the Landmark data. This allows verification checks that GD Plans are linked to a valid GDAR.

Three stage reporting of Green Deal Plans

On 23 July 2015 DECC [announced](#) that there will be no further public funding to the Green Deal Finance Company (GDFC) and that there will be no future funding releases of the Green Deal Home Improvement Fund. This decision has no impact on existing Green Deal Finance Plans in the system or existing Green Deal Home Improvement Fund applications and vouchers. Therefore Plans currently in the system will continue to progress. The announcement was concerned with the financing of GDFC only – the wider market framework remains in place, and should a new finance provider come forward to enter the market, then consumers will be able to choose GD finance Plans as a route.

For those who chose Green Deal finance, there were three stages in the life cycle of a Green Deal Plan for which reports were generated using data received from the Central Charge Database:

- the **first stage** (a 'new' Green Deal Plan) is after a customer has obtained a quote from a Green Deal Provider and confirmed they wish to proceed. The Green Deal Provider has then successfully requested a Green Deal Plan record prior to signature by the customer. It is possible that more than one Green Deal Plan may be requested for each household

as the householder is able to request quotes from different Green Deal Providers. For statistical reporting purposes, only one Green Deal Plan per household will be counted.

- the **second stage** (a 'pending' Green Deal Plan) is when a Green Deal Plan has been signed by the customer, progress is being made to install Green Deal Plan measures and the Plan is being finalised so that charging can start.
- the **final stage** (a 'live' Green Deal Plan) is after the measures have been installed in the property, the information required to disclose the Plan to future bill payers has been attached to the Plan and the energy supplier has all the information required to bill Green Deal charges. At this stage the daily charge has been confirmed along with the date from when the charge will be accrued on their electricity bill.

The Central Charge Database provides the latest status of each Green Deal Plan. This also includes 'cancelled' Green Deal Plans – which are not included in our reporting – and 'completed' Green Deal Plans when a Plan has been fully paid off. Therefore some plans can move from 'live' to 'completed', and so the number of live plans can decrease.

In some cases, multiple Green Deal Plans have been recorded against an individual property. To ensure double counting does not take place only one Green Deal Plan is counted against each unique property with Unique Property Reference Number being used to identify properties with more than one Green Deal Plan. The Green Deal Plan which is counted is the Plan at the furthest stage. For example, if a property has three Green Deal Plans recorded against it, one of which is 'cancelled', one of which is 'new' and one of which is 'pending', only the 'pending' is counted and the other two are disregarded. Equally, if there are multiple Plans at the 'new' stage, 'pending' stage, or 'live' stage, then only the one at the most advance stage is counted.

[Geographic breakdowns of Green Deal Plans \(detailed release\)](#)

Geographic breakdowns of Green Deal Plans are only reported for 'live' Plans (measures installed and billing commenced). Only Plans which went 'live' up to the end of the quarter being reported are included. In order to present a meaningful breakdown, "live" Green Deal Plans have been presented at a regional level since March 2014 when there were several hundred in place. The number of "live" Green Deal Plans by Local Authority and by Parliamentary Constituency has been published since March 2015 when the total number of "live" Green Deal Plans was in the mid-thousands. The detailed release (from June 2015) also includes the tenure of households that have a "live" Green Deal Plan on their property. This is derived from the Energy Performance Certificate associated with the Plan.

[Volumes of finance of Green Deal Plans \(detailed release\)](#)

The detailed release (from September 2015) also includes the estimated total initial loan amount associated with all 'live' Green Deal Plans. This is derived from the Green Deal Plan information found on the last page of the Energy Performance Certificate of the property. It is calculated using the daily charge multiplied by the length (in days) of the Plan. The daily charge is adjusted to remove the APR interest payment, which leaves just the 'total initial loan amount'.

[Measures installed using Green Deal finance \(headline release\)](#)

The number of measures installed using Green Deal finance is based on data recorded on the Green Deal disclosure and information page of EPCs. These measures are reported against their month of installation. However as the installation date of each individual measure is not known, the lodgement date of the post-installation EPC is used as a proxy.

Measures are only reported in the headline National Statistics release if the associated Green Deal Plan for those measures has been recorded as 'live' on the Central Charge Database before the end of the latest month. Therefore measures associated with Green Deal Plans which have subsequently been paid off (i.e. 'completed' Plans which are no longer 'live') will be included as measures installed using Green Deal finance. Measures are not included if they have been reported as "not installed" on the Green Deal disclosure and information page of EPC or if the paid-off date for that measure is before the Green Deal Plan became live, or within a few months of that date. These are considered as system errors and therefore should not be included as measures installed using Green Deal finance.

If a property has a 'live' and a 'completed' Plan or multiple 'live' Plans then only unique measures are counted (using the measures on the Plan with the latest EPC lodgement date). This is to ensure that there is no double-counting of measures installed using Green Deal finance.

The number of measures installed using Green Deal finance in earlier installation months are subject to revision as Green Deal Plans may become 'live' after the month of installation. The number of measures installed using Green Deal finance in any month other than the latest month are not directly comparable with the number of 'live' Green Deal Plans for each of those respective months. This is because some measures may have been installed in a month prior to when the corresponding Green Deal Plan went 'live'.

Measures captured by administrative data sources (headline release)

The total number of measures installed in properties through the Energy Company Obligation, Cashback, GDHIF and Green Deal is always presented with the same one month lag as with ECO measures to ensure completeness of data across the four delivery mechanisms. This does not include measures installed but not captured by administrative data sources. A small number of these properties have had measures installed through more than one delivery mechanism and there is therefore a small level of double counting (and will be estimated in future releases, data permitting).

The number of measures installed through Cashback, GDHIF and Green Deal are based on the latest data, but only include measures installed over the same data reporting period as ECO measures to ensure completeness of data. Therefore, the number of measures is not necessarily the same number of measures reported in the previous headline release, as it will include any revisions where measures have been installed in earlier months, but were only notified and recorded in the latest month.

Households that have had measures installed and captured by administrative data sources (headline release)

The number of individual households with measures installed through the Energy Company Obligation, Cashback, GDHIF and Green Deal is always presented with the same one month lag as with ECO measures to ensure completeness of data across the four delivery mechanisms. A small number of these properties have had measures installed through more than one delivery mechanism and there is therefore a small level of double counting (see pages 27-29).

Where a household has measures installed in two or more months, the earliest installation month is recorded.

The number of households with measures installed through Cashback, GDHIF and Green Deal are based on the latest data, but only include households over the same data reporting period as ECO reporting, to ensure completeness of data. Therefore, the number of households is not necessarily the same number of households reported in the previous headline release, as it will include any revisions where households have had measures installed in earlier months, but were only notified and recorded in the latest month. For GDHIF the number of households is lower than the number of vouchers issued as it is possible for there to be more than one GDHIF voucher paid per household.

Measures not captured by administrative data sources (detailed release)

In addition to measures installed in properties through the main delivery mechanisms, which make up the majority of measures installed, there are a small number of measures installed but not captured by our administrative data sources (i.e. measures which had a Green Deal Assessment but were not financed or part financed through a delivery route already reported). There are a number of alternative finance packages including savings, payment from a landlord, housing association or Local Authority or other type of loan or credit. The following summarises the background and methodology used to estimate the number of these measures.

Background and Methodology

Waves 2 and Waves 3 of the [assessment's research](#) (as commissioned for the wider evaluation of the Green Deal Programme) resulted in around 1,000 interviews, both face-to-face and web-based, about householders' experiences, actions and intentions following Green Deal Assessments that took place between April and September 2013.

Using this data, DECC received permission from 688 householders to match their data to other data sources. Of these 688 respondents, 420 householders had reported that at least one measure, which had been recommended in their Green Deal Assessment, had been installed subsequently. This equated to 548 measures installed in the 420 households.

This data was matched (either using full address or other identifiers such as Unique Property Reference Number (UPRN) and EPC RRN) to other administrative data held by DECC. The full list of these datasets and the identifiers used are as follows:

- Energy Company Obligation (ECO) measures data – linked using address
- England and Wales Cashback redemption data (and where possible Cashback voucher applications) – linked using EPC RRN and/or UPRN
- Green Deal Plans data – linked using EPC RRN and/or UPRN
- Core Cities data – linked using address
- Pioneer Places data – linked using EPC RRN
- Feed-in-Tariffs data – linked using address
- RHPP/RHI data – linked using address

There were also some further checks to see if a post-installation EPC had been lodged against these properties and, if so, a check to see which measures had been installed (i.e. no longer recommended in their post-installation EPC).

