

The ECO: an evaluation of year 1

Final report to Energy UK

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Executive Summary

Background

The Energy Company Obligation and the Green Deal represent a radical departure from the energy efficiency schemes that preceded them. The Energy Efficiency Commitment (EEC) and Carbon Emissions Reduction Target (CERT) programmes funded low cost energy efficiency measures at no or little upfront cost to the householder. The ECO was proposed as a mechanism to help develop the supply chain for a more complex set of measures, most notably hard-to-treat cavity wall insulation (HTTC) and solid wall insulation. The secondary legislation that supports the ECO provides a far more precise framework for measure and householder eligibility compared to EEC and CERT. This has resulted in delivery agents needing to provide a more detailed level of information than has ever been required before.

This report presents the findings of an independent evaluation of the Energy Company Obligation undertaken by the Centre for Sustainable Energy and commissioned by Energy UK.

In evaluating the ECO it is important to understand DECC's original intentions for the policy, particularly in terms of what they were hoping the policy would achieve and how they anticipated the market would respond. Exploring these aspects of policy development and implementation planning will help to establish whether the policy is working as originally intended. It will also reveal the extent to which DECC's policy development was founded on a sound understanding of the relevant markets for ECO and how the policy was likely to influence market behaviours – especially those of energy suppliers and insulation contractors.

During the course of this analysis, the Government announced high level details of proposed changes to the ECO, with the intention of reducing costs. Direct intervention by Government during the delivery of the obligation represents an unprecedented level of intervention in policy design and delivery. It also further erodes supply chain confidence in the funding regime for energy efficiency measures. Whilst the findings of this review do not seek to directly address the impacts of these changes, the recommendations from this review will provide useful context for the forthcoming DECC consultation on these changes.

Approach to analysis

The findings from all aspects of the review (both qualitative and quantitative inputs) are described in detail in the main body of the report. This overview section highlights some fundamental issues with the obligation's design, including:

- Delivery cost
- Reporting complexity
- Variation in scores and contract values
- Types of measures supported (CERO and HHCR)
- The experience of those delivering the ECO

It then presents a number of recommendations which could be implemented to help make the ECO successful.

Headline findings

Overall progress

Ofgem published figures in January 2014 showing the progress of each supplier by obligation towards the phase 1 and 2 targets to the end of December 2013. The figures show that the progress against HHCRO is on track to reach the March 2015 target, but progress is somewhat short of that required for CERO (based on the original targets, i.e. prior to the recent consultation announcements). However, the overall reported progress of 25% (phase 1 and 2 only) for CERO masks a large variation between suppliers, with several in excess of 35% of the target, and the others having made much less progress. The consultation's proposed changes include an uplift for CERO measures above a threshold of progress towards phase 1 and 2 by the end of March 2014; however, the basis for this threshold which is significantly higher than the penalty for failing to meet the required progress is not documented. Indeed, the future of the ECO consultation seems to avoid unduly penalising under performance.

Furthermore, the specific uplift for solid wall insulation above the expected delivery profile could be seen to penalise those suppliers that prioritised solid wall insulation during phases 1 and 2. This is an alteration to the autumn statement announcement where all solid walls would benefit from uplift. Suppliers have therefore been working to this assumption for the last three months. Those suppliers that have installed a high volume of solid wall insulation may have done so when the cost was expensive i.e. as there were lower complimentary subsidies in Wales and Scotland and the market was focussed on HTTC. DECC could therefore choose to apply the uplift more generally; however, a more sensible approach would be to also penalise those suppliers that under performed by raising their solid wall minimum target based on delivery below the expected delivery profile.

This slow progress reflects the steep learning curve associated with the ECO's delivery as reported to us in the stakeholder surveys. The lack of full guidance at the beginning of phase 1 of the ECO also had an impact upon the supply chain's ability to begin delivering measures at scale. Notably Ofgem has responded quickly to DECC's recent future of the ECO consultation providing their view of implications for scheme delivery and design. The majority of those involved in the supply chain now have systems in place, and the burden that reporting has on costs can only be reduced dramatically by structural changes to the programme. In particular, considerable progress has been made in standardising the suppliers' reporting requirements for installers.

Delivery models

Suppliers are typically using four routes to deliver their obligations:

- Bilateral agreements with installers
- Direct relationships with local authorities and registered social landlords (RSLs)
- In-house activity
- Brokerage

Bilateral agreements with installers and direct relationships with local authorities provide the main delivery routes for the majority of suppliers. A smaller group of suppliers had been involved in the early rounds of brokerage with aims to deliver around 5% to 10% of their obligation this way. However, this route has become less popular due to the standard contract failing to ensure that the

necessary reporting requirements can be met, and also issues around confidence in the delivery and/or quality of works.

It is worth noting that the amount of in-house delivery is minimal (1%) compared to previous obligations where suppliers have delivered relatively significant proportions in-house. Although these findings are preliminary, the low proportion of in-house delivery is interesting as this may allay initial fears raised by the supply chain that suppliers may choose to do all their ECO activity in-house.

Overall delivery cost

The final delivery cost based on the rates experienced to the end of December 2013 would be approximately £1.54 Bn per year which is within the bounds of the final DECC Impact Assessment of £1.3 Bn (note that the experienced costs in the future are likely to be lower following the recent changes announced in the future of the ECO consultation). The average cost on bills for a dual fuel customer would be in the region of £62 per year. DECC's recent consultation analysis suggests a reduction in cost of £500m to a total of approximately £900m.

Whilst the delivery costs in 2013 were within the scale of the impact assessment, this was predominantly due to the size of the HTTC market. Measures installed under CERO to date are clearly driven heavily by HTTC, which comprises 76% of all CERO measures in the dataset. Whilst these numbers do not reflect DECC's impact assessment predictions, they do reflect the market reality of the policy:

- Suppliers are choosing the cheaper of the two eligible measures to discharge the obligation at least cost to their customers.
- The supply chain for cavity wall insulation was already well developed and adapting their business to identify and treat HTTC was more straightforward than focussing on solid wall insulation.
- The size of the HTTC market is sufficient to allow all suppliers to avoid installing solid wall insulation in high volumes at a higher cost. Note that the mix of measures varies by supplier.

The Government's recent future of the ECO consultation's approach to limiting the HTTC market focuses on the reintroduction of easy-to-treat cavity wall insulation and loft insulation as a primary measure under CERO. To reduce the cost of the obligation, the announcements also included a 33% reduction in CERO for the period to 2015 with a target for the 2015-2017 period reflecting this same level of activity.

The consultation does not include the recommendation to utilise deemed scores or feature a question on the topic. It is worth noting that reducing the complexity of reporting by deeming scores for easy-to-treat cavity wall insulation and loft insulation would further reduce DECC's predicted cost of £900m.

Brokerage

Whilst brokerage currently accounts for a very small proportion of the market for ECO delivery, it represents an important change to the supply chain for those involved. DECC has previously consulted with partners on mandatory (higher) targets for delivery via brokerage. Suppliers were all opposed to this. They felt that: a) the current system does not provide enough quality assurance; b)

the delivery price would rise under brokerage; c) it would increase the risk associated with delivery due to non-compliance. The majority of suppliers also raised concerns about the standard brokerage contract. In particular, the contract does not allow them to routinely obtain all of the evidence required for reporting to Ofgem E-serve.

The potential for mandatory requirements on energy suppliers to purchase lots through brokerage was raised with core delivery groups (i.e. energy suppliers, Green Deal Providers and installers). The majority of respondents were not in favour (neither suppliers nor Green Deal Providers). There was support from both energy suppliers and Green Deal Providers for separate lots for the rural element of the CScO. Given the proposed changes to the ECO, the brokerage model should consider identifying those lots containing solid wall insulation, ensuring that the observed price better reflects the lot's value.

For CERO, the average cost of delivery via brokerage was originally higher than that derived from supplier-based submissions (until the end of October). Following the Government's announced review of "Green Taxes", the market for CERO, CScO and HHCRO first stalled and subsequently collapsed. The most recent auctions for all three aspects of the obligation cleared for a price that is significantly lower than the final DECC impact assessment. The auctions for CERO and CScO clearly include lower cost measures in anticipation of the forthcoming changes i.e. post April 1st 2014. The recent clearing price for HHCRO of 8p per point suggests that contractors are marketing boilers with an advertised customer top-up (confirmed by recent feedback from installers). Whilst this suggests that economically it is viable to support boilers at a lower rate, it would be naive for an economist to support this rate over the longer-term as the source of finance for the top-up and/or the impact of this expenditure on a low income household are unknown.

HHCRO delivery and Affordable Warmth

Our analysis of distribution of measures against the English, Welsh and Scottish indices of multiple deprivation (specifically, income deprivation) found that, in general, proportionally more households in the most deprived areas are receiving measures, when measures from all obligation categories are added together. This represents a success story as the policy itself will be more progressive overall.

Our analysis of installations across all of the aspects of the obligation by heating fuel and rurality shows:

- Current delivery is skewed towards urban areas
- Current delivery is skewed towards homes heated by gas
- Broken boiler assumptions seem to skew HHCRO delivery heavily towards boilers (which assume the use of plug-in electric heaters to fully heat the home), rather than offering a full range of measures to Affordable Warmth households

The rural safeguard element of CScO was meant to ensure that vulnerable rural households were able to access funding. At present it appears that this aspect of the ECO is failing. Ofgem have subsequently made rural postcodes available to suppliers but as this is not publically available for legal reasons the authors cannot comment on how easy the data is to utilise in practice. Currently the data does not include the bottom 25% of the IMD Income scale as proposed by DECC although expansion of the data in this way is being investigated by them. Suppliers can reclassify any eligible

CSCo rural measures completed prior to the 1 April 2014 if they can prove the customer meets the qualifying criteria for the Affordable Warmth group. However, as discussed above, our analysis of measures by rurality would have captured their location correctly.

Lack of activity in households using electricity and other fuels is disappointing, as the expected carbon savings would be much higher in off-gas areas, and (as discussed earlier) these households are likely to be amongst the hardest hit by the costs of energy policy in 2020. These rural households are sometimes paying the most into the scheme but benefitting from it the least. To make these measures cost effective a series of uplifts have been proposed in the recent consultation document; further analysis is required to determine if these are sufficient to introduce fairness to the policy's distributional impacts.

The annual savings for a boiler repair and broken boiler are in the region of £1,100 and £2,200 respectively. Likely funding available for replacing a broken gas boiler ranges from £2,120 to £2,400 based on the mean cost score and costs per point of £0.15 and £0.17. Therefore only straight boiler replacements are really viable. This would make oil, LPG, gas back boilers and boilers with enhanced controls less attractive to the ECO delivery agent. The recent auction prices discussed above further compound these issues for low income households, as the uplifts announced in the recent consultation are unlikely to make an oil boiler attractive where gas customers are routinely expected to contribute to the cost of a replacement boiler.

The core delivery groups, consumer groups and Ofgem indicated a desire for pre-verification checks of eligibility from DWP. This would reduce drop-out rates, as householders would not be asked to provide sensitive information about benefits entitlement and/or savings to an installer or energy supplier. It would also allay the fears of consumer groups and energy suppliers regarding the collection and storage of sensitive data as part of the evidence gathering that is necessary to validate HHCR eligibility. Particular areas of concern are the manner in which this data is requested by the installer and the safeguards that they may or may not have in place to ensure that this data is stored securely. Pre-verification checks would also significantly reduce the HHCR reporting requirements.

Reporting

There is a very clear message coming from the core delivery groups that the current administrative and reporting requirements for delivering the ECO and Green Deal are onerous and overly bureaucratic. In particular, the core delivery group all raised concerns about the level of complexity required for reporting, which in turn creates additional costs to ensure compliance. This additional burden was felt more acutely by smaller Green Deal Providers and installers (discussed further below). The core delivery group had all implemented additional management systems to help meet the new requirements for reporting. Several commentators highlighted the need for DECC and Ofgem E-serve to have published detailed guidance surrounding the obligation in advance of its launch, as the late publication of full guidance hindered the transition from CERT to the ECO. Ofgem published open letters and draft guidance in November 2012 and it's therefore worth noting that the supply chain did not feel this sufficient to plan their operations fully.

Detailed discussions with the core delivery groups and wider stakeholders have highlighted the need for:

- Standardisation of energy supplier reporting requirements - a working group has made considerable progress on this.
- Pre-verification of householders for HHCRO via DWP to reduce reporting requirements.
- Deeming scores, which was seen as a key step to reducing the reporting requirements.
- Retaining the assessment process as a method of engaging households (requested by Ofgem, the Green Deal Finance Company and several energy suppliers).

Whilst the assessment process clearly provides a useful engagement point for the householder, the cost of the assessment relative to the cost of the measure is an important consideration. For example, the assessment process (with reporting) may cost more than the measure for easy-to-treat cavities and lofts (as now proposed in the future of the ECO consultation).

Developing a supply chain for solid wall insulation

One of DECC's stated aims of the ECO is to stimulate the development of a solid wall insulation supply chain, particularly for one-off private homes. This failed to happen, mainly because suppliers relied much more heavily than anticipated by DECC on HTTCs to meet their obligations. This strategy will keep overall ECO costs down; however, the important goal of developing a supply chain is being missed.

The level of funding available for solid wall insulation is insufficient to enable installation at no upfront cost to the householder. Across the three types of external wall insulation reported, the likely ECO contributions are £3,050 to £4,390 (based on the average of the means of each of these three measures and the range of £80-£115 per lifetime tonne of carbon). The costs of these measures are unknown (as the data on this was not provided), but our own schemes experience and discussion with suppliers suggest installed costs of approximately £10,000. The Green Deal finance potential is unclear as the bill saving is not included in all of the data. However, based on estimation from the carbon saving (~1 tonne per year in gas heated properties) the total finance available is likely to be in the region of £2,800 to £3,000, meaning a significant customer contribution would still be required. This means solid wall insulation through the ECO/Green Deal is still an unattractive or impossible option for most customers; more so for lower-income customers.

In response to the above issues DECC has announced:

- A minimum target of 100,000 solid walls by 2017
- Higher cashbacks of £4,000 per customer for solid wall insulation (although this cannot be used in conjunction with ECO funding)

The minimum target for solid walls of 100,000 is likely to be predominantly achieved through direct contractual relationships with RSLs and local authorities. These findings are consistent with the interviews, which suggested that several suppliers are seeking to develop these relationships, with CSCo area-based schemes seen as a good route to market. It is also worth noting that the proposed target (per year) is lower than the 82,000 houses that received solid wall insulation in 2012.

The proposed cashbacks are likely to make solid wall insulation a more attractive proposition for owner occupiers, particularly mid-terrace properties where the installed costs are lower and the level of subsidy (in this case) is no longer defined by the measure's savings. However, the total size

of the funding pot and longevity of the cashback offer is unclear, particularly how many solid wall jobs the Government plans to fund by cashback over the next year and if funding will continue beyond that.

Opening up the market for smaller installers

Two key issues emerged in the context of accessibility, relating to lot sizes and system biases. On the latter, there is a consistent message from installers and Green Deal Providers that smaller businesses are disproportionately disadvantaged by the system, due to the high costs of compliance and (in)ability to be able to deliver measures on a larger scale. The dissatisfaction expressed by many installers through the survey can be traced back to their original expectations for the ECO to offer opportunities for large and small businesses alike. Early publicity around the ECO conveying this message was not uncommon. In many instances it seems this served as a primary motivation for businesses to invest in PAS 2030 and/or Green Deal Provider registration. However (and as noted by suppliers themselves), both the reporting requirements and the scale of the obligations act as a barrier to smaller installers.

Key recommendations

Section 3 provides an outline of the recently proposed changes following the future of the ECO consultation announcements in March 2014. The following recommendations are not designed to directly translate to these proposals; however, the overall ethos of simplification and cost reduction do provide useful context.

It should also be noted that the recommendations presented here (both short and long-term) represent the independent view of the Centre for Sustainable Energy in the context of: the original remit of the ECO; what is required to deliver the long-term necessary reductions in emissions to achieve the carbon budgets; and the required improvements to the energy efficiency of low income households who are likely to suffer from the impacts of fuel poverty.

Short-term changes to the ECO

The following table summarises our short-term recommendations. If they feature in DECC's future of the ECO consultation then we have added a note (N.B. this does not mean that DECC's consultation directly overlaps with our recommendation).

Recommendations	Consulted upon	
	Yes	No
1. 'Deemed savings' alongside suitably recommended measures		X
2. Cross-government support		X
3. Introduce a solid wall insulation minimum target and increase Government cashback for solid wall insulation	X	
4. Continued best practice collaboration on simplification		X
5. Developing the brokerage market	X	
6. Pre-verification of householders for HHCRO	X	

1. ‘Deemed savings’ alongside suitably recommended measures

Under the previous Carbon Emissions Reduction Target (CERT), the carbon reduction matrix (spreadsheet) was used to calculate savings for programmes of measures. The matrix used a set of deemed savings for each measure typically varying by property details (built form) and number of bedrooms (size). It should be noted that older versions also split savings by heating fuel.

Based on feedback we have received, we believe a 15% cost reduction would be achieved (10% in HHCRO) if savings were deemed in advance (i.e. set by Ofgem/DECC for each measure by each property type and fuel type). Several energy suppliers suggested the use of calculated savings from the first phase of the ECO to determine the level of deeming required. This cost reduction would result from the far lower risk and the much more straightforward proposition to householders, which would boost take-up. The current ECO rules require the carbon or bill savings for each property to be calculated following a survey. This creates considerable uncertainty for installers, energy suppliers, and other scheme partners (such as local authorities and social landlords) in predicting the ECO savings which will be delivered from any given property or group of properties. Installers tell us that this considerable uncertainty and risk is ‘priced in’. The requirement for house-by-house calculation also undermines a straightforward customer proposition because the ECO value for that household is not known in advance.

To provide confidence that the customer is being offered the appropriate measure and allow compatibility with Green Deal Finance (i.e. enabling a future calculation of the loan threshold), the customer could still be given an assessment using the RdSAP and the EPC framework. This provides a number of benefits to the customer as they are presented with more accurate information on the energy options for their home, it is compatible and works in harness with the provision of EPCs, and it captures data on the state of the housing stock for government. However, the savings would be deemed removing the need for the additional reporting burden associated with the current approach.

The recent changes to the ECO notably do not include deemed savings, even for low cost, easy-to-treat measures like loft and standard cavity wall insulation (where the total cost of the assessment and reporting may in some instances exceed that of the measure).

2. Cross-government support

The Government’s recent review of “Green Taxes” highlights a lack of cross-government and cross-party support for sustainable energy policy. In particular, in CSE’s opinion the review’s focus on energy efficiency is unfortunate, as the large scale renewables policies do not provide measures that help householders directly. Furthermore, Green Deal Providers and PAS 2030 registered installers invested a significant amount of capital in preparing for the Green Deal and the ECO. The Green Taxes review, and announced changes to the ECO, further undermines the supply chain’s confidence in the policy landscape.

Discussions with energy suppliers identified a desire to generate a longer-term vision for the retrofit of the UK housing stock. A number of commentators felt that this could be a much higher priority for Government, with several identifying the need for a higher profile publicity campaign. However, the key message is the need for cross-government support and unity on the issue of improving the

energy efficiency of the housing stock. The forthcoming fuel poverty strategy provides an opportunity to engage other Government departments (i.e. DWP, DoH, HM treasury, BIS, DoE).

3. Introduce a solid wall insulation minimum target into ECO and increase Government cashback for solid wall insulation to avoid ECO paying for supply chain development

One of DECC's stated aims of the ECO is to stimulate the development of a solid wall insulation supply chain, particularly for one-off private homes. The recent changes to the ECO include a proposed minimum target for the treatment of the equivalent of 100,000 solid walled properties by March 2017. As independent author of this report, CSE believes this minimum to be significantly lower than that required to develop a meaningful level of solid wall activity. The term meaningful here is meant to describe the level required to stimulate a market for solid wall insulation in the non-social housing sector (i.e. one-off jobs), and necessary to meet our carbon budgets.

DECC have also announced generous cashbacks for solid wall insulation (£4,000) for the next year which may help stimulate the market. These cashbacks are not to be used in conjunction with ECO funding and therefore represent additional support for the solid wall market. The consultation specifically refers to the measure as an initiative to drive the provision of blended finances i.e. through control of the cashback they can encourage take-up of Green Deal Finance. Unfortunately the customer may prefer their own finance or an alternative option and as such forcing blended finance runs contrary to a market based mechanism i.e. allowing innovation to develop. Furthermore the long-term target for Government backed cashbacks is unclear i.e. do they have plans for a total number of installations over a number of years.

4. Continued best practice collaboration on simplification

There is currently a working group with suppliers, installers, Ofgem and DECC, which aims to identify measures to improve the reporting process for the supply chain. This group should continue to meet and work towards implementing the agreements to standardise practice and also review forthcoming changes that are currently being consulted upon.

5. Developing the brokerage market

Whilst the report did not identify industry wide support for mandating the use of brokerage, there was a general level of support for the brokerage market as a route to delivery. However, there are a number of improvements that would support the development of brokerage further through improved clarity on the measures offered, listing of CSCo rural as separate lots and appropriate reporting to Ofgem.

6. Pre-verification of householders for HHCRO

Under the ECO, the Energy Saving Advice Service (ESAS, run by the Energy Saving Trust) handles calls from consumers interested in energy efficiency measures and has a voluntary agreement to refer eligible consumers to one of the obligated suppliers. ESAS provides suppliers with details of consumers who have declared their eligibility and had this confirmed by DWP. Suppliers also have to separately verify whether or not the consumer lives in private housing, which is another eligibility criterion for Affordable Warmth. The ESAS service directly refers customers to suppliers rather than allowing them to access a wider set of schemes which may provide more favourable offers. We

would recommend opening this referral market up to competition through other Green Deal Providers.

In the next phase of the ECO, enabling pre-verification of Affordable Warmth customers via a system that is accessible to the key elements of the supply chain (including Green Deal Providers) is a fundamental necessity. This would reduce reporting requirements, minimise data protection risks and reduce administration costs. A central information repository is one potential solution to this problem, supported by energy suppliers and Ofgem.

Longer-term considerations for the future of the ECO

The following table summarises our longer-term recommendations. If they feature in DECC's future of the ECO consultation then we have added a note (N.B. this does not mean that DECC's consultation directly overlaps with our recommendation).

Recommendations	Consulted upon	
	Yes	No
1. Expanding and simplifying the eligibility criteria for the Affordable Warmth group		X
2. Increased accuracy of impact assessments		X
3. Further policy development to ensure the ECO adequately supports rural households, i.e. at a level that is proportional to their contribution to the policy's costs	X	
4. Ensuring the obligation has a complementary mix of measures in each sub-aspect		X

1. Expanding and simplifying the eligibility criteria for the Affordable Warmth group

A number of suppliers and consumer groups have suggested the inclusion of cold-related illnesses as a qualifier for the Affordable Warmth group, i.e. a referral from a doctor. This would strengthen the link between the fuel poverty and health agendas, encouraging the further engagement of DoH. There is a strong case for the ECO targeting those whose health is at most significant risk from cold, damp housing, particularly households containing children with asthma¹. Although fuel poverty is not perfectly correlated with living in a cold or damp home, the DECC Hills Review² shows it is a strong indicator. Indeed, the Housing Health and Safety Rating System (HHSRS) deemed both 'excess cold' and 'damp and mould' as category I hazards which rule the property unfit for occupation. In response to this issue, the National Institute for Health and Care Excellence (NICE) is currently putting together public health guidance on the link between cold weather, cold housing and ill health³.

The eligibility criteria for the Affordable Warmth group could also be simplified by removing the number of additional qualifiers for certain benefits (although pre-verification by DWP as proposed above could negate the need for simplification). However, to ascertain the impact on the target

¹ CSE 2013, Fuel Poverty Social Impact Bond Scoping Study, eaga CT

² DECC 2012, Getting the measure of fuel poverty, LSE, CASE Report 72

³ NICE, 2013. Public Health Guidance Final Scope Report:
<http://www.nice.org.uk/nicemedia/live/13899/63745/63745.pdf>.

group of householders, the overlap between the new definition of fuel poverty and the receipt of benefits needs to be better understood.

2. Increased accuracy and of impact assessments

Given this analysis, it is difficult not to arrive at the conclusion that the policy was developed on the basis of an inaccurate and perhaps commercially naïve view within DECC and its consultants of how energy suppliers and insulation contractors would respond individually and collectively to the ECO policy framework. It is not possible to investigate the extent to which this view was either reinforced by, or created by, the analytical model used by DECC in its internal policy assessments. It is reasonable to assume that the model must have reproduced these inaccurate perspectives in its workings.

The Green Deal model used by DECC should also be calibrated before the next impact assessment is prepared. The Green Deal Household Model Assumptions Document⁴ strongly recommends that further data is collected on real-world uptake of Green Deal measures, perhaps through the on-going trials by the energy companies, to allow calibration of the consumer behaviour within the Green Deal model. The key issue is the fact that people are generally more willing to spend hypothetical money in surveys than their own money in the real world.

These are significant limitations in commercial understanding which need to be addressed, given the continuing expectation that DECC policies, and the ECO in particular, will be delivered principally by commercially-driven organisations. Future policy making should consider:

- Proposals for achieving an affordable and deliverable balance between cheaper and more expensive measures, i.e. cavity wall insulation vs. solid wall insulation (see point 5 below).
- Clearly framing the requirements of the policy in the context of both the future carbon budgets and the forthcoming fuel poverty strategy.
- Proposals for achieving a fair balance of delivery between properties heated by gas and other fuels.
- Administrative costs associated with evidence requirements, broken down by measure and/or obligation.
- Potential administrative savings through streamlined or alternative approaches.
- Costs to identify customers, broken down by measure and obligation.
- Costs to manage the customer through the installation process.
- Potential customer management savings through streamlined or alternative approaches.
- Role for other forms of finance in the retrofit of the housing stock i.e. not forcing the customer to blend finance.
- Evidence on scoring variability and the drivers for differences.
- Proposals for ECO Affordable Warmth eligibility with specific reference to health outcomes.

3. Further policy development to ensure the ECO adequately supports rural households, i.e. at a level that is proportional to their contribution to the policy's costs

⁴ https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/43021/3592-green-deal-household-model-assumptions.pdf

Future incarnations of the ECO need to make adequate provision for those households which do not have access to mains gas and/or live in rural areas. These households face higher average fuel prices per unit to heat their homes, have contributed to the ECO and previous obligations, are hardest hit by future energy policy costs, and are currently receiving fewer benefits from the ECO. To date the CSCo rural safeguard is clearly not enough to help these households.

The future of the ECO consultation includes an expansion of the CSCo areas and simplification of eligibility criteria for rural households. This will be accompanied by an uplift of five per cent for insulation measures, five per cent for electric room heaters and 100 per cent for all other non-natural gas fuelled heating measures; this would also apply to properties that are in areas served by the gas grid, but don't have a connection, e.g. electrically-heated homes in urban areas.

Suppliers have made significant progress on their HHCRO targets; the proposed changes are therefore unlikely to help rural Affordable Warmth households in the short term. Alongside close monitoring of the remainder of the ECO (CSCo and CERO) and its impact in rural areas, further analysis should be performed to ensure that the ECO can:

- Integrate with the Renewable Heat Incentive for wealthier households
- Work with DNOs to capitalise on any opportunities for demand side management
- Help low income households without access to gas

4. Ensuring the obligation has a complementary mix of measures in each sub-aspect

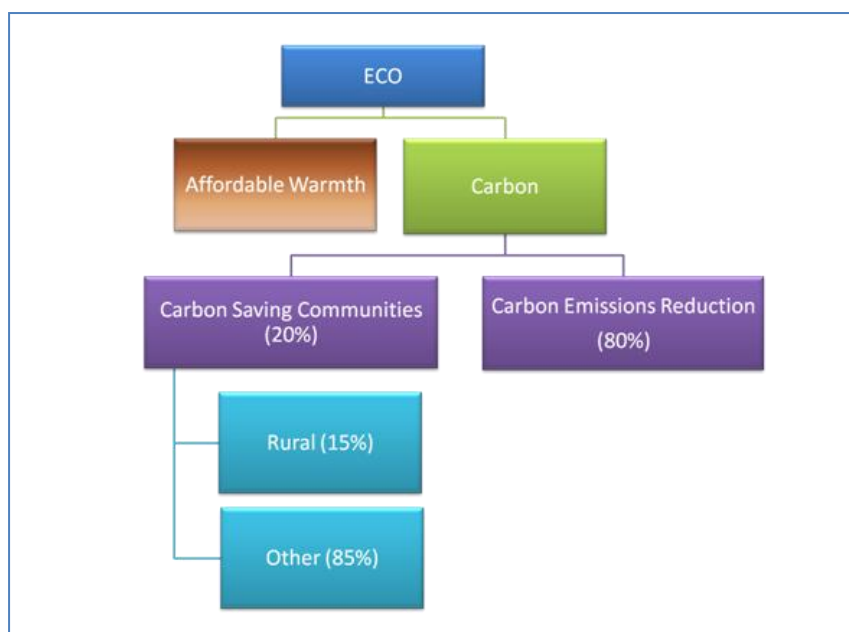
The CERO obligation originally featured two main delivery measures, HTTC and solid wall insulation. Whilst HTTC costs more than a standard cavity wall installation, it is significantly cheaper than treating a solid wall. It was therefore inevitable that energy suppliers would focus on the cheapest measure first. Competition between suppliers for this limited market of measures further drives that focus. There is a similar issue under HHCRO for broken boilers, where the market is focussed entirely on broken gas boilers with no market for oil boilers or electric systems. In future, the ECO or its successor must ensure that no single measure distorts the market significantly.