Results

In total, by adding together Waves 2 and 3, the results for the 688 householders are as follows:

- 361 households reported they had done work and were matched (463 measures in total)

- 59 households reported they had done work, but could not be matched (85 measures in total)
- 61 households had not reported having done work, but were matched (73 measures)
- 207 households indicated that they had not done any work, and could not be matched.

Finance method as reported by householder

Householders were asked how measures had been financed (where they had indicated a measure had been installed). This showed the measures were financed through a variety of methods, with around 40% of these measures installed using Landlord, LA, HA, ECO or government scheme finance as reported by householders in their GD Assessment (i.e. over a third were not instigated by the householder).

Calculation

The final calculation is the number of measures installed using alternative finance as a proportion of all measures that were installed in those properties (regardless of if they reported so or not in their interview).

The formulae is as follows: $x / (y + z + x)$

Where x = total number of missing measures (85)

y = total number of verified measures (463)

z = total number of additional measures that respondents hadn't reported (73)

$85 / (463+73+85) = 13.7\%$ of measures with an accompanying GDAR

Based on this survey work, the highest estimate is that these measures account for no more than 14% of all measures with an accompanying GDAR. This is an estimate that can only decrease over time as more measures are reported through data streams, especially ECO. However, relatively few additional measures from Wave 2 were linked to data received in December, January and February.

Caveats and concerns

1. Geographic clusters – 13 of the 59 addresses (covering 18 measures) are located in small geographic clusters, which may be due to the sampling method. Clustering is also a common sign of ECO or LA-based schemes, so these measures may still appear in future data extracts.
2. Accuracy of self-reporting – The robustness of this work is based on householders' responses. It wasn't always clear that the property had installed the measures that were claimed during interview as these sometimes still appeared on their 2nd EPC as a recommendation, even though this was several months after their interview.
3. Address matching and data quality – Address matching is not 100% accurate, meaning a true match is not always made or a false match may be made. There are also address data quality issues with some of the datasets being used.
4. Sample size – the respondent numbers are small enough that survey error could affect the result by a few percentage points.

Final Calculation

Due to the concerns mentioned above, we estimate the number of measures installed but not captured by our administrative data sources, based on the survey responses, may decrease from 85, cited above, to 65. The number of verified measures would increase to 483 (there are two measures we excluded as we do not think they were installed) and the number of additional measures will increase to more than the current 73 (up to around 90). This would change the above calculation to:

$65 / (481+90+65) = 10.2\%$ of measures with an accompanying GDAR

Therefore, based on our range of 10.2% to 13.7% we estimate that for every seven to nine measures installed through one of our reported routes with an accompanying Green Deal Assessment (ECO, Cashback, Green Deal finance, Core Cities, other DECC policies), that one additional measure is installed entirely using alternative finance⁵ and therefore not captured by our administrative data sources.

The number of measures installed with an accompanying GDAR

Using address matching techniques, the following datasets were assigned their Ordnance Survey AddressBase Unique Property reference number (UPRN):

1. Green Deal Assessments (GDARs) in England and Wales
2. Green Deal Assessments (GDARs) in Scotland
3. Energy Company Obligation (ECO) measures data
4. England and Wales Cashback redemption data
5. "live" Green Deal Plans data
6. Core Cities data
7. Pioneer Places data

Following this address matching an Address spine was created so that individual address (and therefore UPRN) included a flag to show where it had appeared in any of the datasets listed above. For any GDARs in England and Wales (1) or Scotland (2), that had a measure reported against it (3,4,5,6), then this provided a number of measures installed with an accompanying GDAR. This was filtered for just GDARs with an assessment date between 1st April and 30th September 2013 (to match the same time period as the Assessments research sampling frame). This showed that of the 75,884 households who had a GD Assessment between April and September 2013, around 46,000 measures had been installed in around 40,000 households with support from any of these schemes.

Therefore if between 10.2% and 13.7% of measures installed with a GDAR were installed but not captured by our administrative data sources, then applying this to the total number of measures installed with an accompanying Green Deal Assessment equates to an additional 3,000 to 4,000 households installing between 5,000 and 7,000 measures over six months. This results in an estimated 1,000 measures being installed but not captured by our administrative data sources per month. In the context of all measures installed – as many ECO measures will not have an accompanying Green Deal Assessment – this equates to an additional two per cent of all measures being installed over the six month period, but not being captured by our administrative data sources. This only relates to measures installed between April and September as this is the period covered by the Assessments research.

Cashback (headline and detailed releases)

The Cashback scheme was available between January 2013 and June 2014 in England and Wales and offered customers a financial incentive to get measures installed following a Green Deal Assessment. A Cashback voucher application can be for one or more measures for any given property. In the headline release we present the absolute numbers for Cashback vouchers paid, their associated value and measures installed through Cashback as we receive this information every month at record-level from the Cashback Administrator. However, we only provide approximate figures on the number of Cashback vouchers and associated budget

⁵ These measures may have been paid for through a number of alternative finance packages including savings, payment from a landlord, housing association or Local Authority or other type of loan or credit, but would not have received funding from any of our reported routes.

committed to as we only receive weekly aggregate figures that do not permit the same level of disaggregation. The detailed release includes the number of Cashback vouchers by region, administrative area, Parliamentary Constituency and tenure. This is derived from the Energy Performance Certificate associated with the Cashback application.

1 Any Cashback vouchers showing a redemption value of £0 or extremely high values (following any validation checks by the Cashback administrator) have been excluded – to date this only affects a small number of records.

There are no further applications for the Cashback scheme from the end of June 2014, but vouchers will continue to be redeemed and paid until 30 September 2014. Figures have been reflected in statistical releases up until December 2014.

Green Deal Home Improvement Fund (headline and detailed release)

On 23 July 2015 DECC [announced](#) that there will be no future funding releases of the Green Deal Home Improvement Fund. This decision has no impact on existing Green Deal Home Improvement Fund applications and vouchers. The latest ‘two measures’ offer will close to applications on 30 September 2015 or when the remaining £2 million of funding (as at the end of August 2015) run out – whichever happens sooner.

The Green Deal Home Improvement Fund (GDHIF) is 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 Green Deal Advice Report (GDAR). GDHIF release 1 closed to new applicants at 6:30pm on 24 July 2014. GDHIF release 2 commenced on 10 December 2014 and GDHIF release 3 commenced on 16 March 2015. For more information please see the [GDHIF website](#). For more information on the separate scheme that operated in Scotland please see the relevant [website](#). Statistics on this scheme can be found [here](#).

DECC published GDHIF application release 1 data on the gov.uk [website](#) on a weekly basis until the scheme closed, to assist businesses and households. This weekly series reported the number of applications, vouchers issued and maximum value of vouchers issued. Also included on a weekly basis from 17 December 2014 until 7 January 2015 (on the same [website](#)), were GDHIF application statistics on GDHIF release 2. A one-off publication was made on 12 December to show that funding allocated to Solid Wall Insulation applications reached its maximum allocation amount. Also included on a weekly basis from 24th March 2015 (on the same [website](#)), were GDHIF application statistics on GDHIF release 3. A one-off publication was made on 26 March 2015 to show that funding allocated to Solid Wall Insulation applications reached its maximum allocation amount.

A GDHIF issued voucher (following an application) can be for one or more measure for any given property. In a small number of cases more than one voucher was paid per household. In the headline release we present the absolute numbers for GDHIF vouchers paid, their associated value and measures installed through GDHIF, as we receive this information every month at record-level from the GDHIF Administrator. We also report the number of GDHIF applicants that had received a Green Deal Assessment Report (GDAR) refund (of up to £100 each), and/or received the Home Buyer Bonus (of up to £500 each). However, we only provide

approximate figures on the number of GDHIF active applications⁶ and vouchers issued⁷ and associated budget committed to as we only receive aggregate figures that do not permit the same level of disaggregation.

In the detailed release we publish the number of GDHIF vouchers paid by region, administrative area, Parliamentary Constituency and tenure. Geographic locations of properties receiving GDHIF payments are taken from application data and details on the Energy Performance Certificate of the property. The tenure of the householders of these properties is taken from EPC data.

ECO households (headline and detailed releases)

Users should note that, in order to produce the most timely data possible, estimates in the headline report include a month of data that has yet to be through initial Ofgem validation checks (i.e. as reported by energy suppliers to Ofgem). Revisions to data are routinely included in releases and will be explained if they are large. ECO-obligated energy suppliers notify Ofgem of installed measures every month with a month lag between the installation period and notification date (e.g. measures installed up to the end of April were notified to Ofgem by the end of May). The data at this stage is **unprocessed** by Ofgem and is shared with DECC early the following month (i.e. using the example above, in early June). There is an additional month lag for ECO breakdowns presented in the detailed National Statistics.