1 Introduction

The Green Deal and Energy Company Obligation (ECO) launched in January 2013 to replace CERT and Warm Front as the Government's new flagship energy efficiency initiative. It sets out a framework to enable consumers to install energy efficiency improvements in homes, community spaces and businesses at reduced upfront cost, through the provision of Green Deal finance. Repayments on the finance are recovered through a charge in instalments on the energy bill (tied to the property not the individual). The expected financial savings resulting from the measures installed must therefore be equal to or greater than the costs attached to the energy bill to ensure the consumer is no worse off financially (the 'Golden Rule').

The ECO places three obligations on energy suppliers: the Carbon Emissions Reduction Obligation (CERO), the Carbon Saving Communities obligation (CSCo, which has a minimum 'Rural Safeguard' target) and the Home Heating Cost Reduction Obligation (HHCRO, or the 'Affordable Warmth' group) (Figure 1.1). The ECO is intrinsically linked to the Green Deal to provide financial support where the Golden Rule cannot be met for households who install measures through CERO. These obligations can be met by suppliers promoting and subsidising the installation of measures which reduce carbon emissions or energy bills, respectively, in the domestic sector.

Figure 1.1. The Energy Company Obligation



DECC published 'The Final Stage Green Deal and Energy Company Obligation Impact Assessment' in the summer of 2012⁵. The impact assessment provides a detailed overview of the Green Deal and the ECO design, the expected costs of delivery and the probable mix of measures. However, unlike the predecessor CERT programme, an illustrative mix of measures indicating the savings that could be claimed under each aspect is not provided. Instead, the savings associated with measures supplied under the Green Deal and the ECO are based on an Energy Performance Certificate (EPC) with the necessary occupancy and/or performance adjustment. The savings will therefore vary for

⁵ https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/42984/5533-final-stage-impact-assessment-for-the-green-deal-a.pdf

each customer based on current levels of energy efficiency and their use of heating. This presents a key challenge and uncertainty for ECO delivery agents.

In light of these uncertainties surrounding the expected costs and impacts of the Green Deal and ECO, Energy UK commissioned the Centre for Sustainable Energy (CSE) to undertake an independent evaluation of the first year of the programme.

This report presents the findings from the evaluation. The evaluation work was affected by significant delays in provision of detailed supplier data, and as described below, the ECO landscape has been affected by a recent high profile debate which led to the Government announcing proposed changes to the policy on 2 December (with a subsequent consultation document finally released on 5 March 2014).

Aims and objectives

The overall aim of this evaluation is to explore the extent to which the Green Deal and ECO are being delivered in line with expectations set out by the Government in its 2012 Final Impact Assessment. The following key objectives have been identified to fulfil this aim:

Box 1. Evaluation objectives

- 1. Determine whether the Green Deal and the ECO are delivering measures at the scale and cost that they were designed to achieve.**
- 2. Inform the design of forthcoming schemes by examining the experiences, successes and failures of the programmes in the first year.**
- 3. Identify opportunities for added value whereby schemes are supported by additional funding and/or measures from other sources.**
- 4. Estimate the likely bill impacts associated with the delivery of scheme targets.**

2 DECC's development of the ECO

2.1 ECO consultation and final impact assessment

This section provides a summary of several of the key themes from the final ECO and Green Deal impact assessment (IA No: DECC0072) and associated consultation⁶ that surrounded the final impact assessment. The aim is to provide context for the reader when viewing the responses to the survey work from all levels of the supply chain, in particular the extent to which people's expectations and responses have been framed by the Government's vision for the policy.

Opening the Market to SMEs

The consultation recognises the valuable contribution SMEs can make to the Green Deal and points to how they actively engaged the SME community as part of the consultation process. The report states that in the interests of simplicity, and to reduce potential barriers for SMEs entering the

⁶ <https://www.gov.uk/government/consultations/the-green-deal-and-energy-company-obligation>

market as Green Deal Providers, some previously stated requirements have been removed. These include extensive guarantees/warranties for all installed measures in addition to that provided by the manufacturer and the requirement for a surety bond in cases of insolvency. The added bureaucracy of these measures would have led to higher costs for both Green Deal providers and consumers and the increased simplicity should be welcomed. However there is no mention of how to improve market conditions for those acting as Green Deal installers only.

Reporting

The consultation noted that additional accreditation requirements would create a significant cost burden and this was a particular concern for micro and smaller businesses. The report stated that in the majority of cases existing certification schemes would be carried across and recognised under the Green Deal and ECO without the need for any new training. Provided a Green Deal accredited certification body recognised the existing skills of an installer the process of automatically approving them for the Green Deal would be chiefly administrative. Specific mention was made with regards to being Gas Safe approved or registered under the Microgeneration Certification Scheme (MCS), with the report stating such installers would be deemed as meeting PAS 2030. This is a stark contrast with the current situation which requires all Green Deal installers to complete PAS 2030. Considering the consultation recognised the cost issue associated with this it is surprising that such a change was made.

How ECO and the Green Deal operate together

The consultation did not comment on how the two schemes would work together in practice, though it does state that a full evaluation of this will take place in the final report at the end of the policy. The consultation questions on ECO focus on the three different strands (CERO, CScO and HHCR0) to determine respondents' opinions with regard to eligibility criteria, funding, etc. rather than how ECO will work in conjunction with the Green Deal. There were several questions on ECO Brokerage, with the majority of stakeholders supporting this measure but mentioning the need for regulation to ensure energy companies deal with smaller Green Deal Providers. Some suggested that SMEs might miss out if they had to compete on price but recognised that brokerage would in general provide fair access to ECO.

General Points

The final section of the report focused on general thoughts that came out of the consultation process with the most common issue being the perceived **complexity** of the scheme. There was a general opinion that the consultation and accompanying documents were too industry-focussed and a concern that the content being used would be inaccessible to many consumers. Many also suggested that a simplification of the Green Deal customer journey would increase uptake by providing SMEs and consumers with greater understanding and confidence in the scheme. Linking on from these comments several respondents suggested raising public awareness through case studies, guides, workshops and consumer-facing documents.

Final impact assessment detail on measures

Table 2.1. Cumulative take-up of measures to March 2015 ('000s)

Measure	Consultation IA	Final IA (Consultation policy proposal with updated methodology)	Final IA's policy mix
Solid Wall Insulation	377	275	147
Cavity Wall Insulation	664	410	830
Loft Insulation	202	247	364

Table 2.1 above has been taken from the Final DECC Impact Assessment (IA no 0072) to illustrate the perceived uptake for the ECO and Green Deal. The impact assessment utilises a dynamic model which uses information from consumer surveys to reveal preferences towards the main energy efficiency measures. The impact assessment used this modelling to estimate the level of subsidy that would have to be offered by suppliers to attract sufficient demand to meet their ECO targets. The impact assessment does note the uncertainties surrounding the development of this market, and as such suggests that the figures presented above are a central assumption i.e. the range of possible scenarios is very broad.

The impact assessment is less clear about the non-ECO market i.e. those measures funded entirely by the Green Deal. It states the following specifically: "Outside the ECO mechanism there is also less certainty of take-up, as this will be driven by market sentiment and the value people attach to energy efficiency measures in their homes and businesses. Nevertheless, there are strong reasons to suggest that, once the Green Deal Finance market gathers momentum, the take-up estimates suggested in this assessment could be cautious."

In terms of the cost of measures and the level of subsidy available via the ECO and Green Deal, the final impact assessment outlined overall costs and finance in table 49 (pg 138-139). The table suggests that HTTC would cost in the region of £1,875 with ECO funding of £1,599 i.e. leaving a small fraction to be financed by the Green Deal. The costs of solid wall insulation varied from £5,300 to £9,950 for internal and external insulation respectively. Both measures received £2,817 of ECO subsidy with the remaining cost of IWI being funded by Green Deal Finance (61%) and a contribution of £3,223. The cost of externally insulating a home therefore had a shortfall of £3,910.

However, the final impact assessment does contain some more specific worked examples from DECC's consumer choice model in table 46 of the impact assessment (pg 129-130). The level of ECO subsidy here ranges from £5,645 to £5,962 (using lifetime savings of 70.56 to 74.52 at a rate of £80 per tonne). The worked examples are all quoted as those where the 'Golden Rule' is met, meaning that Green Deal Finance was able to meet the remainder of the cost.

A whole house approach

The Green Deal and ECO consultation document set out the Government's vision of a whole-house approach to energy efficiency being adopted, whereby households are encouraged to install a package of measures, as opposed to just one measure on its own. To deliver the final impact assessment, the Green Deal Housing Model functionality was improved to better account for this

whole house approach. Based on the impact assessment analysis, under the ECO, floor insulation, loft insulation and draught-proofing appear to be attractive measures to package alongside SWI or HTT CWI as the ECO subsidy received for these measures would exceed their cost of installation. That is, some of the ECO subsidy could be used to reduce the cost associated with installing SWI.

The impact assessment does not include detailed analysis of the types of packages assumed. However, table 48 (pg 137) does provide some proportions of secondary measures installed alongside solid wall insulation. For example, loft insulation would be installed in 22% of cases; floor insulation would be installed in 18% of cases for internal insulation and 4% of cases for external insulation.

2.2 ECO reporting and scoring measures

The issues associated with scoring measures and the associated reporting to Ofgem represent reoccurring themes throughout this report. The following section therefore briefly describes the scoring process.

Box 2. Scoring process for the ECO

All measures under the Carbon Emissions Reduction Obligation (CERO) and the Carbon Saving Community Obligation (CSCo) (except for connections to district heating systems) must be recommended as a suitable energy efficiency measure before being installed. A measure can be recommended either in a Green Deal Advice Report or in a chartered surveyors report.

Measures are normally scored using either SAP or RdSAP. Where SAP and RdSAP does not contain a methodology for scoring a measure, an 'appropriate methodology' can be used, if approved by Ofgem.

The processes for recommending a measure and scoring a measure are different. Whilst both processes may involve the use of an Energy Performance Certificate (EPC), the production of an EPC on its own is insufficient for both the recommendation, and the scoring, of a measure. Note that an EPC is required in order to produce a Green Deal Advice Report, which is one way of recommending a measure under CERO and CSCo. Generally, an ECO score is produced by multiplying the annual savings (worked out in accordance with SAP or RdSAP) by the expected lifetime of the measure and, in the case of carbon savings, multiplying again by the 'In-Use Factor'.

Under the HHCRo obligation the lifetime bills savings are first calculated, again using SAP approved software as described above. The cost of the measure is then divided by the notional savings to allow the ECO delivery partner to assess their viability in accordance with the contract with their funder (an energy supplier).

The supply chain generally calculates these scores and then submits the information to suppliers. Suppliers themselves then request sufficient data, sometimes including the paperwork and xml data for the SAP tool to ensure they have everything necessary for scores checking and reporting to Ofgem. This data and reporting is also required to ensure that should Ofgem audit a particular measure, they have the necessary documentation to check that a measure is fully compliant with the secondary legislation.

2.3 ECO consultation announcements

The costs of “Green Taxes” are currently a politically contentious issue with the Prime Minister calling for a review⁷ of them at the end of 2013. This has put the ECO at the heart of a wider political and media-driven debate on the competitiveness of the energy market and the cost of energy. Whilst the recent changes are not central to this study (which started prior to their conception), they have been included here to add context to the policy recommendations that stem from this research. The following proposed changes were announced on 5 March:

Changes proposed to apply to the current obligation period (ending March 2015)

- To reduce the March 2015 Carbon Emissions Reduction Obligation (CERO) target by 33 per cent. The March 2015 Carbon Saving Community Obligation (CSCo) and Affordable Warmth (also known as the Home Heating Cost Reduction Obligation (HHCRO)) targets will remain the same.
- To enable obligated energy suppliers to carry forward a certain proportion of over delivery against their March 2015 targets to count towards their March 2017 targets.
- To enable obligated energy suppliers to deliver less than their share of the new 2015 CERO target. In which case, the energy supplier would see its CERO obligation for March 2017 increase by 1.1 times its shortfall in March 2015. This flexibility would not apply to the Affordable Warmth or CSCo targets, with both remaining enforceable compliance deadlines at 31 March 2015.
- To enable obligated companies to more fully realise the benefits of carry forward of over-performance (excess actions) to ECO from the predecessor schemes (Carbon Emissions Reduction Target (CERT)/Community Energy Saving Programme (CESP), by changing the legislation to facilitate the optimal distribution of excess actions across suppliers’ licences.
- To enable those energy suppliers that have delivered primary measures of more than 35 per cent of Phases 1 and 2 of their current CERO target, by the end of March 2014, to receive 1.75 times the carbon score for primary measures delivered to that date (or to adjust these suppliers’ CERO targets to provide for the same effect). Activity carried forward from CERT/CESP would be excluded from this uplift. This uplift would only apply to primary measures under CERO and not to the other two ECO obligations.
 - In the case of SWI, DECC propose to calculate for each energy supplier, the delivery profile required to meet the SWI minimum threshold by 2017, and consequently the ‘expected delivery profile’ required to meet the threshold up to 31 March 2014. Then only delivery above this level would be permitted to count towards the 35 per cent levelisation threshold.
- To extend the CSCo element of ECO from 15 per cent to the 25 per cent lowest areas on the Index of Multiple Deprivation. In addition, the qualifying criteria for the CSCo rural sub obligation would be simplified by allowing suppliers to deliver against this sub-target to any domestic property located in the poorest quarter of rural areas, as well as to people living in rural areas who are members of the Affordable Warmth Group. These changes are proposed to apply for measures installed from 1 April 2014.

⁷ <http://www.telegraph.co.uk/news/politics/conservative/10399287/David-Cameron-pledges-to-cut-green-taxes-next-year-despite-Lib-Dem-objections.html>

- To allow District Heating connections made from 1 April 2014 to be included as an allowable primary measure under CERO.
- To allow easy-to-treat cavity wall insulation installed from 1 April 2014 to be included as an allowable primary measure under CERO.
- To allow loft insulation installed from 1 April 2014 to be included as an allowable primary measure under CERO.
- To require the delivery of a minimum level of solid wall insulation to be delivered by the end of March 2017 across all companies and both carbon elements of ECO, namely CScO and CERO. There will be no other measure-specific sub-targets.

Changes proposed to apply for the first time to a proposed new obligation period commencing on 1 April 2015

- To extend the ECO scheme to March 2017 with new targets imposed for CERO, CScO and Affordable Warmth at a pro rata of the March 2015 levels. Further detail on the proposed methodology is provided within the accompanying Assessment of Impacts.
- To allow an uplifted Affordable Warmth score for measures delivered to households whose main fuel type is not natural gas.
- To provide that electric storage heaters, that are broken or not functioning efficiently, which are repaired or replaced under Affordable Warmth are scored in the same way as a “qualifying boiler” and in doing so, receive a higher notional bill saving.
- To require all boiler replacements delivered under Affordable Warmth to include a minimum warranty.
- To safeguard the Energy Saving Advice Service (ESAS) referrals service for households likely to be eligible for support under Affordable Warmth.
- To improve the transparency and availability of cost information relating to delivery of the ECO scheme.