Ofgem undertake comprehensive validation checks on the measures reported by energy suppliers in the month following receipt of data and longer-term audits completed over the obligation period. DECC receive **processed** data from Ofgem early the following month (i.e. using the example above, in early July) which states which measures have been approved and which are requiring further clarification by energy suppliers. Energy suppliers have no time limit in which to resolve these queries and, as such, all figures are **provisional** until the end of the ECO period in March 2017. The number of households in receipt of ECO measures in the Statistical Release is based on the **latest available information** (i.e. **unprocessed** data for the latest month and **processed** data for all previous months). Any measures which have been rejected by Ofgem or withdrawn by obligated energy suppliers have been excluded from the ECO measures reported.

The provisional number of households in receipt of ECO measures is calculated using the address information reported in the ECO measures data by Energy Companies. DECC use a de-duplication process (which strips out any non alpha-numeric characters and upper case letters) to estimate the number of unique properties in receipt of one or more ECO measures.

Provisional number of households in receipt of ECO measures by region, administrative area, and Parliamentary Constituency, are available in the detailed National Statistics release.

ECO measures (headline and detailed releases)

Users should note that, in order to produce the most timely data possible, estimates in this report include a month of data that has yet to be through initial Ofgem validation checks (i.e. as reported by energy suppliers to Ofgem). Revisions to data are routinely included in releases and will be explained if they are large. ECO-obligated energy suppliers notify Ofgem of installed

⁶ GDHIF active applications include any vouchers issued, pending, or vouchers which have been paid. It excludes any vouchers which have been cancelled, rejected, superseded or claim failed. Vouchers issued are reported against the month in which they were issued.

⁷ There may have been several vouchers issued for a single application where a customer has modified key elements of their application.

measures every month with a month lag between the installation period and notification date (e.g. measures installed up to the end of April were notified to Ofgem by the end of May). The data at this stage is **unprocessed** by Ofgem and is shared with DECC early the following month (i.e. using the example above, in early June). There is an additional month lag for ECO breakdowns presented in the detailed National Statistics.

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Some cross dataset validation of the ECO data is possible. For example, where the ECO measure has an associated GDAR, then we are able to cross check against the GDAR dataset to see if this is valid and if the addresses are consistent.

ECO property characteristics (detailed release)

Tables breaking down property type and tenure by obligation are based on the obligation of the first measure installed. There can only be one property type or tenure per household so this ensures no double-counting occurs. Other ECO tables presenting the total number of ECO measures reflect all measures installed. For the provisional number of households receiving ECO measures by tenure and ECO obligation, where 'socially-rented' has been recorded under Affordable Warmth measures installed, these are treated as "unknown" (as it is not possible for socially-rented properties to benefit from measures delivered under Affordable Warmth).

Brokered ECO measures are based on all measures by obligation.

The detailed release also includes the provisional number of ECO measures by ECO obligation by region, administrative area and Parliamentary constituency.

ECO measure types (headline release)

The table breaking down ECO measures by obligation includes the following acronyms:

- Standard CWI – Standard Cavity Wall Insulation
- HTTC – Hard to Treat Cavity
- Micro CHP - Micro Combined Heat and Power
- DHS – District Heating System

For external and internal wall insulation, the reason for splitting by 'built from 1967' and 'built pre 1967' is due to building regulation changes in England and Wales (note that for Scotland this is pre and post 1965). From the 1960s, constructional changes have been caused primarily by amendments to regulations for the conservation of fuel and power, which have called for increasing levels of thermal insulation.

ECO delivery costs (detailed release)

DECC receives monthly summary information from all obligated energy companies on their costs associated with delivering 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. These costs should include Value Added Tax (VAT) when it is not applicable for suppliers to claim this back from HMRC. These costs should not include those ordinarily associated with Green Deal (e.g. insurance-backed guarantees). Some costs may be estimated prior to the measure being fully installed or incurred prior to when the carbon or cost savings are reported.

The aggregate delivery costs are historic costs and future costs may go up or down depending on a range of factors. Projected costs are based on scaling information depending on the number of months of the scheme which have passed. These are only indicative of the amount energy suppliers are likely to pass through to customers on their bills to fund their compliance with their share of the obligation. Cost savings are based on all Affordable Warmth measures.

The detailed release presents the average price by obligation and the highest and lowest prices reported by suppliers for each obligation. 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.

Individual households that have had measures installed – Coalition government 1 million homes target (headline release)

In June 2013, DECC Ministers made a pledge at the Energy and Climate Change Committee that success of the Green Deal would be judged by 1 million homes having energy efficiency measures installed by March 2015, through the ECO and GD Framework. This section of the methodology note explains which delivery mechanisms are contributing towards the 1 million homes target and any future changes.

Currently Table 1a of the National Statistics headline release, reports the provisional number of individual households that have had measures installed through ECO, Cashback, using Green Deal finance or the Green Deal Home Improvement Fund, by month of installation. This Table previously included a small level of double counting (for households that have had measures installed through more than one delivery mechanism). It is not statistically correct to include all properties, so the methodology below is now applied to remove duplicates, using record level address data. This ensures all homes/households/properties contributing towards the target are unique individual properties, and this is now accounted for in the National Statistics release.

Address matching

Address matching is using record level information relating to a property and assigning it a unique ID to allow different administrative data sources to be linked together. Address matching is not 100% accurate/comprehensive (due to errors, or partial addresses) resulting in a small level of uncertainty in the results (and therefore future revisions are possible). The main reasons for the level of uncertainty are:

1. Quality of the information being address matched – the match rate will be affected by the quality of the information entering the address matching routine, if the quality improves it will be possible to address match more records.
2. The address matching process itself – it is possible for some records to be assigned the incorrect UPRN, essentially the record is matched to the incorrect property.
3. The Ordnance Survey AddressBase product not containing a complete list of new addresses.

The address matching process works by firstly cleaning the full address information received from various data sources. A full valid postcode is required or the record will not be matched. Each record is address matched using a bespoke address matching process against the Ordnance Survey AddressBase product. This assigns each record a unique property reference number (UPRN). The records that have been successfully address matched are included in an address spine against their respective UPRN, and other unique ID to determine which data source they are in. The UPRN is used to determine whether a particular address appears in more than one data source, and is therefore included within more than one delivery mechanism data source. Address matching is carried out for the following data sources: Green Deal Assessments, ECO, Cashback, GDHIF, Core Cities, Pioneer Places and GD Plans.

Table 1 below disaggregates all the various different key delivery mechanisms, showing whether they are currently included or not, whether they will be included in future and points to note. The table colour codes each delivery mechanism, with green showing delivery mechanisms which count towards the target, blue show delivery mechanisms which do not count towards the target, and red show figures which have been removed from the total.

One of the key components towards the target is ECO. All ECO measures have to be approved by Ofgem. This process will not be completed until the end of the current ECO scheme and therefore all estimates remain provisional until September 2015.

Insulating 1 million homes – Conservative government target - (headline release)

The 2015 Conservative Party Manifesto stated the following:

“And we will 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 target is from May 2015 to April 2020. This will be reported on in future National Statistics headline releases over the course of the Parliament and details of the methodology behind this calculation will be included in future methodology notes.

Table 1: Delivery mechanisms which contribute towards the 1 million homes energy efficiency target to end March 2015

Delivery mechanism	Included?	Reasons for including	Reasons for not including	Number of homes (end of March 2015) reported in Sept 15 headline release	Notes
ECO 1.0 and 1.1 measures	Yes	Yes.	Any Rejected or withdrawn ECO measures will be excluded and not counted towards the target.	1,155,891	ECO measures remain provisional until finalised in September 2015.
ECO 1.2 measures (interim measures)	Yes, from Jan 15 release	Yes. Legislation passed on 5th December so these have now been included from Jan/Feb 2015, if notified by Energy Companies via Ofgem.			
England and Wales Cashback Scheme	Yes	Yes, for Cashback payments through standard Cashback process.	Homes improved using measures through the Cashback Exception process.	14,743	
Scotland Green Homes Cashback Scheme	No	If DECC receive record level data then these can be included if these are additional unique properties.		22,738 vouchers paid (up to end April 15, <i>not currently included</i>)	http://www.energysavingtrust.org.uk/green-homes-cashback-statistics
Green Deal Finance Plans	Yes	Yes.		6,809	Can include Solar PV.
Green Deal Home Improvement Fund	Yes	Yes for GDHIF releases 1, 2 and 3		19,676	England and Wales only.
Core Cities	No	No, very few additional unique households.		N/A	Most had ECO contribution, so already included under ECO.
GD Communities	No	No, little additionality expected.	Could be included once record level data available.	N/A	
CERT/CESP excess measures	No	No, not eligible, as all installed before 2013 and done outside GD framework.		N/A	
RHI/FITs/Smart Meters	No	No, not eligible. Outside GD framework.		N/A	
Alternative finance measures	No	No accurate record level data to base this number on.		N/A	Evidence suggests there are not a large number of these. See pages 19-22.
Removing households with measures installed through more than one delivery mechanism (duplicates)	Yes, from Jan 15 release	Yes. From the January 2015 release the number of households with measures installed under more than one mechanism has been removed, so that they are not counted more than once. Previous headline releases included an element of non-unique households benefitting.		7,100 (end of March '15)	The rounded estimate of duplicate households is based on matched records for 98% of cases and scaled up using the same ratio for the remaining households. This number is removed from the total.
Total				1,190,019	= 1,155,891 + 14,743 + 6,809 + 19,676 – 7,100

Key: Green=delivery mechanism included; Blue= delivery mechanism not included; Red= removed from the total

Households with at least one usual resident (detailed releases)

A number of geographical tables (region, administrative area and Parliamentary Constituency) in the detailed release include a breakdown by number of measures delivered by household (for example, GDHIF vouchers paid per 10,000 households). To produce these, the number of households is obtained from a number of sources.