3 Methodology

3.1 Qualitative supply chain analysis

The approach to evaluating the performance of the ECO is twofold, encompassing:

- Surveys with three key stakeholder groups of the supply chain
- Analysis of energy supplier data on the costs and nature of current delivery

These two aspects are summarised briefly below.

The online survey with Green Deal Providers (GDP) and installers and interviews with energy suppliers are being carried out to provide a more qualitative assessment of the first year of the programme. To develop the GDP and installer surveys, CSE first produced a draft survey and piloted this with a small number of companies involved in delivering the ECO. Following our analysis of responses to the draft survey, the questionnaire was sent to 96 GDPs and 1,800+ installers via

SurveyMonkey⁸ (see accompanying report, 'Annex of detailed qualitative survey analysis' Annex I for survey questionnaires).

The supplier information represents a more detailed set of qualitative questions with responses via email, telephone interview and face to face interview. The survey typically lasted between one and two hours. The answers to each question have been summarised and then synthesised to identify common themes whilst allowing the team to capture important insights made by each supplier (see separate report, Annex II).

CSE requested operational records and data being collected by each obligated energy supplier on each measure delivered under the ECO. This data represents potentially commercially confidential and sensitive information. It has therefore been provided anonymously with confidentiality agreements in place between all parties. In addition, CSE also requested data on their total progress and experienced costs (to the end of June 2013).

The following summarises the key areas that will be assessed as part of this evaluation and the criteria and methods for evaluating each element, which include:

- The extent to which the overall Government-stated aims of the Green Deal, ECO Carbon and ECO Affordable Warmth are being met
- Ensuring cost-effective delivery at scale
- Profiling the customer journey
- Identifying added value
- Determining the cost to consumers (on energy bills)

3.2 Quantitative analysis of supplier data

CSE requested detailed data from suppliers on a measure by measure basis as part of this project. The data was requested in two waves. The data request in the first wave was significantly delayed due to issues with disclosure agreements and supplier systems for sharing information. Unfortunately the team were unable to prepare an interim report to be published in September.

During the first wave the team also requested additional data to support that reported to Ofgem. This would have enabled more detailed analysis of the types of properties where the ECO is enabling measures i.e. heating fuel, heating system, age of property and size of property. Unfortunately due to the administrative burden the majority of suppliers were only able to submit the data in the same format as that supplied to Ofgem.

The team has therefore added a number of additional fields to the dataset to help inform our analysis, namely:

- Access to gas, based on property heating system reported in the detailed data
- Fuel poverty levels, based on DECC's 2010 fuel poverty indicator (using old and new definition) at LSOA level
- Deprivation levels, based on the IMD Income domain at LSOA level

⁸ www.surveymonkey.com

- Affordable Warmth Index⁹, an indicator of HHCRO eligibility (created by CSE using ONS data on the age of the local population and DWP data on benefits uptake) at LSOA level

During the second wave of analysis Suppliers provided CSE with data on measures they had notified to Ofgem, in the same format that it is provided to Ofgem (on an individual measures basis). The data was provided anonymously, so that CSE did not know which data came from which supplier.

⁹ Note that this indicator is experimental in-design and requires further testing.

4 Interviews with supply chain stakeholders

Key findings

This short section summarises and highlights the key recurring themes from the qualitative interviews across the supply chain. It's important to note that these interviews took place in summer of 2013 and therefore do not reflect the most up to date picture of the delivery landscape. Where referred to, the core delivery stakeholders are considered to be the energy suppliers, installers and Green Deal Providers.

Administrative procedures and reporting

There is a very clear message coming from the core delivery groups that the current administrative and reporting requirements for delivering the ECO and Green Deal are onerous and overly bureaucratic. In particular, the core delivery group all raised concerns about the level of complexity required for reporting which creates additional costs to ensure compliance. The additional burden was felt more acutely by smaller Green Deal Providers and installers (discussed further below). The core delivery group had all implemented additional management systems to help meet the new requirements for reporting. Several commentators highlighted the need for DECC and Ofgem E-serve to have published detailed guidance surrounding the obligation in advance of its launch; the late nature of the guidance hindered the transition from CERT to the ECO.

Installers and Green Deal Providers were particularly concerned about a lack of clarity about what is required, and/or the level of detail. Energy suppliers and Green Deal Providers raised concerns about duplication (multiple organisations processing and holding the same paperwork). Energy suppliers were particularly concerned about the sufficiency of systems that installers or Green Deal Providers have in place to store sensitive data and paperwork covering eligibility for HHCRO.

The core delivery group all raised concerns about response timescales from different groups overseeing the policy. For example, energy suppliers raised concerns about the time required for Ofgem to produce full guidance and the initial time taken to respond to queries (i.e. during the beginning of phase 1 of the ECO), whilst Green Deal Providers had concerns over the response times from Green Deal ORB in processing their applications. The framework and guidance to support future incarnations of the ECO therefore need to be in place and well tested to ensure that this does not result in an additional cost and drain on resources (particularly in the first year of its operation).

Detailed discussions with the core delivery groups and Ofgem have highlighted the need for short-term standardisation of energy supplier reporting requirements and a working group has made considerable progress to address this. The process of deeming scores was seen as a beneficial step towards reducing reporting requirements, although a number of stakeholders highlighted the benefits from the assessment process as a method of engaging households (including Ofgem, the Green Deal Finance Company and several energy suppliers).

Quality assurance

There are a number of concerns about the frameworks that support the enforcement of standards and quality assurance. Whilst each aspect of the supply chain is covered by separate registration and certification bodies, in the event of failure to deliver or poor standards of works the path of enforcement is not always clear. For example, several energy suppliers felt that a failure to deliver a contract due to sub-standard work should then be reflected in rescinded Green Deal Provider status. Installers felt that the cost of accreditation / meeting reporting requirements did not add sufficient

value to the scheme. In particular, there were concerns about the extent to which PAS 2030 improves on the existing systems of MSC, gas safety etc.

Energy suppliers and Green Deal Providers (in face to face discussions) raised concerns about the scoring of measures. However, inconsistencies in software applications used and scope for inconsistency and inaccuracies in assessments (e.g. due to assessors' assumptions) threaten to undermine the quality of service delivered to the customer. An approach that can take the same inputs but produce a range of outputs does little to instil confidence in a system already embalmed in complexity and uncertainty.

So, amongst calls for reduced complexity in the system, there also exists a concern around ensuring high standards. There is a clear need for improving clarity in the system, standardising certain approaches and applications and providing better guidance. Changes are needed, but these need to be implemented with due consideration to allow companies time to understand the new requirements, adapt to and adopt new procedures.

Consumer groups raised concerns about the process of complaint for those customers that access measures via ECO funding alone. These installations would not be covered by the Green Deal Ombudsman and are therefore afforded a lower degree of protection.

Staffing

The impact of the Green Deal and ECO on staffing levels was raised by all three core delivery groups. However, the nature of the impact experienced by participants is very different. Suppliers observed an increase in staffing needs, due to additional administrative and management tasks associated with delivering the programme. This relates to both an increase in volume of accounts and the reporting requirements. This could be considered positive, in terms of expanding capacity and job creation. However, any increase in resource requirements for energy suppliers represents an increase in cost to deliver.

Whilst energy suppliers noted an expansion in staffing, some installers observed the opposite, experiencing a decrease in demand for services in the transition from previous schemes to the ECO and Green Deal. This is not unique to smaller businesses: some of the largest companies responding to the survey have experienced a decline in demand to the extent that staffing levels have had to be substantially reduced.

Payment

There is a consistent message from installers and Green Deal Providers around difficulties in accessing and receiving ECO funding. These relate to payment timescales (from submission to receiving payment). Unfortunately, the study cannot qualify the reasons for the reported timescales but they are likely to include: non-compliance of submitted measures (due to incomplete reporting from installers); awaiting notification from Ofgem; and implementation of new supplier systems. Irrespective of a measure being submitted correctly, the timescales for ECO submission, notification and payment are longer than those for CERT. This poses issues for installers or Green Deal Providers who do not have sufficient financial reserves to enable them to wait for payment, requiring them to use invoice factoring as a form of cash-flow management.

Reporting requirements were again raised in the context of receiving ECO payment, with Green Deal Providers and installers raising issues around clarity of what is required in the way of evidence. The lack of consistency due to requirements varying from one energy company to the next presents additional challenges for their business. Ofgem E-Serve implementing a standard requirement and system for reporting would address this.

Price uncertainty was raised as a key issue for the core delivery groups. The house-by-house approach to calculating carbon savings was criticised by all for adding complexity and uncertainty to both the supply chain and customer. Consumer groups also raised concerns about customer confusion where ECO HHCRO funding is being used to fund measures but a Green Deal Assessment is carried out.

The support for simplifying the scoring process through a process of deeming scores was unanimous amongst suppliers. The possibility of deeming scores was not discussed with Green Deal Providers or installers.

The experience of suppliers to date suggests costs to deliver vary substantially across the three strands of the ECO (and geographically with the rural requirement). There is also appears consensus amongst all stakeholders that the point threshold for HHCRO is currently too low to enable an offering to the majority of householders.

Brokerage and bilateral contracts

Several key, recurring issues were raised by the core delivery groups (albeit with differing opinions) on the topic of brokerage, including: potential for mandatory requirements on energy suppliers to purchase lots; setting pricing thresholds for lots; bilateral contract terms; and accessibility of the system. On the former, mandatory requirements on suppliers to purchase lots through brokerage were, on the whole, not supported by the majority (by neither suppliers nor Green Deal Providers). There was support from both energy suppliers and Green Deal Providers for separate lots for the rural element of the CScO.

Two key issues emerged in the context of accessibility, relating to lot sizes and system biases. On the latter, there is a consistent message from installers and Green Deal Providers that smaller businesses are disproportionately disadvantaged by the system, due to the high costs of compliance and (in)ability to be able to deliver measures on a larger scale. Dissatisfaction expressed by many installers through the survey can be traced back to original expectations for the ECO to offer opportunities for large and small businesses alike. Early publicity around the ECO conveying this message was not uncommon. In many instances it seems this served as a primary motivation for businesses to invest in PAS 2030 and/or GDP registration. However, (and as noted by suppliers themselves) both the reporting requirements and the scale of the obligations act as a barrier to smaller installers.

Customer considerations

Consumer groups and the core delivery groups raised the issue of eligibility criteria for HHCRO being overly restrictive and complex. In particular, suppliers raised concerns about the security of personal information which is unnecessarily being held by several members of the supply chain. Over half of the suppliers suggested pre-verification checks as a priority improvement to the ECO which would address the concerns raised by all parties. Concern over the complexity of the ECO and Green Deal in the context of communicating with and engaging customers was a recurring theme raised by all the stakeholder groups interviewed.

4.1 Supplier interviews

As previously stated the accompanying report provides a full analysis of the supplier interviews in Annex II; this section presents a higher level summary of the key findings.

4.1.1 Overall obligation delivery

Suppliers are typically using four routes to deliver their obligations, namely: bilateral agreements, direct relationships with local authorities and registered social landlords (RSLs), in-house activity, and brokerage. Bilateral agreements and direct relationships with local authorities provide the main delivery routes for the majority of suppliers. A smaller group of suppliers had been involved in the early rounds of brokerage with aims to deliver around 5-10% of their obligation this way. However, this has declined in importance due to the standard contract failing to ensure that the necessary reporting requirements can be met; and issues around confidence in delivery and/or quality of works.

Suppliers typically plan to deliver their obligations in line with the legislative targets i.e. by March 2015. Several suppliers noted the need to develop the supply chain for solid wall insulation (SWI) as this is a current priority for Government. However, delivering the current obligation at a cost that does not impact unduly on customers remains the key priority for suppliers.

The majority of suppliers were generally supportive of the overall principle of longer-term obligations and timescales in the future. They felt that this would provide more stability in supply chains and favour measures with longer lead times, such as solid wall insulation and district heating. However, the impact of a longer-term obligation would depend on its design and how sub-targets were implemented. Suppliers were keen to avoid the price increases they had seen towards the end of CERT.

4.1.2 Experienced costs

The analysis of the overall ECO delivery costs by obligation show that there are a wide range of price points for contracts. This is particularly true for ECO CERO. The interviews support this with **anecdotal reports** of a wide range of costs experienced.

Several suppliers felt that the final cost to deliver the ECO would exceed that predicted in the impact assessment. The extent to which it will exceed the impact assessment will vary by supplier depending on; a) the extent of carryover from CERT; b) the size of their obligation; and c) the operation of the emerging ECO 1.1 market. Despite this several suppliers quoted figures in the region of £1.8 billion. It should be noted that this exceeds predictions based on brokerage figures which are in the order of £1.4 to 1.5 billion. In terms of cost escalation, suppliers typically identified two key issues; a) issues associated with reporting for HTTC; and / or b) the delivery of the rural sub-element of CScO.

Based on the prices quoted by suppliers in the interviews, the costs of delivering measures through bilateral agreements, partnerships and brokerage tend to vary most significantly for CERO. The overall range of delivery costs under CERO was indicated to be anywhere from £80 per tCO₂ to £180

per tCO₂. The current rolling average CERO price based on brokerage figures is £115¹⁰ per tCO₂. However, the brokerage figure has been driven by a focus on installing lower cost HTTC and would therefore be expected to rise significantly if the market focus moves to SWI.

Again according to anecdotal evidence from interviews, the cost of delivering CScO is currently closer to the figure predicted by DECC of £60 per tCO₂. The rolling average from brokerage is £50 per tCO₂ with a possible range of £50 - £65 tCO₂. However, as shown by the most recent figures from Ofgem, there has been limited CScO rural activity to date which may increase prices later in the delivery of the obligation.

The current cost of delivering HHCRO is reported to be similar to or lower than that identified by the final DECC impact assessment of £0.19 per point. The current rolling average from brokerage is £0.16 per point. However, several suppliers noted that the point threshold is too low to ensure that a customer can be guaranteed the offer of a replacement boiler or repairs.

4.1.3 Brokerage

Whilst brokerage currently accounts for a very small proportion of the market for ECO delivery, it represents an important change to the supply chain for those involved.

DECC has previously consulted with partners on mandatory targets for delivery via brokerage. Suppliers were all opposed to mandatory targets for a higher proportion of ECO activity via brokerage. They felt that: a) the current system does not provide enough quality assurance; b) the delivery price would rise under brokerage; and c) it would increase the risk associated with delivery due to non-compliance. The majority of suppliers also raised concerns about the standard brokerage contract. In particular the contract does not allow them to routinely obtain all of the evidence required for reporting to Ofgem E-serve. This is a particular issue for technical monitoring checks at the pre-installation and installation stage.