Region

For regions in England the areas below are summed from DGLC Table 406 (details below), the total for England is also taken from this table. For Wales and Scotland the total figure is taken from the tables detailed below.

Administrative area

- England, Household projection figures (2013) published by DCLG are used (Table 406): <https://www.gov.uk/government/statistical-data-sets/live-tables-on-household-projections>
- Wales, Households by local authority and year (2013) published by the Welsh Government: <https://statswales.wales.gov.uk/Catalogue/Housing/Households/Estimates/Households-by-LocalAuthority-Year>
- Scotland, Estimates of households and dwellings in Scotland (2013) published by General Register Office for Scotland (Table 1): <http://www.nrscotland.gov.uk/statistics-and-data/statistics/statistics-by-theme/households/household-estimates/2013/list-of-tables>

Parliamentary Constituency

For Parliamentary Constituencies the most up to date source available is ONS 2011 Census Table PHP01: Usual residents by resident type, and population density, number of households with at least one usual resident and average household size, wards in Great Britain Parliamentary Constituency based on wards in England and Wales, and Census output areas in Scotland. If interested in national figures only, then figures from either the regional or administrative area tables should be used since these contain more up to date household figures.

ECO Brokerage (headline and detailed releases)

The [ECO Brokerage](#) system 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. The outcomes of each auction are publically available, and the data is used without any adjustment.

Estimating carbon and energy savings (detailed releases)

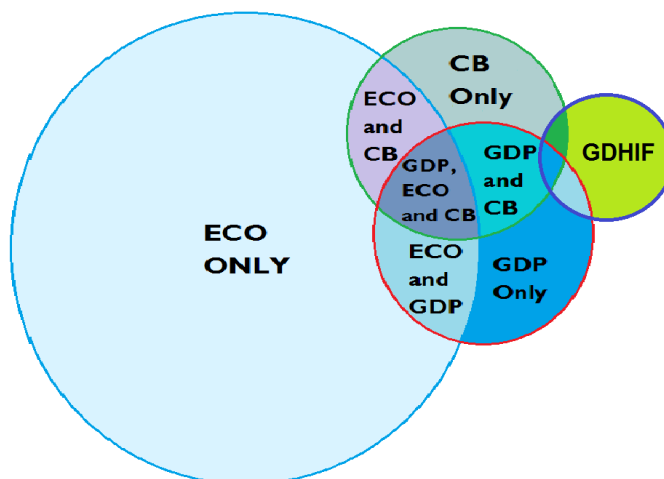
This section summarises the methodology used to produce estimates of lifetime carbon and energy savings derived from the domestic GD/ECO. There is little available information about the overlaps of between how the measures installed have been financed so it is difficult to distinguish, for instance, between a single ECO measure that also attracts Green Deal Cashback, or two separate measures where one is funded by ECO and the other through Cashback and/or Green Deal finance). To reflect this uncertainty of overlap – ranging from none to complete overlap – this analysis provides an estimated range of impact. In future, we will look

to include estimated carbon and energy savings from each installation route following a GD Assessment, including all combinations of routes therein.

This difficulty in segregating the impact from the various installation routes is exemplified in the following illustration, which shows the various overlaps involved. If other schemes such as Pioneer Places and Core Cities were considered, this would only increase further the number of various combinations in which installations should be considered. We acknowledge these overlaps would create an overestimation of impact if the impact estimated across each installation route were simply added together, hence a range is presented. There should not be any interaction between ECO and GDHIF as shown in the Venn diagram below.

Venn diagram key:

CB = Cashback
 GDP = Green Deal Plans
 ECO = Energy Company Obligation
 GDHIF = Green Deal Home Improvement Fund



To determine the scale of impacts, the methodology and assumptions used below are in line with approach taken in the GD/ECO final Impact Assessment. They differ to those methods used to assess Energy Company compliance against their ECO targets, where reductions in carbon/energy savings for comfort taking are not applied.

Estimating carbon and energy savings for ECO measures

There are three obligations within ECO, two of which (CERO and CSCO) report estimated lifetime tCO₂ saving already. Affordable Warmth (HHCRO) reports differently, on estimated energy bill saving as a result of the measures installed. As referenced in the Green Deal/ECO final Impact Assessment, it is estimated that HHCRO leads to a net reduction in carbon but this does depend on reductions in the traded sector emissions out-weighting the rise in non-traded sector emissions. Whilst we anticipate HHCRO to deliver this net reduction in overall emissions, however their current estimated carbon and energy saving are not included; the policy is designed to deliver bill savings and therefore we receive data on the bill savings delivered through this policy. However this data is insufficient in itself to estimate the carbon savings from the policy with any certainty and therefore we have no current plans to provide an estimation of the carbon impacts of HHCRO. Accordingly, the estimated energy and carbon savings achieved through measures installed through ECO refers only to CERO and CSCO obligations.

In-use factors⁸ for carbon and energy savings relating to ECO measures have been accounted for in all detailed releases

Estimating carbon savings for GD Cashback measures

As Cashback payments are dependent on a second EPC being lodged, a calculation of the estimated carbon improvement derived from the installation of a Cashback measure can be calculated (by subtracting the estimated current CO₂ emissions value in the second EPC from

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

the estimated current CO₂ emissions value in the original EPC). The estimated current CO₂ emissions value is stated as in-year carbon tonnes so a further calculation is required to ensure estimated savings are aligned with lifetime estimated carbon savings from ECO measures.

In year carbon saved (MtCO₂) = Current estimated CO₂ emissions value (as reported in second EPC) – original estimated CO₂ emissions value (as reported in original EPC).

Lifetime CO₂ saving (years) = In-year carbon saved x lifetime of measure

Additionality of Cashback

The calculations for carbon saving have taken into consideration the additionality of Cashback, specifically with regards to boiler replacements (i.e. would customers have had a new boiler installed even if there was no cash incentive). A 2011 evaluation of the boiler scrappage scheme⁹ included a survey which investigated if people were genuinely triggered to make the decision to replace their boiler, or whether an existing decision was brought forward. The evaluation estimated that boiler replacements were brought forward on average 1.4 years per successful voucher. The same assumption is made for heating controls and Flue gas heat recovery devices. This estimate has been included in our own analysis to give a better approximation of the additional effect upon estimated carbon and energy savings that Green Deal Cashback has had on boilers.

Multiple Cashback measures

Where multiple Cashback measures were installed, an estimated apportionment of the CO₂ is required. There were only 822 such instances where this occurred up to end September 2014, and it has been approximated that the total in-year carbon saved would be split evenly across the multiple measures installed.

Behavioural Change

Consistent with the Green Deal/ECO final Impact Assessment, the estimated lifetime carbon saving is reduced to account for behavioural change following the installation of measures. Previous supplier obligations and theory suggest that householders will tend to increase their energy use by approximately 15%¹⁰ after installing energy efficiency measures in order to benefit from a warmer temperature within their home (comfort taking); accordingly this factor is applied to the calculation of estimated savings (to reduce the estimated lifetime saving), given that the estimated CO₂ emissions value used in the calculation is insufficient in capturing behavioural change.

Accounting for missing values

A further approximation involves the estimated carbon saving improvement across those properties where either the current or original estimated CO₂ emissions value (or both) was missing. This occurs in roughly six per cent of cases.

In these instances, the following methodology has been applied;

⁹ English Boiler Scrappage Scheme 2010, Evaluation Report 2011. Energy Saving Trust/TNS research international <http://tools.energysavingtrust.org.uk/Publications2/Energy-efficiency/English-Boiler-Scheme-Scrappage-evaluation-report>

¹⁰ Explanation of comfort taking is found in the Final Stage Impact Assessment for the Green Deal and Energy Company Obligation, page 158. The assumed comfort taking impact of 15% is consistent with the analysis that underpinned this Impact Assessment.

1. Where the original estimated CO₂ emissions value is known but the current estimated CO₂ emissions value is not, regress the relationship between current CO₂ emissions and estimated savings from those properties that have both before and after estimates, in order to impose a value onto the missing observation.
2. Where the current estimated CO₂ emissions value is known but the original estimated CO₂ emissions value is not, regress the relationship between original CO₂ emissions and estimated savings from those properties that have both before and after estimates, in order to impose a value onto the missing observation.

If neither the original estimated CO₂ emissions value nor the current estimated CO₂ emissions value is known, the average estimated carbon saving improvement per measure (as calculated from Cashback measures that have a value for estimated CO₂ emissions) was applied to give a better approximation for the likely impact that the measure had.

Estimating annual energy saving for GD Cashback measures

Alongside estimated carbon savings, an estimated annual energy saving value must be calculated:

Annual estimated energy saving (KWh) = (tCO₂ saving x1000)/Carbon intensity of fuel type

To note, the SAP carbon intensity series¹¹ was used in this calculation as it is the series used in the RdSAP calculations. This is then converted into lifetime energy saving (KWh).

Lifetime energy saving (KWh) = Annual estimated energy saving x lifetime of measure

Regarding the carbon intensity factor, it has been assumed that all Cashback measures were installed into gas fuelled properties – this is based on the fact that virtually all Cashback measures were boiler replacements. This assumption impacts on the estimated energy savings of measures installed, as it is calculated by converting from estimated carbon savings by the carbon intensity of gas only.

Also all carbon and energy savings relating to measures installed through Cashback are adjusted by the relevant in-use factors for each measure type¹² from the March 2015 detailed release.

Estimating annual energy saving for Green Deal Home Improvement Fund (GDHIF) measures

The method for calculating the lifetime carbon savings from GDHIF is similar to that used for Cashback (details above). As with the estimates for that scheme, we use EPC data to calculate the annual carbon saving per household and multiply this by average measure lifetimes to obtain aggregate figures. Also, in keeping with the Cashback method, the savings by measure are calculated by disaggregating the household level savings and summing these across measure types.

However, because of take up patterns for GDHIF, and data availability, there are differences.

¹¹ The Government's Standard Assessment Procedure for Energy Rating of Dwellings, 2009 edition incorporating RdSAP 2009 http://www.bre.co.uk/filelibrary/SAP/2009/SAP-2009_9-90.pdf Table 12, p199

¹² 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

The two key differences are:

1. Only a very small percentage of redeemed GDHIF vouchers have both a pre and post installation EPC, compared to 95% of installations under Cashback.
2. A large percentage of measures were either Solid Wall Insulation (SWI), or Condensing Gas Boilers (Boilers) with Flue Gas Heat Recovery Units (FGHR), or both. The measures installed using Cashback are more diverse with a significant number of households installing loft, cavity, and other insulation (although boilers do account for the majority of installations).

Also all carbon and energy savings relating to measures installed through the GDHIF are adjusted by the relevant in-use factors for each measure type¹³ from the March 2015 detailed release.

Estimating annual carbon savings at household level

In general the steps for calculating the lifetime CO₂ savings per household are as follows:

1. In year carbon saved (MtCO₂) = Current CO₂ emissions value – original CO₂ emissions value
2. Lifetime CO₂ saving (years) = In-year carbon saved x lifetime of measure – comfort taking

Calculations based on pre – installation EPC

In all cases it is necessary to estimate the CO₂ savings because it is assumed no post installation EPC has been lodged. This is done by multiplying initial carbon emissions with a parameter that predicts carbon savings based on this initial amount.

We estimate these parameters by regressing households CO₂ savings on their pre- installation emissions (in records where there is both a pre and post installation EPC). Data for the regressions comes from Cashback - depending on the measure package installed and data availability.

Cases where the pre installation EPC are missing

In a small percentage of cases there is no pre-installation EPC information on which to base our CO₂ saving estimate. In these instances we use standard DECC assumptions about the energy savings obtained from different measures¹⁴.

Disaggregating Carbon Savings and Energy Savings

As discussed above, CO₂ savings data is available (or estimated) by property, but not by individual measure. For the purposes of obtaining total carbon saved under the scheme split by measure type, it is necessary to disaggregate the savings for households that have had more than one. The average annual CO₂ savings of different measures is assigned equally across the number of measures installed where 2 or more are installed as part of a package.

The same method for estimating annual energy saving as used in Cashback is used for GDHIF. Therefore it has been assumed that all measures were installed into gas fuelled properties. This

¹³ 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

¹⁴ See table 49 in https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/42984/5533-final-stage-impact-assessment-for-the-green-deal-a.pdf

assumption impacts on the estimated energy savings of measures installed, as it is calculated by converting from estimated carbon savings by the carbon intensity of gas only.

Additionally of GDHIF

As with Cashback, the calculations for carbon savings have taken into account the additionality of the insulation measures, specifically with regard to boiler replacements, and in the case of GDHIF, FGHR. For more details see 'Additionality of Cashback' section above.

Behaviour change

As with Cashback, we make a standard adjustment of 15% to account for comfort taking¹⁵.

Estimating annual energy saving for GD Plan measures

The same methodology is applied here as for Cashback measures and we will continue to refine our methodology for improving this estimation in the future. Currently, it includes the carbon impact of measures installed where there has been an ECO presence, or a GD Cashback claim raised, or both. Accordingly, the estimated impact cannot be simply added together for the reasons given above. In future, we will match information regarding the primary heating fuel for each household taking out a GD Plan, where currently we have assumed the properties are gas fuelled (unless the specific measure is known to impact on different energy types, such as Solar PV impacting on electricity use).

Also all carbon and energy savings relating to measures installed through GD finance Plans are adjusted by the relevant in-use factors for each measure type¹⁶ from the March 2015 detailed release.

The supply chain (headline and detailed releases)

In order to be legally permitted to take part in the Green Deal, organisations (and in the case of GD Advisors – individuals) need to be accredited. The Green Deal Oversight and Regulation Body (ORB) provides this function.

ORB provides regular information to DECC on the numbers of accredited GD Assessor Organisations and individual GD Advisors; GD Provider organisations and GD Installer organisations. All this information is also publically available through their website <http://gdorb.decc.gov.uk/>

Checks are conducted to remove any duplicate entries but, other than that, the data is used as provided.

Home Insulation Levels in Great Britain (detailed releases)

This section of the detailed release presents estimates of the number of homes in Great Britain with loft, cavity and solid wall insulation. It gives estimates for the number of properties with each insulation measure installed. It also sets out the remaining potential for insulation in dwellings in Great Britain.

¹⁵ For evidence of comfort taking in previous Government energy efficiency schemes see Green and Gilbertson (2008). *Warm Front Better Health*, available at: <http://www.apfo.org.uk/resource/view.aspx?RID=53281>

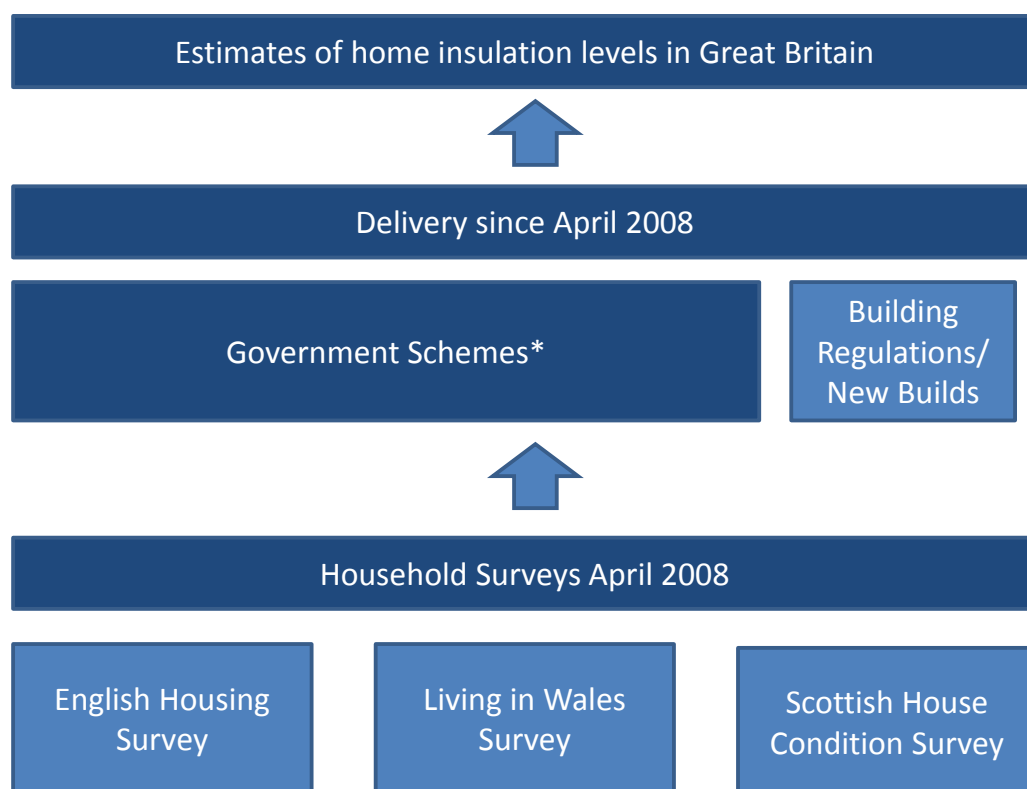
¹⁶ Domestic measures in-use factors, page 9