Suppliers generally felt that the blind nature of the contract introduced a significant level of risk that is difficult to manage. One supplier said they were concerned about this resulting in working with contractors that they have previously rejected through their quality control process. Despite concerns about the blind nature of the contract, half of the suppliers interviewed felt that this risk could be managed by a system of installer ratings.

The majority of suppliers raised concerns about the quality of work delivered under brokerage. In terms of lots purchased to date a number of suppliers had experienced issues with either the quality of the work and / or delivery. For example, one supplier indicated that a quarter of the lots they had purchased on brokerage had suffered from issues of quality or were auctioned at a price that resulted in the work being unviable. In many instances the supplier has needed to renegotiate the contract or consider liquidated damages.

Despite the issues raised, several suppliers mentioned the potential to work with - or had already begun to work with - new entrants via brokerage and then sign bilateral agreements based on a positive experience of working with them. Indeed, the brokerage system provided a useful indication

¹⁰ CSE analysis as part of this study

of delivery price for a number of the suppliers at the beginning of the obligation i.e. prior to issues with the standard contract and concerns over quality assurance.

4.1.4 Links to the Green Deal

Our discussions with suppliers in relation to the Green Deal focussed on two key areas: the use of the Green Deal Assessment process in the delivery of the ECO, and the need for Government to do more to encourage uptake of the Green Deal.

To deliver energy efficiency measures at scale through the Green Deal, several suppliers identified the need for a sustained, high profile communications campaign which is unthreatening and supported at the highest level of Government. Several suppliers raised concerns that both negative publicity and a lack of cross-party support for the Green Deal could undermine the policy. One supplier highlighted the risks associated with the Green Deal brand becoming 'toxic', with this having implications for their ability to deliver the ECO. Another supplier, talking about publicity, suggested that case studies highlighting benefits experienced by those who have already invested in energy efficiency would help reaffirm the message that the measures will help to reduce energy costs in the short and long term.

The Green Deal Assessment process was seen by many suppliers as a useful tool to provide impartial advice to customers, and also to provide accuracy. Suppliers emphasised the importance of the whole Green Deal process, rather than just the finance element: the provision of an advice report and costs based on this, and the opportunity for the customer to consider a range of finance options. However, the requirement to undergo a Green Deal Assessment for measures funded solely by the ECO was questioned by the majority of suppliers, especially for the CSCO and HHCRO elements of the ECO.

Three suppliers talked about the use of regulation to provide incentives to complement the ECO, such as stamp duty relief and council tax reductions on energy efficient homes. As well as incentives, one supplier felt that other parties were not regulated as strictly as energy suppliers; for example, there are insufficient requirements for landlords to improve their properties and opportunities for the use of consequential improvements under building regulations is not currently being taken advantage of. Incentives such as cashbacks are not considered sustainable whereas these kinds of incentives are viewed as longer lasting.

4.1.5 Customer acquisition and their journey

The majority of marketing to customers has been done via delivery partners (both bilateral agreements with contractors and social housing providers) who better understand the areas within which they operate. Based on their experience and that of partners, to date, suppliers suggested that a targeted approach (targeting particular property types and measures) is most effective for delivering measures at scale under ECO CERO, rather than using the holistic (whole house) approach as originally envisaged in the development of the Green Deal.

In terms of finding HHCRO-eligible customers, suppliers are targeting their own customers via Affordable Warmth eligibility and segmentation models, and using contractors, ESAS, data from the Scottish Government, web-based boiler offers, and brokerage lots. The pre-verification of

householder eligibility through ESAS was supported by suppliers. The majority of suppliers would therefore favour its expansion in the future.

Most suppliers felt it was too early to make any judgements about customers' experience of the process. Suppliers had processes in place to measure customer satisfaction, both from their own customer base and through delivery partners, but to date insufficient information has been gathered to make any generalisations. One supplier suggested that it would be useful to have an industry-wide benchmarking system for gauging customer satisfaction so that they could measure their own customers' experiences against the rest of the industry.

4.1.6 Reporting

The reporting process was described by suppliers as 'onerous', 'bureaucratically excessive' and 'disproportionate'. Concerns were expressed about the cost implications of the requirements; the secure management of data; the ability of smaller installers to manage the reporting requirements and the disincentive to install measures where installers are not certain they will be approved. The 54 field template provided by Ofgem E-serve predominantly featured only yes/no questions which also led to concerns that meaningful verification would be problematic as nuances would be lost.

Information required for HHCRO necessitates the storing and handling of personal data which needs to be managed securely. This is not a problem for suppliers, who already have systems in place to manage data of this nature, but it is more difficult for suppliers to control how contractors manage personal data. Pre-verification of customer eligibility by DWP would benefit the system through reduced reporting requirements and would address concerns with data protection.

At the time of the interviews a (lack of) clarity of guidance on reporting requirements issued by Ofgem E-serve was seen to be problematic by several suppliers. Each supplier has their own interpretation of the guidance issued by Ofgem and subsequently requested data from GDPs and installers according to this (i.e. to satisfy Ofgem E-serve). However, Ofgem published a number of evidence templates and a standard mandatory notification template for all suppliers to use. The variation in reporting requirements amongst suppliers stems from requests for additional information that reduces their perceived risk of reporting i.e. if a measure is queried. The variation in interpretation has led to confusion within the supply chain, whereby GDPs and installers receive different requests from different suppliers (see top suggestions from suppliers in table 4.1). It should be noted that a working group of suppliers, Ofgem and DECC has made considerable progress in this area (see section 4.5 below).

Suppliers were initially unhappy with the one-month reporting rule; however, the majority of suppliers are now broadly supportive given they have systems in place to handle reporting. The main issues associated with the monthly reporting requirement are the level of resources required to meet the deadline and issues with collecting the data from installers, which can result in rejections. Suppliers did have some positive comments, however, in terms of having a regular notification process rather than the banking process used under CERT/ CESP. This approach spreads the work more evenly, allows quicker resolution of issues, and means that it is not simply a question of selling to the highest bidder.

In terms of the impact of reporting requirements on measures funded through ECO, it is too early to see any effects coming through, but suppliers expressed opinions about what they anticipated to

happen. Two suppliers mentioned the large amount of evidence required for validation and the possibility of 100% third-party verification of HTTC, which they thought would deter customers and increase the cost of ECO.

4.1.7 Learning for the forthcoming ECO changes (post March 2015)

The key messages from suppliers in looking ahead to the future of the ECO are the need for greater clarity in a simplified system, and greater accuracy with regard to the impact assessment. The majority of suppliers highlighted the need for DECC and Ofgem E-serve to publish detailed guidance surrounding the obligation in advance of its launch; the late nature of the guidance hindered the transition from CERT to the ECO.

In terms of simplifying the process, the two main suggestions centred on the simplification of scoring and pre-verification for HHCRO householders. The four suppliers that mentioned pre-verification checks for HHCRO referenced the Energy Saving Advice Service (ESAS) and the Home Energy Efficiency Programme (HEEP) in Scotland as successful examples of this service.

All suppliers apart from two felt that in future the ECO needed to move away from calculated scores to a process of deeming (one other supplier suggested a different form of simplification, while another had no official position on deeming although noted that it would be one way to simplify the process). The previous CERT obligation used deemed scores from a standardised saving matrix. In particular, suppliers felt that a complex scoring mechanism was particularly unhelpful and unnecessary for the CScO and HHCRO elements of the ECO. Suppliers felt that deeming scores would:

- Enable all levels of the supply chain to better forecast their business activities including the mix of measures to be funded.
- Allow customers to make a more informed decision at the beginning of the installation process as they would have a clear understanding of the level of finance available for the ECO; particularly important for CERO where customers may face an assessment cost if they wish to access Green Deal Finance.
- Avoid the cherry picking of households i.e. searching for those with the highest carbon saving. This is a greater issue for HHCRO which is designed to help low income householders reduce their heating costs.
- Reduce the reporting requirements to Ofgem around the calculation of scores.
- Reduce the number of scoring discrepancies that occur as a result of a) assumptions made by the surveyor and b) the use of different software packages within the supply chain.

Several suppliers felt that there should be the option to either use a Green Deal Assessment or a set of agreed deemed scores. Three suppliers mentioned the potential to develop deemed scores from the evidence emerging from ECO 1.1.

Several suppliers pointed to the need for more regulation in other areas to help promote energy efficiency and therefore make ECO and the Green Deal more appealing to the public. Suggestions given were: reductions in stamp duty and council tax for energy efficient properties, changes to building regulations to support consequential improvements (i.e. where an extension is built to a

property, the whole property should be improved to a specified level of energy efficiency) and minimum EPC ratings to be achieved before properties can be let or sold.

All suppliers thought that the notification period of one month was too short and should be extended. Longer timescales for obligations were also preferred, with several suppliers saying that the ECO 1.1 period was too short.

Table 4.1 below summarises the suppliers' responses when asked for their 'top 3' improvements to be implemented for the ECO in the future. This was an open-ended question and several suppliers provided an additional answer. For completeness we have listed all of their answers rather than attempt to rank them in any way. For several of the themes listed in the table, other suppliers talked about these improvements elsewhere in their interview even if they did not include them in their top three. Where this is particularly noteworthy these instances are noted in the table.

Table 4.1. Highest priority improvements for the ECO

Suggestion	Count
Simplification in scoring, by deeming or other methods	6 (3 mentioned deeming specifically in their top 3, while the others talked about simplification, giving deeming or alternatives as key examples of ways to simplify)
Data sharing by central government (pre-verification for HHCRO and identification of areas of search)	3 (with others mentioning this topic in their interviews but not specifically noting in their top 3)
Widen Affordable Warmth criteria	2
Tighter guidance for installers to reduce variability in interpretation	1
Remove GD assessment requirement for ECO	2
Allow more types of primary measures in CERO	1
Longer notification period	1 (all suppliers gave support for this at some point in their interview)
Split targets by fuel	1
Separation of carbon and fuel poverty targets into different policies, to simplify	1
National promotions campaign for energy efficiency	1
Longer timescales for obligations	1 (several other suppliers gave support for this elsewhere in their interview)
Less steep entry to the obligation for new entrants	1
Re-baseline ECO 1.1 to a more reasonable cost	1
Use learnings about costs in the first year of the ECO to inform IA for the next phase of the ECO	1

4.2 Green Deal Provider survey (summary)

As previously stated, an online survey was distributed via email to 96 registered Green Deal Providers, listed on the Green Deal Oversight & Registration Body website. The analysis presented

below draws on the findings from a total of 34 responses received by the 18th October 2013. Full results can be reviewed in the accompanying report, Annex III.

4.2.1 Background: About the Green Deal Providers

In total, 11 of the Green Deal Providers are also accredited Green Deal installers (e.g. PAS 2030 certified) with eight stating they were authorised Green Deal Assessors. An additional one respondent is a Green Deal Provider, Assessor and 'ECO agent and Green Deal training agency'. The responding Green Deal Providers represent a range of different business types. Prior to becoming a Green Deal Provider the most common primary business nature was a managing agent, accounting for eleven respondents while building merchants accounted for another four.

There is wide distribution in terms of the size of businesses responding to the survey. The number of full-time equivalent staff ranges from 2 to 40,000; although the majority represent micro and small businesses with over 60% having less than 100 full-time equivalents. Annual turnover (for 2012-13) confirmed this picture, ranging from £150,000 to £250m but with half of respondents giving a figure of £15m or less.

4.2.2 Becoming a Green Deal Provider

Being able to access ECO funding appears to be the most important motivating factor in respondents' decision to become a Green Deal Provider. There appears to be a range of experience amongst survey respondents as to how helpful the GD ORB was in supporting them throughout the authorisation process, although overall this is generally positive, with nine respondents considering GD ORB very helpful and two extremely helpful. However, 22 respondents said the application process to become a Green Deal Provider took 'a great deal longer' than they had expected with another five stating it took 'quite a bit longer'.

The survey asked respondents to rate their experience (on a simple scoring system of Good, Average, Poor or N/A) of completing some of the key steps involved in becoming a Green Deal Provider according to the ease of completing each step in terms of: the amount of information they had to provide and the time it took to collate it; and the ease of completing each step based on the guidance and responsiveness of other organisations.

The results suggest that respondents' experience was mainly positive for the processes of registering with both the ECO Brokerage system and with the Green Deal Cash-back Scheme. However, responses suggest that there is much room for improvement on the processes of accessing Green Deal Finance through the Green Deal Finance Company and completing the Fitness Test and get approval. Overall, respondents' experience of becoming a registered Green Deal Provider appears largely negative. Twenty-one respondents helpfully made comments and suggestions about how the process could be improved, including:

- Simplifying the process and reducing the amount of detail required from the applicant
- Improve the response time from GD ORB for approvals
- Greater support and guidance throughout the process regarding what is required
- Reducing unnecessary repetition

4.2.3 Accessing ECO funding and Green Deal Finance

Twelve respondents were in the process of applying to be approved to access finance through the Green Deal Finance Company (GDFC) (the 'on-boarding' process) while ten had already completed this process. Most respondents had accessed at least one strand of ECO funding at the time of completing the survey (21 through CERO, 22 through HHCRO and 17 through CSCo). Most (n=21) had done so directly through an energy supplier, whilst nine had accessed ECO funding via brokerage.

The survey asked respondents whether they would like to see a mandatory requirement for suppliers to purchase lots on ECO brokerage, to which thirteen responded "Yes" and twelve responded "No". Those who said yes were then asked an additional question regarding the quantity of lots they thought should be exclusively traded on brokerage which resulted in a range of responses from entirely too less than a half. The survey also presented a number of possible ways to improve brokerage; of the options presented, "Supplier performance ratings i.e. processing times for payments and admin" was the most popular. Additional suggestions made by respondents include:

- Greater contractual flexibility to over/under deliver without penalties
- Penalties for companies defaulting on contracts (e.g. barred from using brokerage in future)
- Shorter payment period enforced on suppliers

Respondents were presented a number of statements about ECO funding and asked how strongly they agreed or disagreed. The feedback suggests that Green Deal Providers **generally agree** that:

- More ECO funding is required to fulfil demand
- The level of ECO funding available through HHCRO through brokerage is too low
- The level of ECO funding available for CERO through direct relationships with suppliers is too low (£ per lifetime tCO₂ offered)

There tended to be a divergence of opinions on the statement that the level of ECO funding available for HHCRO through direct relationships with suppliers is too low (based on the average cost per point threshold offered), with opinions split in half.

The comments provided by Green Deal Providers about their experience of accessing ECO funding and/or Green Deal finance to date are insightful, suggesting some Green Deal Providers may be experiencing real difficulty in accessing ECO funding; the process of accessing and receiving payment is restrictive; on-boarding is costly. These issues are likely to be particularly pertinent for smaller businesses. The standout issue requiring attention is the level of funding for HHCRO through brokerage which received the most 'strongly agree' (n=10) responses (in addition to five responses of 'agree').