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

Summary of overall approach

Estimates of the number of properties with cavity wall and loft insulation use April 2008 housing survey data as a baseline. Installations of cavity wall insulation and loft insulation through Government schemes and the estimates of properties with insulation as a result of the building of new homes are then added to the April 2008 baseline on a quarterly basis. Estimates of solid wall insulation are based only on delivery of solid wall insulation through Government schemes (including the Energy Efficiency Commitment). Figure 1 below summarises how the estimates are constructed.

Figure 1: Construction of estimates of home insulation levels in Great Britain



*This includes the Carbon Emissions Reduction Target (DIY and Professional), Community Energy Savings Programme and Warm Front between April 2008 and December 2012. It then includes delivery through the Green Deal (including the Cashback scheme and Green Deal Home Improvement Fund run in England and Wales) and the Energy Company Obligation from January 2013.

2008 baseline

Cavity wall insulation

Estimates of the number of properties with cavity wall insulation use April 2008 housing survey data as a baseline, this is used alongside information from building regulations and assumptions made for Reduced Data SAP¹⁷ (RdSAP) calculations, to help categorise properties in the survey.

The section below gives a brief overview of each of the housing surveys from which the number of properties with cavity wall insulation is taken for each country within GB.

¹⁷ Reduced Data SAP (RdSAP) has been developed for use in existing dwellings based on a site survey of the property, when the complete data set for a SAP calculation is not available, and will be used to inform recommendations for measures to be installed through the GD, the full RdSAP methodology can be found here: http://www.bre.co.uk/filelibrary/accreditation/scheme_standards/SAP_2009_9-91_Appendix_S_January_2012.pdf.

English Housing Survey

The English Housing Survey (EHS)¹⁸ is an annual survey, commissioned by the Department for Communities and Local Government (DCLG). It covers all tenures and involves a physical inspection of properties by trained surveyors. The information obtained through the survey provides a picture of the type and condition of housing in England. It also collects information relating to the energy efficiency of a property, including insulation measures in the property. The survey is an un-clustered, random sample of properties in England. The EHS results reported are based on surveys for two combined financial years. The figures for 2007-08 and 2008-09 are referred to by the mid-point of April 2008. April 2008 results are based on a sample of 16,150 (occupied or vacant) dwellings. Figures from the EHS have been scaled up in this publication so that the total number of properties matches the total dwelling stock figures for England published by DCLG¹⁹.

Scottish House Condition Survey

The Scottish House Condition Survey (SHCS)²⁰ is commissioned by the Scottish Government and, like the EHS, includes a survey of properties by trained surveyors. However, it does not include unoccupied dwellings. Figures from the SHCS have been scaled up so that the total number of properties matches the total dwelling stock figure for Scotland published by DCLG. This adjustment means that the estimates are for all properties in Scotland, whether occupied or unoccupied, assuming that there are no differences between occupied and vacant homes.

Living in Wales Survey

The Living in Wales (LiW) survey was an annual household survey conducted between 2004 and 2008, commissioned by the Welsh Assembly Government. In 2004 and 2008 it also included a property survey. Like the SHCS, the property survey was carried out by trained surveyors on occupied dwellings only. Figures from the LiW survey have been scaled up so that the total number of properties matches the total dwelling stock figure for Wales published by DCLG. This adjustment means that the estimates are for all properties in Wales, whether occupied or unoccupied, assuming that there are no differences between occupied and vacant homes.

Categorising properties

Cavity wall insulation figures taken from each of the housing surveys are then categorised into one of the following five categories:

- Insulated
- Insulated or meets equivalent standard
- Uncertainty
- Limited potential
- Not insulated

These categories are based on building regulations and the classification used in RdSAP. The rationale for the categorisation is the same for each country, although building regulations in Scotland differ from those in England and Wales which means there are some differences between the years allocated to each category. Table 2 below shows how properties are allocated to each of the five categories for the 2008 baseline.

¹⁸ <http://www.communities.gov.uk/housing/housingresearch/housingsurveys/englishhousingsurvey/>

¹⁹ <http://www.communities.gov.uk/housing/housingresearch/housingstatistics/housingstatisticsby/stockincludingvacants/livetables/>

²⁰ <http://www.scotland.gov.uk/Topics/Statistics/SHCS>

Table 2: Classification of cavity wall properties

Category	Description	Country		
		England	Wales	Scotland
Insulated	Properties with cavity wall insulation.	Assume all pre 1996 properties classified as having cavity wall insulated on the EHS are insulated (+ additional 5% for unobserved insulation as recommended by the organisation that conducted the survey).	Assume all pre 1996 properties classified as having cavity wall insulated on the LiW survey are insulated (+ additional 5% for unobserved insulation as recommended for England).	Assume all pre 1992 properties classified as having cavity wall insulated on the SHCS are insulated (+ additional 5% for unobserved insulation as recommended by BRE for England).
Insulated or meet equivalent standard	Properties with cavity wall insulation or a thermal performance equivalent to having insulation.	All post 1995 properties (RdSAP assumes u-value of 0.45 or better from 1996).		All post 1991 properties (RdSAP assumes u-value of 0.45 or better from 1992).
Uncertainty	Properties which may or may not have cavity wall insulation.	5% of properties recorded as insulated on housing surveys (pre 1996 in England and Wales, pre 1992 in Scotland), due to 5-10 per cent under reporting recommendation by BRE, the other 5 per cent is adjusted for in the 'Insulated' category.		
Limited potential	Properties which were not built to current building regulations, but have a thermal performance close to current standards and therefore savings from additional insulation would be very small.	Properties built between 1983 and 1995 (inclusive) and classified as uninsulated on surveys (RdSAP assumes u-value of 0.6 "as built").		Properties built between 1984 and 1991 (inclusive) and classified as uninsulated on surveys (RdSAP assumes u-value of 0.6 "as built").
Not insulated	Properties with no cavity wall insulation.	Remaining cavity wall properties i.e. all pre 1983 properties recorded as uninsulated on EHS/LiW (less 10% of insulated property value added for uncertainty (5%) and included in insulated properties (5%)).		Remaining cavity wall properties i.e. all pre 1984 properties recorded as uninsulated on SHCS (less 10% of insulated property value added for uncertainty (5%) and included in insulated properties (5%)).

Loft insulation

Estimates of the number of properties with loft insulation use April 2008 survey data as a baseline. Loft insulation figures taken from each of the housing surveys are categorised into one of the following four categories:

- Insulated
- Easy to treat
- Hard to treat
- No loft

Table 3 below shows how properties are allocated to each of the four categories for the 2008 baseline. It should be noted that categorisation of properties reflects the state in the majority of the property (as coverage may not be uniform across the whole loft space – due to hatches, boarding, eaves, extensions etc.).

Table 3: Classification of loft insulation

Category	Description
Insulated	Properties recorded in each of the property surveys as having 125mm or more of loft insulation in the housing surveys.
Easy to treat	Properties recorded as having less than 125mm of loft insulation in the housing surveys less the hard to treat estimate.
Hard to treat	Properties that contain lofts which are hard to insulate. For example properties with a flat roof or a roof with a very shallow pitch make the loft space inaccessible.
No loft	Properties recorded on the housing surveys as having no loft.

Solid wall insulation

Estimates of the number of properties with solid wall insulation use both information recorded in each of the April 2008 housing surveys and measures delivered through the Government's Energy Efficiency Commitment (EEC). Solid wall insulation figures are categorised into one of the following three categories:

- Insulated
- Uncertainty
- Not insulated

Table 4 below shows how properties are allocated to each of the three categories for the 2008 baseline.