4.2.4 Administration and management

Customers may opt to use different installers to deliver different measures within a single package under the Green Deal. Seventeen respondents stated that this freedom of choice does pose some additional challenges for their business, whilst seven do not consider this a problem.

Respondents were asked to rate some of the key tasks to reflect their experience to date, in terms of the complexity of the task and the time taken to complete it. Compliance procedures (e.g. scoring, notification deadlines, documentation and evidence) for energy suppliers to satisfy Ofgem E-serve

ECO requirements appear the most complex, being rated as '*Difficult*' by 19 respondents and 'Technical monitoring procedures' being rated as '*Difficult*' by ten. 'Arranging necessary warranties and guarantees' and 'Arranging/managing the installation process' also appear to be involve greater level of complexity than necessary.

Twelve respondents provided additional comments about the administration and management processes that are required in delivering the Green Deal and the ECO. These comments emphasise the point about complexity of the compliance procedures and lack of consistency in the system, particularly in terms of the requirements from suppliers. This suggests the system could benefit from a standard approach for evidence documentation across all suppliers. Whilst feedback suggests dissatisfaction with the level of complexity in compliance procedures, this should not be interpreted as a call for compliance to be slackened; rather the process needs to be made more transparent and consistent.

There also appears to be some consensus that:

- Interest rates for Green Deal finance are too high
- The administration requirements involved in delivering the ECO are increasing the cost
- The cost of a Green Deal Advice Report is a barrier to uptake
- Green Deal finance is not making energy efficiency measures more accessible

On a more positive note however, survey responses suggest ECO is making energy efficiency measures more accessible and there is an appetite for other finance to help fund energy efficiency measures.

4.2.5 Overall satisfaction

Overall, the comments allude to a mixed experience: there are clear issues surrounding overly complex reporting/administrative requirements and a lack of consistency across different suppliers. Green Deal Providers experience of the Green Deal and ECO seems largely negative (Figure 4.1) and there is little optimism amongst survey respondents that the Green Deal will succeed in delivering energy efficiency measures to the UK housing stock (

Figure 4.2 (a)). However, there is more optimism with regards to ECO that the policy will succeed in this goal (Figure 4.2 (b)).

Figure 4.1. Respondents' overall level of satisfaction with the Green Deal and ECO to date

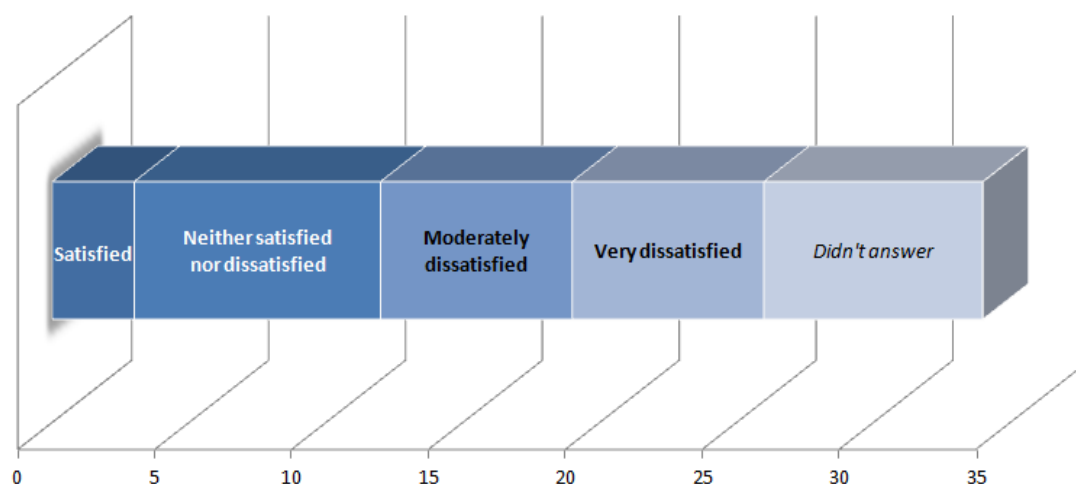
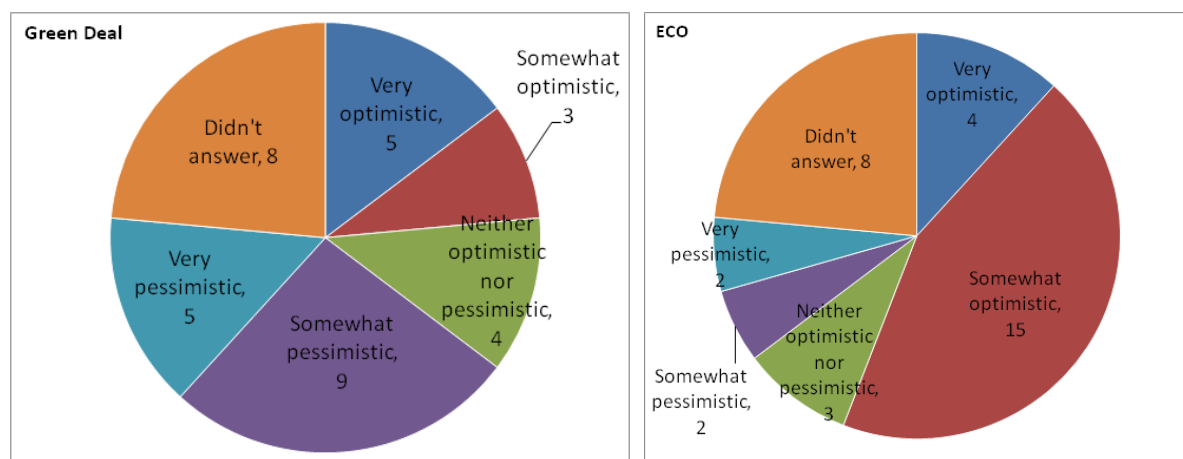


Figure 4.2. Levels of optimism about the potential for (a) the Green Deal and (b) ECO to succeed in delivering energy efficiency measures to the UK housing stock



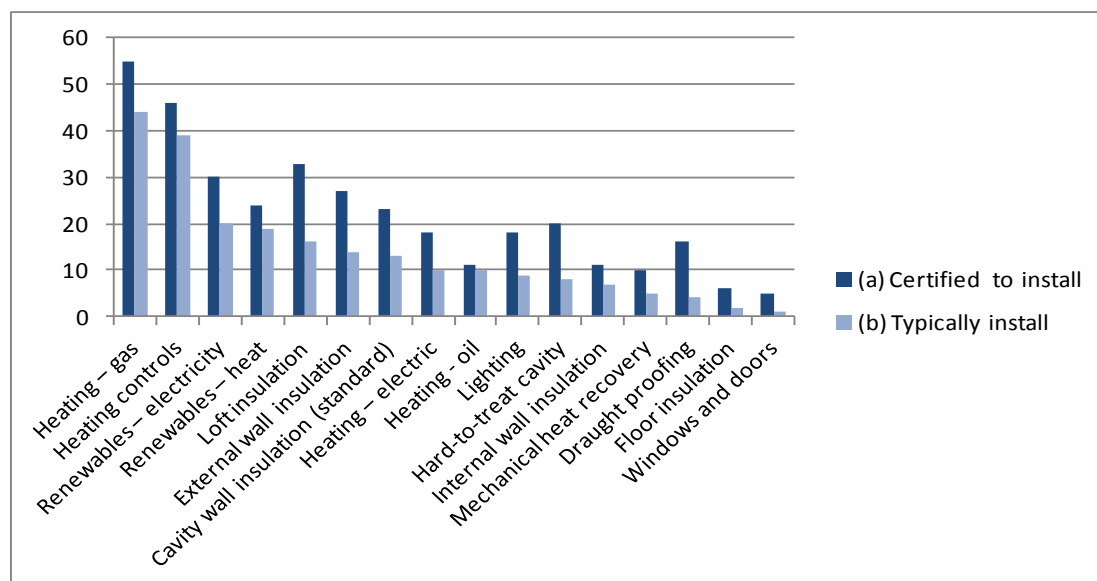
4.3 PAS 2030 registered installer survey (summary)

An online survey was distributed via email to over 1,800 registered Green Deal installers, listed on the Green Deal Oversight & Registration Body website. The analysis presented below draws on the initial findings from the 104 responses received by 20 September 2013. Full results can be found in the accompanying report, Annex IV.

4.3.1 Background: About the installers

The majority of installers responding to the survey represent relatively small businesses in terms of staff and turnover. Two fifths (41%) have six or fewer employees (full-time equivalents) and a quarter have an annual turnover of less than £200,000. However this masks a wide distribution, with seven stating an annual turnover of over £10m, six of whom have over 50 FTEs. Gas heating systems are the most common measures being installed by respondents, followed by heating controls, loft insulation and renewable electricity technologies. Whilst 27 and 20 respondents stated that they were certified to install external wall insulation and hard-to-treat cavity wall insulation respectively, only around half are in practice (“typically”) installing these measures.

Figure 4.3. Measures installers are (a) certified to install and (b) “typically” install (ordered by the latter)



Most respondents are PAS 2030 certified and thirty are also Green Deal Providers. Intentions to become a Green Deal Provider were fairly evenly split: 25 installers were in the process (n=10) or considering (=15) applying; 32 were “unsure at this stage”; and 29 stated that they had no intention of applying to become a Green Deal Provider.

On the whole respondents expressed satisfaction with the PAS 2030 certification process (Table 4.2), but a number of comments provide insight into a less-than-satisfactory experience for some. Of the 50 comments provided, over two thirds (35) have negative connotations. Respondents particularly alluded to issues with complexity, cost and timescales. In addition some 15 installers noted the ineffectiveness of PAS2030 in improving standards (n=6), deeming it an unnecessary requirement (n=9). The latter was often expressed in the context of there already being the MCS and Gas Safety requirements. PAS2030 is viewed by some as an additional financial burden that is doing little, if anything, to enhance the quality of installations.

Table 4.2. How satisfied were you with the process of getting PAS 2030 certified to be an accredited Green Deal Installer?

	Response %	Response count
Very satisfied	28%	27
Moderately satisfied	33%	32
Neither satisfied nor dissatisfied	23%	22
Moderately dissatisfied	8%	8
Very dissatisfied	8%	8
<i>answered question</i>		97
<i>skipped question</i>		7

4.3.2 Administration and management processes

Over half of responding installers (n=46) are using specific software applications to deliver ECO and the Green Deal, with the most oft-referenced systems being Stroma (23) or Etech (12). Ratings of

software were mixed, which may reflect the mix of software packages being adopted. Respondents were asked to rate some of the key administration requirements based on timescales and complexity. The results suggest that on balance installers consider the EPC documentation requirements to be acceptable. However, over 85% of those who answered consider that the completion of paperwork/sign-off takes too long and is overly complex; with two-thirds saying the same applied to the process of receiving confirmation of customer eligibility.

4.3.3 Green Deal and ECO activity: measures and money

Gas heating was the most common measure to have been installed under the Green Deal/ECO to date, with 36 respondents having done this, followed by: loft insulation (n=25); heating controls (n=22) and cavity wall insulation (standard) (n=22). Nineteen respondents stated that they had been unable to install any measures under the programme to date. In terms of the three strands of ECO, 33 had accessed funding under HHCR0; 21 under CERO and 12 under CSCO. The most common route to accessing ECO funding was through a Green Deal Provider (n=33), followed by directly through the energy supplier (n=14) or brokerage (n=12).

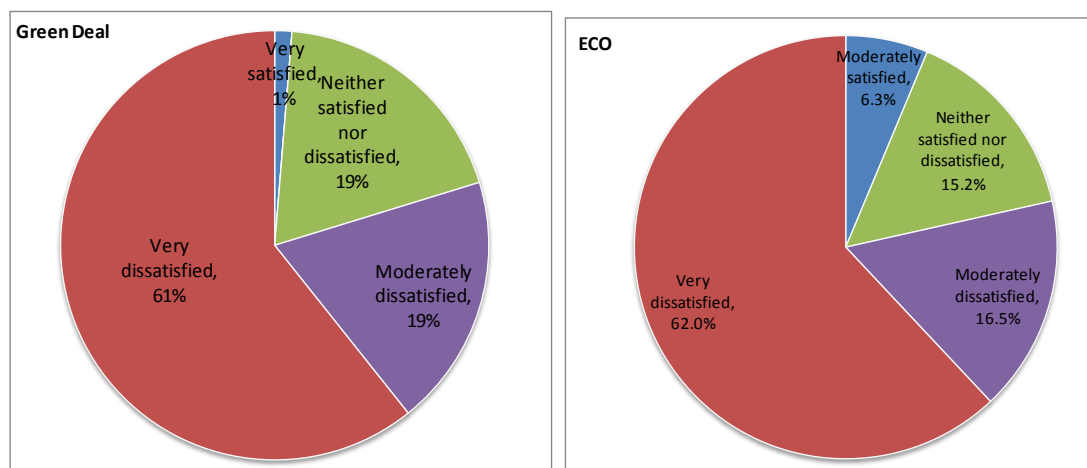
Installers were asked about timescales for receiving payment for an installation under the Green Deal / ECO from submission of a completion certificate. There was a high variability of answers, with the average number of days 'delay' being 54 and a maximum of 150. Of the 51 who answered the question, 29 (57%) stated that they had not yet received payment. When asked explicitly about the typical timeframe from receipt of the completion certificate to issuing payment for Green Deal and ECO installations, 46 installers (75% of the 61 who answered the question) stated this was a "major barrier" to their participation in the schemes. Thirty-seven respondents provided feedback (in the form of free text) regarding any action taken to mitigate the potential impact of the delay.

In terms of action taken or being considered, a total of 11 respondents mentioned invoice factoring (the practice of selling on accounts receivable at a discount) which is an additional administrative and cost burden and which based on the comments is significantly harming business. A further six installers have extended credit or overdraft facilities and five are pursuing other avenues of work. Six respondents commented on the high level of stress the programme has placed on their business (comments were also received from three different installers who did not complete the questionnaire but who wanted to express their disappointment and frustration with the programme to date). The majority of installers do not consider ECO rates to be sufficient to support installation of measures, even with Green Deal finance.

4.3.4 Overall satisfaction and recommendations

Overall, there appears to be a high level of dissatisfaction amongst installers with their experience of the Green Deal and ECO to date (Figure 4.4). There also appears to be little optimism that the programme will succeed in delivering energy efficiency measures to the UK housing stock, with 52 out of the 78 installers who answered the question stating they were pessimistic (29 of them 'very pessimistic').

Figure 4.4. Overall satisfaction experience of the Green Deal and ECO to date.