Table 4: Classification of solid wall properties

Category	Description
Insulated	Properties which have received solid wall insulation through the Government's Energy Efficiency Commitment.
Uncertainty	Properties recorded in each of the 2008 property surveys as having solid wall insulation minus the number of insulations through EEC. The quality of solid wall insulation delivered outside Government schemes is unknown – it is possible that older installations may not have reached modern standards of thermal performance.
Not insulated	Properties recorded in each of the property surveys as having solid walls with no insulation.

Sources of increase in insulation levels

Insulation measures installed since April 2008 (when the Carbon Emissions Reduction Target started) are estimated based on administrative data from Government schemes and data on new build properties published by DCLG. The section below outlines how these data are added to the April 2008 baseline figures to give current estimates; the Government schemes included in this release and how newly built homes are classified.

Cavity wall insulation

Each quarter cavity wall insulation delivered through Government schemes is added to the 'insulated' category, and the equivalent number is taken from the 'not insulated' category. New build figures are added to the 'insulated or meets equivalent standard' category. The ['Government Schemes'](#) section of this note outlines in more detail the Government schemes included in these estimates.

Loft insulation

Each quarter loft insulation installations delivered through Government schemes are added to the 'insulated' category, and the equivalent number is taken from the 'easy to treat' category – we assume that no hard to treat lofts are being insulated through Government schemes. New build figures are split between the 'insulated' and 'no loft' categories – all new build houses and flats with a loft are added to the 'insulated' category, whereas flats without a loft are added to the 'no loft' category. Using data from the EHS it is estimated that 60% of flats do not have a loft; it assumed this is the case for new build flats as no information on the actual figure is available. The ['Government Schemes'](#) section of this note outlines in more detail the Government schemes included in these estimates. Currently the following measures which can be installed under the ECO and Green Deal delivery framework are not being included: flat roof insulation, room in roof insulation and loft insulation at joists. These measures may be included at a later date.

Solid wall insulation

Each quarter solid wall insulation delivered through Government schemes is added to the 'insulated' category, and the equivalent number is taken from the 'not insulated' category. Some park homes under ECO have received external wall insulation, these measures have been

added to the 'insulated' category, and the equivalent number is taken from the 'not insulated' category. All new build properties are assumed to have cavity walls and do not therefore affect the solid wall insulation figures. The '[Government Schemes](#)' section of this note outlines in more detail the Government schemes included in these estimates. In addition to installations through Government schemes, we will be exploring the extent of solid wall insulation installed through other routes for future publications through discussions with trade bodies and local authorities. It should also be noted that some solid wall insulation installed through Government schemes may have been applied to hard to treat cavity wall properties, it is not currently possible to differentiate these (with the exception of ECO) so the estimates may slightly over estimate the number of solid wall properties.

Government Schemes

Measures installed through Government schemes prior to April 2008, such as those installed under the Government's Energy Efficiency Commitment (which ran between 2002 and 2008) and early Warm Front, should be included in the insulation figure reported in each of the housing surveys. Measures installed since April 2008 through the following policy programmes are included in the in these estimates:

- **The Carbon Emissions Reduction Target (CERT).** CERT required all domestic energy suppliers with a customer base in excess of 250,000 customers (increased from 50,000 at the end of December 2011) to make savings in the amount of CO₂ emitted by households in England, Scotland and Wales. Suppliers meet this target by promoting (including through subsidies) uptake of low carbon energy solutions to domestic energy consumers, including insulation measures. CERT began in April 2008 and finished in December 2012. CERT was regulated by Ofgem, who reported supplier progress towards their CERT target in summary form on a quarterly basis and also provided a more extensive annual review of the scheme²¹.
- **Warm Front**²². The Warm Front scheme provided heating and insulation improvements to households in England on certain income-related benefits living in properties that were poorly insulated and/or did not have a working central heating system. Qualifying households could get improvements worth up to £3,500 (£6,000 where oil central heating and other alternative technologies were recommended). Some of the activity delivered through Warm Front was sold to CERT obligated companies and therefore included in the CERT delivery figures. This traded activity was assumed to be included in the CERT figures provided by Ofgem and therefore, to avoid double counting, was not included in the Warm Front figures. It was assumed that 50% of cavity wall insulation was traded back to CERT, and 50% of loft insulation installed into lofts which previously had no insulation is traded back to CERT.
- **Community Energy Saving Programme (CESP)**²³. CESP targeted households across Great Britain, in areas of low income, to improve energy efficiency standards, and reduce fuel bills. There were 4,500 areas eligible for CESP. Like CERT, CESP was funded by an obligation on energy suppliers and electricity generators. CESP delivery was reported by

²¹<http://www.ofgem.gov.uk/Sustainability/Environment/EnergyEff/CU/Pages/CU.aspx>

²²http://www.decc.gov.uk/en/content/cms/funding/warm_front/warm_front.aspx

²³http://webarchive.nationalarchives.gov.uk/20121217150421/http://www.decc.gov.uk/en/content/cms/funding/funding_ops/cesp/cesp.aspx

Ofgem twice a year (reporting activity up to the end of June in September and activity to the end of December in March). New delivery was included when updates were available. The impact of CESP estimates is most significant for solid wall insulation; it contributes less than 1 per cent of cavity wall and loft insulation.

- **Green Deal**²⁴. The Green Deal was launched on 28 January 2013 in England and Wales (and on 25 February in Scotland) to tackle a number of the key barriers to the take-up of energy efficiency measures. Customers have a Green Deal Assessment undertaken and then have a choice on how to proceed. They might take the view that their home is sufficiently energy efficient, or that they want to finance work through a Green Deal Plan or use alternative funding arrangements (e.g. use of savings). Further information on the Green Deal can be found in the [Green Deal section](#) of this methodology note. There are a number of other schemes which run under the Green Deal and information on these can be found in the relevant sections of this methodology note: [Green Deal Home Improvement Fund](#), [Cashback](#), [Pioneer Places](#), [Core Cities](#).
- **Energy Company Obligation (ECO)**²⁵. The Energy Company Obligation started on 1 January 2013 (although energy companies have been able to deliver against their targets since 1 October 2012) and runs to 31 March 2017. It replaces CERT and CESP, and focuses on providing energy efficiency measures to low income and vulnerable consumers, and those living in hard to treat properties. Further information on ECO can be found in the [ECO section](#) of this methodology note.

New builds

Information on the number of new properties built in Great Britain is taken from DCLG²⁶. It is assumed that all new dwellings are built with:

- cavities and that these are filled when built. However, some modern constructions will have other types of structure, for example glass, but would not benefit from further insulation as they will meet required thermal performance standards. These new build properties are added to the 'insulated or equivalent' category for cavity wall insulation.
- lofts that have at least 270mm of loft insulation fitted as standard. It is assumed all houses have a loft and that 40% of flats have a loft. The number of new build flats is based on the proportion of new builds in England which are flats, as published by DCLG²⁷. It is then assumed 40% of these have a loft, based on the proportion of flats in the EHS which are recorded as having a loft. New build homes and top floor flats are added to the 'insulated' category for loft insulation, whereas newly built flats that are not on the top floor are added to the 'no loft' category.

²⁴ <https://www.gov.uk/green-deal-energy-saving-measures>

²⁵ <https://www.gov.uk/government/policies/helping-households-to-cut-their-energy-bills/supporting-pages/energy-companies-obligation-eco>

²⁶ Tables 213 – 215: <https://www.gov.uk/government/statistical-data-sets/live-tables-on-house-building>

²⁷ Table 254: <https://www.gov.uk/government/statistical-data-sets/live-tables-on-house-building>

DCLG also separately publish estimates of the number of net additional dwellings²⁸. These are included in the ‘uncertainty’ category, as it is unknown what insulation features demolitions and conversions had or are built with²⁹.

Assumptions made in producing the estimates

Due to data availability, a number of further assumptions are made in order to produce the insulation estimates. These are outlined below.

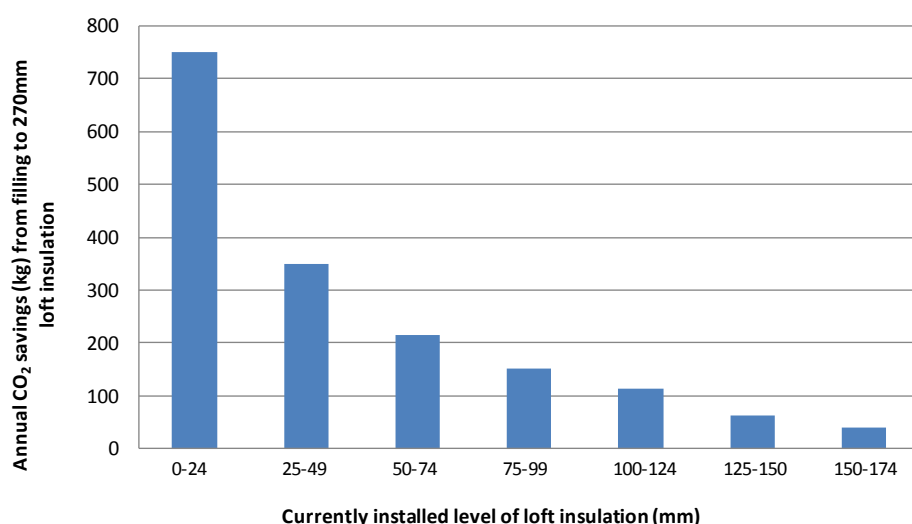
Cavity wall insulation

- Cavity wall insulation is becoming increasingly difficult to identify, as over time the injection holes age, fade or are covered up by later work, and contractors are getting better at disguising their work. This may mean that the housing surveys under estimate the number of homes with cavity wall insulation. The Building Research Establishment (BRE) estimate that the EHS 2008 and previous English House Condition Surveys under-estimate the number of filled cavities by between five and ten per cent. The survey estimates which make up the ‘insulated’ category for cavity wall insulation in April 2008 have therefore been adjusted up by five per cent to take account of this. The ‘uncertainty’ category for cavity wall insulation in April 2008 is made up of 5% of the ‘insulated’ category, and should be considered this way when considering the remaining potential.

Loft insulation

- The Committee on Climate Change propose an under insulated loft as one with less than 125mm of existing insulation. There is a strong ‘diminishing returns’ effect with savings from loft insulation; the first inch gives about half the savings of full insulation – see figure 2 below. Therefore the more insulation a property has the less cost effective it is to add further insulation. For the 2008 housing surveys a threshold of 125mm is used to describe a property as having loft insulation.

Figure 2: Annual CO₂ savings from loft insulation for a typical UK house



²⁸ Net additional dwellings include new build permanent dwellings; plus net gain from dwelling conversions; plus the net gain of non dwellings brought into residential use; plus net additions from other gains and losses to the stock (such as mobile and temporary dwellings); less any demolitions.

²⁹ The net change in dwellings is made up of approximately 20,000 annual additions and 15,000 demolitions. New build estimates are equivalent to approximately 95 per cent of the change in dwellings.

- Data provided from Government schemes does not identify how much insulation was present before the loft insulation was installed. An assumption has been made that 10 per cent of professional loft insulations through Government schemes are top-ups of existing insulation above 125mm. These have not been included to avoid double counting. Under CERT a loft with over 160mm of existing loft insulation would not have been eligible for the scheme.
- The level of DIY insulation through CERT is reported by Ofgem based on sales by square metre rather than dwellings. Using English Housing Survey (EHS) data³⁰ it is possible to estimate the average size of a loft by dividing useable floor space by the number of floors. Using this approach estimates the average loft size to be about 50m². The number of square meters sold is then divided by 50 to get an estimate of the number of lofts insulated.
- Ofgem have produced detailed guidelines for organisations involved in the sale and installation of CERT funded insulation material which should prevent professional insulation companies purchasing insulation that is meant for DIY consumers. However it is recognised that some CERT subsidised loft insulation could still be used by DIY consumers for non CERT eligible projects, including extensions and wastage. It is therefore assumed for DECC estimates that the level of this is 10 per cent. So, for example 55 million square meters of loft insulation sold insulates 1 million CERT eligible lofts.

Solid Wall Insulation

- Solid wall insulation has been defined throughout the Statistical Release as internal or external wall insulation installed through Government programmes: The Green Deal, The Energy Company Obligation, The Carbon Emissions Reduction Target (CERT); The Community Energy Saving Programme (CESP); or The Energy Efficiency Commitments (EEC1, EEC2). These recent installations of solid wall insulation (SWI) use materials such as expanded polystyrene, mineral wool, or phenolic board. Some older installations may not have reached modern standards of thermal performance³¹ and are therefore not reported in the headline figure but reported as uncertainty; housing surveys estimate that in April 2008, around 191,000 homes had other forms of non-cavity wall insulation.
- Solid wall insulation can be applied externally or internally³². For a variety of reasons, households may have insulation applied to specific rooms (internal SWI) or certain walls only (internal or external SWI). The headline figures reported in this statistical release include all homes with at least one wall or room with SWI. Insulation activity reported in CERT may include some partial installation of SWI.

Some cavity wall homes may have solid wall insulation. There are technical reasons why some unfilled cavity walls are hard to treat, which means that SWI may be preferable. If these have

³⁰ <https://www.gov.uk/government/collections/english-housing-survey>

³¹ Following SWI walls should have a thermal transmittance (u-value) of 0.35 W/m².K or less.

³² Internal SWI has the advantage of not changing the external appearance of period properties but reduces internal floor area; while external SWI leaves the floor area unchanged but can require external cosmetic work. External SWI finishes, either rendered or cladding, can be used to improve the exterior appearance of properties undergoing refurbishment.

been done as part of a Government scheme then they will be included in the solid wall insulation estimates (with the exception of ECO), this means we could be overestimating the number of solid wall properties with insulation, and underestimating the number of cavity wall properties with insulation. This should be considered when comparing with the number of remaining homes that could benefit from solid wall insulation.

Depth of loft insulation

In this Insulation Statistics section of this publication DECC defines a dwelling as having loft insulation if it has at least 125mm of insulation and properties with less than 125mm of insulation as “uninsulated”. However, there is also interest in how many properties still have no insulation at all (i.e. 0mm). DECC has made an assessment of this based on limited information from housing survey data and assumptions about which lofts have been insulated through Government schemes.

Loft depth information from the English Housing Survey for 2008 to 2010 was used as a starting point. This was combined with known delivery through Government schemes to produce estimates for Great Britain for 2008 to 2010. Information on lofts insulated through Government schemes was then used to estimate the number of properties with 0mm of loft insulation for 2011 to 2013.

Given the limited evidence available, two methods have been used for 2011 to 2013 estimates; to provide an indication of the upper and lower bound for the range the actual figure lies within. The first method (upper bound) assumes that loft insulation delivered through Government schemes has been equally distributed in proportion to the number of properties in each loft depth category below 125mm. The second method (lower bound) makes different assumption for different Government schemes. Anecdotal evidence from DECC’s interim CERT evaluation¹⁴ and the Dead CERT report published by the Association for the Conservation of Energy¹⁵ suggests that more professional loft insulation has been installed in households which previously had less than 60mm of loft insulation and more DIY loft insulation has been installed in household with previously had insulation of 60mm or more¹⁶. It has also been assumed that insulation through CESP has been installed equally across the dwelling stock and for Warm Front, a break down for insulation going into properties which previously had less than 60mm and greater than 60mm is provided.

These two methods result in a range of 0.6 to 2.0 per cent of properties with a loft having 0mm of insulation in April 2013. Given the uncertainty around this estimate, a point estimate of around one per cent is the best estimate of the number of lofts with no insulation at the start of April 2013.

Reporting methodology

Missing values are excluded from all calculations of percentages. Underlying percentage figures are rounded to one decimal place or to the nearest whole integer (e.g. all trailing decimals are removed). Some percentages may not add up to the totals due to rounding.

Revisions policy

On occasions, previously published data will need to be revised due to changes to source data or correcting of errors. These will be made at the time of the next release. Some data will be provisional and subject to future revisions and will be denoted with “p”³³. Data that are revised from the previous release will be denoted with “r” or with a footnote explaining the change. Where a large revision has taken place reasons will be provided.

In particular, monthly information on measures installed (i.e. through Cashback, GDHIF, ECO and Green Deal Plans) will need to be reviewed to ensure that measures are not reported against more than one funding mechanism. DECC will review these figures and other estimates quarterly when we have linked data from different sources to perform further quality assurance on the monthly data. As the Green Deal and ECO only started in January/February 2013 there is likely to be some revisions as inconsistencies are found in the data reported which will gradually reduce over time.

Further information and feedback

Any enquiries or comments in relation to the methodology set out in this document should be sent to DECC’s Green Deal Statistics Team at the following email address:

EnergyEfficiency.Stats@decc.gsi.gov.uk

Contact telephone: 0300 068 5106

Further information on the range of DECC’s energy statistics is available at <https://www.gov.uk/government/organisations/department-of-energy-climate-change/about/statistics>

³³ All measures installed under ECO are provisional until the end of the obligation period as checks are undertaken, and measures approved by Ofgem.

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