Sixty-four installers provided comments and feedback, providing rich data and insight into their experience of delivering measures under the Green Deal and ECO. The nature of most of the comments is highly negative (as is often the nature with free text comment boxes within surveys). Key themes emerging in the comments relate to:

Issue	Potential solution/ recommendation
Overly onerous and repetitive paperwork requirements	Streamline the reporting process Reduce paper trail (who holds which documents)
Lack of clarity and guidance on reporting and data requirements	Improve future consultation timings to ensure information and guidance from Ofgem E-serve is timely Continue best practice working to ensure consistency and generic requirements from all utility companies
Payment timescales are too long	Ensure reporting requirements are clear
High upfront costs to participation in the programme	
Small businesses at distinct disadvantage	Provisions for support for small installers Ensure not disadvantaged by not also being assessors
Lack of sufficient support for low-income households: debt-aversion and cost barrier	

4.4 Green Deal Finance Company Interview

CSE met with Mark Bailey (Chief Executive, Green Deal Finance Company) to discuss the emerging market for the Green Deal and the extent to which it is working with the CERO aspect of the ECO.

The Green Deal Finance Company (GDFC) is now in a position to finance Green Deal Plans following a £244 million funding agreement with the Green Investment Bank (GIB) at the beginning of the year. The first Green Deal plans are currently going live and as such the recovery mechanism will then be

tested i.e. via supplier billing systems. Following close working with several Green Deal Providers, the GDFC believe that the overall system is now operational.

In terms of demand for Green Deal finance, the GDFC had anticipated higher levels of demand than currently experienced. The long-term vision for Green Deal finance is a portfolio of investment worth £3Bn by 2020 with a significant proportion of installations being supported by energy supplier obligations i.e. the ECO. The GDFC felt they had constructive relationships with the suppliers, particularly the more active GDPs.

The current landscape for Green Deal finance is dramatically different from that envisaged at the launch of the scheme with Greg Barker stating a desire for 10,000 Green Deal plans¹¹ by the end of the year. The figures published at the end of October show a total of 12 plans with approximately 677 in the system (source DECC). However, there have been far more Green Deal assessments (71,210) with the driver for these therefore being installations funded by ECO alone or ECO with additional finance, since an assessment is required in order to access funding and numbers are far higher than plans.

Why is there a lower conversion rate than expected?

The GDFC were asked to comment on the low conversion rate of assessments to plans. They felt that the lack of market for solid wall finance was the underlying reason for this - the current delivery market for CERO ECO is based on the delivery of fully financed HTTC installations. The cost of insulating a HTTC ranges typically from £1,800 to £2,000, which can typically be fully funded by the ECO without a Green Deal Plan (notably, the model of GDPs and installers accessing subsidy for one or two measures per property follows the previous mould for CERT). Therefore, the overall feeling is that suppliers can potentially discharge their ECO obligations at a reasonable cost; however, both GDFC and suppliers recognise that a new phase will emerge where using GDP to support ECO delivery costs is useful.

The original demand figures for Green Deal finance were based on higher levels of solid wall insulation in the homes of owner occupiers i.e. where the scale of costs in the region of £10,000 would require ECO and Green Deal finance. However, as shown by the supplier interviews, the majority of solid wall activity seems to be through direct relationships with RSLs and local authorities providing opportunities for larger schemes with co-funding. The failure of the ECO market to engage owner occupiers to with solid wall insulation is therefore a key barrier to uptake of Green Deal finance.

In terms of the ECO supporting the bespoke solid wall market (bespoke meaning single or street level delivery in low numbers), the marginal cost of ECO delivery has yet to reach a point where it is worth engaging householders. The cost of delivery would need to reach a point where it is worth suppliers funding the marketing activity required to engage householders to undergo major building works at a cost which exceeds the available ECO funding. The GDFC noted that there is potential for Green Deal Providers to attempt to develop this market themselves. In particular, this would be by seeking to identify types of householders, properties and measures that lend themselves to high

¹¹ In March, Greg Barker told BBC Radio 4: "I wouldn't be sleeping if we didn't have 10,000 [signed up to the Green Deal] at the end of the year."

levels of ECO funding which can then be matched with Green Deal Finance. Although CSE noted that, in comparison to those energy suppliers who are Green Deal Providers, many Green Deal Providers have fewer resources for active product development. In other words, these companies do not have the capital required to extensively test a number of different product offerings for customers.

The Green Deal Finance interest rate

The interest rate has been widely criticised by the press and stakeholders within the supply chain. The GDFC noted that they had recently commissioned Capital Economics to look at the competitiveness of Green Deal Finance loans. The Green Deal is able to offer, over 25 years, a rate of 6.9% with a set-up cost of £63 and an annual charge of £18. It is first worth noting that the longest fixed rate available elsewhere is over a 10 year period i.e. the maximum timescale for recovery is far longer than other products in the market.

The annual percentage rate (APR) for the Green Deal of 8% for a loan of £5,000 is considerably lower than the average APR for credit cards and unsecured lending of 17% and 12% respectively. Typically for Green Deal finance, the optimal scale of a loan is above £1,600 and no more than £5,000. Clearly if a householder can extend their mortgage deal or take out a specific green-related home improvement product, then they can get a lower interest rate, but this is either variable, or fixed for a much shorter term.

In terms of lowering the interest rate, the GDFC felt there may be future scope for this once the collection mechanism has been further tested. However, as discussed above, the current interest rate is reasonably competitive given the nature of the offering i.e. fixed over a long timescale. Two more radical approaches were discussed: the loan being funded at 0% by Green Investment Bank, and the ECO being used to subsidise the Green Deal interest rate i.e. the grant reduces the rate. On the first suggestion this would probably be seen as state aid by the EU Commission. However, the GDFC raised a broader point that lowering the interest rate may do little to stimulate demand as the rates are already lower than a number of high street lenders for unsecured finance, and that the money would be better used to subsidise measures for the fuel poor rather than those able to pay.

Stimulating demand for solid wall insulation

In terms of stimulating demand for solid wall insulation, the GDFC first commented that the actual market demand for solid wall insulation is relatively unknown. As mentioned earlier, few GDPs are actively testing out different offerings to determine consumer appetite, although the GDFC felt that a smaller number of suppliers may be testing out ideas with householders. CSE noted that the current Ofgem investigations into ~27,000 HTTCs could drive demand to the solid wall market if high proportions are deemed standard cavities. Beyond this discussion, the GDFC felt that the market for solid wall insulation could be supported further if the in-use factors were revised. It is difficult to make a direct judgement but GDFC felt that the factors may be over cautious. It was felt that further research on in-situ performance was needed from DECC.

Beyond the existing framework, the GDFC felt that more could be done through regulation to stimulate demand. For example, linking stamp duty to energy efficiency was mentioned as a potential idea. The payment stream from the Feed-in tariff and/or the Renewable Heat Incentive could also be added to the Green Deal finance calculation. However, Green Deal Providers' failure to

sell the proposition was seen by the GDFC as a missing step in delivering demand, notably this does not take the form of a high level or high-profile media campaign; rather, an offering of home improvements that householders feel comfortable with taking up in larger volumes.

The GDFC were asked about the process of on-boarding through the Green Deal ORB. They acknowledge earlier delays while the framework was in development and testing; however, they now feel that people can now be brought to technical testing in two to three weeks. Where possible, they now also have lower barriers in terms of documentation and timeframe. For example, they have simplified the market place by producing a Green Deal Plan template, replacing the need for GPDs to develop their own. This lowers risk to GPDs as erroneous plans would need to be bought back from the GDFC.

4.5 Ofgem ECO team interview

The following summarises the discussion between CSE and Ofgem E-serve with regard to the administration and oversight of the ECO obligation. CSE met with Will Broad, Head of ECO and Chris Hunt, Manager of HHCRO delivery (date of interview, October 2013).

Overall

Firstly, the ECO is a scheme with complex elements. Some issues, such as the risks around HTTC eligibility, weren't raised by stakeholders despite wide-ranging consultations. It has therefore been a learning experience for all concerned. Nevertheless, feedback at recent meetings has been encouraging with some stakeholders giving positive stories about ECO progress as funding for measures becomes more available, in particular for HHCRO and CScO. Nine months into the programme, there remain some teething issues which stakeholders are working hard to resolve. It is not always clear whether an issue is just a teething problem or more structural.

The ECO is quite a specific obligation as it provides a clear focus on the measures and households that require support. However, such a targeted approach necessarily requires increased administration as the supply chain has to collect appropriate evidence to prove that the measures and householders qualify. Evaluation work should consider the impact that targeting has on evidentiary requirements when making recommendations for future changes to the ECO, though noting that in some areas we are working towards reducing existing administration requirements under the current delivery phase of the ECO.

There are a number of new entrants to the market for the delivery of energy efficiency measures, partly driven by the new brokerage market for Green Deal providers and also the additional focus on SWI and boilers. As a result suppliers have indicated that they are requesting additional data and documentation from contractors over-and-above the requirements for reporting to the regulator to counter concerns about these new entrants. The team at Ofgem therefore hope that the level of reporting required may decrease as suppliers' experience of these providers increases i.e. trust is built within the supply chain. For example, we are aware of at least one instance where a supplier with an existing relationship through previous contractual delivery is just sampling to check installer data.

Whilst the regulator is not able to make specific comments on the overall framework for quality assurance, some of the evidentiary requirements reflect a general piece on accreditation and

regulation i.e. Green Deal Provider status, PAS 2030, Green Deal Assessor Accreditation and the Royal Institute of Chartered Surveyors (RICS).

Ofgem recognise that quality assurance is an area that warrants attention, especially with respect to enforcement of quality standards. However, they have no control over the assurance framework for the ECO as it uses the Green Deal framework. Instead, where there is a statutory requirement there is scope to check the quality of installers and assessors through, for example, technical monitoring against some of the requirements of PAS 2030 or EPCs, and through checking whether an accredited person has installed/assessed a measure.

Reporting

The team from Ofgem recognised that there are some issues with reporting. Ofgem requires suppliers to be able to provide evidence that measures have been delivered in accordance with the legislation. When discussing reporting requirements it is worth dividing the issue into three categories – pre-installation, post-installation data reporting, and post-installation evidence holding:

- **Prior to installation** – the installer needs to prove to the supplier that the measure meets legislative requirements. For example, is the cavity hard to treat, do they meet the Affordable Warmth criteria, are they a private householder. Ofgem has witnessed the volume of paperwork this can entail and understand that the evidence gathering process can increase lead times for installations. However, the evidence should all be gathered and checked prior to installation (otherwise the installations would be carried out at high risk) therefore these issues should not be causing non payments to installers or lead to installed measures not being claimed.
- **Post installations - data** – following installation Ofgem requires a spreadsheet with 54 data points for each measure. These are, with the exception of the carbon and cost scores, relatively simple data points (such as 'is the person in the AWG Group – Y/N'). However, Ofgem is aware that suppliers are requesting many more fields than the 54 on its template, sometimes up to 250. The majority of these additional fields relate to RdSAP inputs, though according to installers the format, type and naming conventions of these fields can vary significantly. Ofgem understands that these data requirements can be reduced if the installer is able to share the xml data from the EPC i.e. reducing the submission from installers to suppliers to 70 data points.
- **Post installations - evidence** – Ofgem lists in its guidance the types of documentary evidence that must be made available to it on request (e.g. at audit). Ofgem does not require this evidence to be held by the supplier – instead, it can be held by the supply chain. However, in general it appears that suppliers are requiring this evidence up front in order to gain assurance about the measures. Whilst in theory this shouldn't present a problem, as all the evidence should already be in place, there is a time involved with scanning this information and then emailing or posting it to the supplier.

A number of stakeholders criticise the monthly reporting rule, this is in the legislation and changing it is outside of Ofgem's control and Ofgem felt the case for extending it was mixed. Ofgem commented that support varies amongst suppliers, and the feedback from some suppliers has been positive. The monthly reporting requirement represents a significant change from previous

obligations. In particular, unlike previous obligations where suppliers banked measures every six months or even less frequently, the monthly reporting process enables them (and government) to develop a more accurate picture of their own progress. Furthermore if the issue is that installers couldn't scan paperwork quickly enough, then if the rule was relaxed it may just push the bottleneck back by a few weeks, and ultimately industry would end up in the same position. In addition, there may be issues for the supply chain experiencing longer timescales for payments i.e. based on suppliers awaiting notification from Ofgem. CSE noted that payment timescales had been raised as a key issue for installers and GDPs.

During discussions with suppliers the idea of a central repository for information storage and sharing was raised by CSE. The repository would enable authorised participants (i.e. Ofgem, suppliers and those associated with the installation and registered for GDP and / or PAS 2030) to register a customer on the system (through their address) and then upload the documentation on eligibility (measures and / or householder). The team at Ofgem were interested to understand whether this could work in practice. They felt that whilst it could help reduce the proliferation of information across the supply chain and also reduce some of the issues associated with reporting, system security and data protection issues could be an impediment. They noted that something similar was already being developed with DWP for eligibility checks for AWG customers.

Improving the reporting process

In terms of short term measures to improve the reporting process, there is currently a working group with suppliers, installers, Ofgem and DECC, which aims to identify measures to reduce the reporting burden on the supply chain. One clear aim is the standardisation of suppliers' additional data requirements from installers i.e. post installation data, both in terms of the notification template, and also the templates that suppliers were asking installers to complete.

There will be limits with respect to the standardisation of the evidence that's available and appropriate for Affordable Warmth eligibility, as for any one benefit there may be multiple documents based on the stage of the householder's involvement with DWP which may or may not list additional qualifiers i.e. some of which are required to be eligible for the ECO. Furthermore, with respect to tenancy agreements there is no standard format and as such installers had indicated that rather than identify the pages required it is simpler to scan the entire document. The working group was looking at understanding the exact benefits documents that fulfil the needs of the obligation and filtering through tenancy agreements requires learning (which is happening in-situ).

Ofgem has produced a number of standard templates e.g. the boiler checklist. It may be possible for some of these to be merged or further refined and then used as standard amongst the supply chain – the working group was looking into this. The key aim would be a reduction in the scanning of documentation required thus reducing the difficulties associated with the one-month rule.

In terms of the scheme's design, CSE requested views on the specific nature of the legislation. The team from Ofgem had no overall comment, other than a scheme that's focussed on a specific set of measures and households needs to be more tightly defined.

Delivery

The team at Ofgem are still performing analysis on the extent of carryover from CERT and CESP and as such are unable to comment on the impact that this may have on the overall obligation. In terms of the current landscape for delivery, the market for CERO has initially been driven by HTTC which is clear from the DECC statistics on delivery. The market focus is natural given that the obligation contains two core measures with one being significantly cheaper than the other. It was noted that the final outcome of the HTTC consultation may impact on this (discussion summarised below).

The CScO rural areas has been identified as particularly tricky by suppliers and as such Ofgem are intending to publish a list of qualifying postcodes. Ofgem intends that this information will assist suppliers to target the rural sub-obligation.

HTTC consultation (this issue is no longer substantive as easy-to-treat cavities are eligible after 1st April 2014)

Ofgem has now published new guidance for HTTCs installed in the future, and written to suppliers about those installed in the past. These two processes will enable HTTCs to be processed going forward (and approved, where all other requirements are met). Despite scheme participants often requesting less paperwork, for HTTCs many respondents actually requested more, in order to effectively identify measures which met the statutory definition.

Rather than provide specific comments on the drivers for the HTTC, the team identified the opening section of the consultation document as the definitive Ofgem position:

“An energy supplier may achieve its Carbon Emissions Reduction Obligation (CERO) by installing insulation to hard-to-treat cavity (HTTC) walls. A large number of HTTC measures have been installed under ECO and notified to Ofgem. When we are notified of a measure, we assess whether it is eligible for savings against the elected ECO obligation. If it is, we attribute savings to the measure. Suppliers are responsible for ensuring that the notifications to Ofgem are accurate.

We have information suggesting that a significant number of HTTC measures have been installed to cavity walls that do not meet the statutory definition of ‘hard to treat cavity’. A HTTC measure cannot be attributed savings under CERO unless the insulation was installed to a cavity that meets this statutory definition.

The information before us has produced a significant degree of doubt about the accuracy of notifications of HTTC measures. We are currently undertaking additional checks on the HTTC measures notified to date. We believe it would not be reasonable to attribute savings to these measures without first obtaining assurance that the measure was in fact installed to a HTTC.”

Future design

The team at Ofgem were asked for their views on the future design of the obligation. Further standardisation of information requirements provides a major opportunity to improve the process in the short-term. There are opportunities to do this alongside the additional HTTC guidance and changes to the legislation to allow for Universal Credit. Indeed, Ofgem are openly asking for feedback on the ECO guidance from stakeholders in advance of these changes.

The pre-verification of Affordable Warmth customers was seen as a key opportunity for the future changes to the ECO. However, it was recognised that this requires a link with DWP and a process that ensures the data is shared sensitively. There are other improvements that could be made to enable the transfer of EPC and scoring data.

The design of the next phase of the ECO needs to give careful consideration to the balance between precise eligibility definition (measures or people) and the resultant administrative requirements. It is also worth looking at whether obligations should overlap. Interviewees in DECC's CERT evaluation from 2012 stated that overlaps between qualifying groups should be considered carefully e.g. priority group and super priority group (SPG), as there was little or no additional incentive to provide SPG benefits information if it was free under the priority group. ECO went some way to 'fix' this, as customers must provide benefits details in order to get a measure. However, where a customer cannot produce the relevant evidence, usually an installer cannot treat the property as it will not meet the eligibility criteria of any of the obligations.

The use of deemed scores was supported by suppliers as a change for the next phase of the ECO and as such discussed here. The team at Ofgem recognised that this would simplify reporting and also improve customer engagement for CERO i.e. having an offer at the doorstep. However, the use of RdSAP and the EPC framework to provide customers with an overall picture of their energy requirements and the potential applicable measures was seen as beneficial. This benefit is three fold as it provides the customer with more accurate information on the energy options for their home (crucial for Green Deal), it is compatible and works in harness with the provision of EPCs, and it captures data on the state of the housing stock for government.

The team at Ofgem were interested to hear that support for deeming varied by supplier. The requirement for a full EPC assessment for a simple boiler repair or replacement was a potentially onerous requirement, however the team noted that in its original ECO Guidance consultation the team had offered suppliers the option of developing a pared down tool to calculate scores under HHCR0, but suppliers had deemed this too distracting at that stage of the scheme. This could therefore be delivered under existing legislation. The accuracy of scores was also seen as a beneficial feature of the obligations design. The team at Ofgem also felt that some harmonisation of the EPC outputs and the ECO scoring process could also provide some benefits in terms of simplification.

In terms of final recommendations for scoring, the team at Ofgem did not have a preferred view however they mentioned another option that government (and this survey) may wish to consider: a blended approach of deeming and EPC assessment. Householders would therefore be able to utilise the EPC to determine the measures of interest and suitability, whilst reducing the reporting requirements and enabling better business planning amongst the supply chain.

4.6 Consumer Futures (ECO and the Green Deal)

The following information from Consumer Futures is based on their discussions with others and access to available data. To date they have analysed enquiries data from Citizens' Advice Energy Consumer Helpline (formerly Consumer Direct) and direct enquiries to themselves. In the future they plan to look at data from calls to trading standards and also the Energy Saving Advice Service (ESAS) helpline (however the latter depends on DECC agreeing to release the data). In particular the ESAS data may provide an insight into consumers' motivations for accessing funding from the ECO.

Accessing funding

The accessibility of funding via HHCRO for low income households is a key issue for Consumer Futures. The scheme does not provide measures on demand i.e. an assessment is first needed to establish if the savings for a broken boiler are sufficient for a replacement or repair. In several instances, householders have been contacted and then received a survey on the understanding that they are eligible for measures; however, subsequent to the survey the cost per point threshold is too low meaning that the supplier may choose not to provide the measures. There also seems to be evidence of some confusion for HHCRO customers who receive an assessment from a Green Deal Assessor (GDA) and as a result think they are accessing the Green Deal, when in reality they are accessing ECO funding alone. Therefore Consumer Futures feel that there needs to be much clearer messaging.

In terms of the CERO aspect of ECO, Consumer Futures noted that the vast majority of activity to date had been delivered through HTT cavity wall insulation. If a householder wanted to insulate their solid walls, Consumer Futures felt that there was no clear route to funding. For example, the Green Deal Orb website does not list those GDPs who offer funding for solid wall insulation. In reality there are few offers for solid wall insulation which means that a householder would need to do a significant amount of research to find funding. Consumer Futures would like to see a more accessible market for solid wall insulation where they can go to a single source and identify provision in their area.

Consumer protection

The consumer protection landscape is also an area of concern for Consumer Futures. Green Deal customers (accessing Green Deal Finance) can contact the Green Deal Ombudsman (GDO) if a Green Deal Plan is in place and they have a complaint. However, customers accessing measures with ECO funding alone are not able to use the GDO and will therefore need to contact trading standards. In addition, the tradesperson responsible for the work should be part of an accreditation body that maintains industry standards; however, the formal process for addressing issues isn't necessarily clear to consumers, particularly because of contracting arrangements.

Consumer Futures also have concerns regarding the collection and storage of sensitive data as part of the necessary evidence gathering to validate HHCRO eligibility. In particular, the manner in which this data is requested by the installer and the safeguards that they may or may not have in place to ensure that this data is stored securely. For example, Consumer Futures are aware of an installer that had incorrectly used letterheads from a previous contract to recruit households.

Consumer Futures' top three changes and amendments to the next phase of the ECO

Consumer Futures would like to see:

- Additional funding for fuel poverty
- Clearer offers for customers
- A move to an area-based approach

5 Analysis of Green Deal and ECO supplier data

Key findings

ECO progress under CERO to date has been slow. The slow progress reflects the steep learning curve associated with the ECO's delivery as reported to us in recent interviews with all aspects of the supply chain. However, the majority of those involved in the supply chain now have systems in place and the burden that reporting has on costs can only be reduced dramatically by structural changes to the programme.

The analysis to date reflects performance over the first year of the obligation. It is therefore difficult to draw long-term conclusions about the delivery cost associated with the ECO; however, the predicted delivery cost of £1.54 Bn per year with an estimated cost on bills for a dual fuel customer of £63 is comparable with the value in the final DECC Impact Assessment (prior to the proposed changes in the future of the ECO consultation). Whilst the current scale of ECO costs, may perhaps represent a success story for the policy i.e. it is within the bounds of the impact assessment, this needs to be taken in the context of the reported statistics on the types of measures installed and the original aspirations for the ECO. The contract approach for the delivery of the ECO obligation does appear to significantly impact upon the on cost. For example, based on the figures from brokerage the total delivery cost would be slightly lower at £1.48 Bn.

Whilst we are unable to provide a breakdown for each supplier the range of costs amongst suppliers for the first six months is relatively large. This suggests that there may be considerable scope to reduce the cost of the policy's delivery if the market can be encouraged to converge on the optimal price. The extent to which delivery costs vary as a result of each supplier's approach to delivery is unclear. The differences are likely to be driven by a number of factors, the most important of which are: the size of their obligation; the extent of carryover from previous obligations; and their internal delivery model.

It is worth noting that the amount of in-house delivery is minimal (1%) compared to previous obligations where suppliers have delivered relatively significant proportions in-house. Despite the emerging nature of these findings the low proportion of in-house delivery is interesting as this may allay some historic issues raised by the supply chain (i.e. that suppliers may choose to do all their ECO activity in-house). The recent changes and proposals to increase the amount of easy to treat measures may change the distribution of contracts i.e. potentially increasing in-house activity in line with previous obligations. It is also worth noting that the amount of brokerage activity has declined in recent months (due to reported concerns about the standard contract, quality of works etc). It is also worth noting that there will be a number of contracts between suppliers and bilateral / brokerage partners that also deliver local authority work i.e. as this is managed through an agent the contract is not directly with the local authorities.

As discussed above, the encouraging costs of delivery mask the ECO's failure to support the supply chain for solid wall insulation. The number of solid wall insulation installations (just under 27,518 at the end of December 2013) is significantly short of that required to meet the Government's original aspirations for 1.2 to 1.3 million installations by 2020 (175,000 by March 2015 from the final impact assessment). Eighteen percent of measures were installed as part of a package of measures, while the other 82% were installed as single measures. This is far removed from the Green Deal and ECO consultation document, which set out the Government's vision of a whole-house approach to energy

efficiency being adopted, where households are encouraged to install a package of measures, as opposed to just one measure on its own.

In addition to the comparison with the original impact assessment it is also important to consider the equity of energy policy. Previous analysis by CSE has shown that energy policy appears to be broadly progressive with households on average standing to benefit if policy is implemented successfully; however, this masks a wide variation with wealthier households standing to receive greater benefits with lower income households' policy contribution representing a much larger proportion of their income. In particular, our report on the hardest hit report shows that those that use electric heating (by 2020), get 7% of the measures or benefits, make up 10% market share and pay 20% of the policy costs i.e. as electricity is used to recover the vast majority of energy policy costs. This is clearly unfair as more low income homes use electricity to heat their houses.

The analysis of installations across all of the aspects of the obligation by heating fuel and rurality show that the current market for delivery is skewed towards urban areas and homes heated by gas. In particular, there are concerns that the broken boiler assumptions skew the market for HHCRO heavily towards boilers rather than enabling a full range of measures in the homes of the Affordable Warmth group. The rural safeguard element of CScO was meant to ensure that vulnerable rural households were able to access funding. At present it appears that this aspect of the ECO is failing. Lack of activity in households using electricity and other fuels is disappointing as: the expected carbon savings would be much higher in off gas areas; and as discussed earlier these households are likely to be amongst the hardest hit by the cost of energy policy in 2020. Furthermore, these rural households, who are paying into the scheme, are being left unable to benefit from it.

The funding available for both HTTC insulation under CERO and standard insulation measures under CScO is potentially in excess of that required to meet the cost of installation. The Government's recent future of the ECO consultation's approach to limiting the HTTC market focuses on the reintroduction of easy-to-treat cavity wall insulation and loft insulation as a primary measure under CERO. To reduce the cost of the obligation, the announcements also included a 33% reduction in CERO for the period to 2015 with a target for the 2015-2017 period reflecting this same level of activity.

Conversely the level of funding available for solid wall insulation is insufficient to enable installation at no upfront cost. To enable delivery at scale in the current funding climate, suppliers would typically need to work in partnership delivery with local authorities and RSLs. These findings are consistent with the interviews which suggested that several suppliers are seeking to develop these relationships, with CScO area based schemes seen as a good route to market. It is also worth noting that CERO delivery costs could be decreased here if a scheme can identify private sector households who are interested in SWI, such as infill as part of a social housing scheme (as raised in the interviews with suppliers).

The spatial analysis of the uptake of measures has highlighted a number of key findings. Firstly across Great Britain, urban areas have benefited significantly more than rural areas, with rural properties comprising only 7.5% of all properties receiving measures to date. Secondly, the obligation is currently more focussed in areas with higher rates of fuel poverty (according to DECC's spatial model of fuel poverty). Under the Low Income High Cost (LIHC) definition, the top decile has by far the highest proportion of measures, driven by both CScO and CERO.

5.1 Overview of the first phase of the ECO

Eighteen percent of measures were installed as part of a package of measures, while the other 82% were installed as single measures. The results in this report therefore focus on the measures by obligation rather than a detailed analysis of the benefits of packages.

5.1.1 Delivery progress

Table 5.1 below shows the reported progress against each element of the obligation by the end of December 2013 (as reported to Ofgem). In terms of the timeline for the ECO we are 12 months into an obligation that was originally 27 (45%) months in length i.e. to April 2015. The recent consultation proposals outline plans to extend the ECO scheme to March 2017 with new targets imposed for CERO, CSCo and Affordable Warmth at a pro rata of the March 2015 levels. The final report of this review compares progress to the original 2015 target for all aspects of the ECO.

The recent Ofgem figures suggest that progress is somewhat short of that required for CERO, whereas the progress against HHCRO is in line with that required for delivery to March 2015. However, the overall reported progress of 25% for CERO masks a variation in progress amongst obligated parties with three suppliers all notifying measures that result that in progress in excess of 30%¹² of the target (see Table 5.1, Table 5.2, and Figure 5.1 below)

The recent ECO consultation includes an allowance for a 1.75 times uplift for the measures installed under CERO by suppliers that have delivered more than 35 per cent of Phases 1 and 2 of their current target, by the end of March 2014. The uplift has clearly been included to allow for the higher cost of delivery during this period; however, the figure of 1.75 seems entirely arbitrary rather than based on a clear publicly available assumption on cost. Conversely several suppliers have delivered less than 20% of their CERO target to date. To enable obligated energy suppliers to deliver less than their share of the new 2015 CERO target, the consultation includes an allowance to increase their CERO obligation for March 2017 increase by 1.1 times. Once more this factor seems entirely arbitrary and is notably significantly lower than the reward for over-delivery.

Furthermore, the specific uplift for solid wall insulation above the expected delivery profile could be seen to penalise those suppliers that prioritised solid wall insulation during phases 1 and 2. This is an alteration to the autumn statement announcement where all solid walls would benefit from uplift. Suppliers have therefore been working to this assumption for the last three months. Those suppliers that have installed a high volume of solid wall insulation may have done so when the cost was expensive i.e. as there were lower complimentary subsidies in Wales and Scotland and the market was focussed on HTTC. DECC could therefore choose to apply the uplift more generally; however, a more sensible approach would be to also penalise those suppliers that under performed by raising their solid wall minimum target based on delivery below the expected delivery profile.

The carryover from CERT and CESP has yet to be accounted for; however, four¹³ of the six obligated suppliers achieved all of their targets under CERT and will therefore carry a proportion of measures over i.e. from those that were submitted beyond their original obligation. Furthermore, three¹⁴ of

¹² Based on the size of each suppliers obligation as report to CSE and the latest Ofgem figures on progress

¹³ Ofgem (2013), The final report of the Carbon Emissions Reduction Target (CERT) 2008-2012

¹⁴ Ofgem (2013), The final report of the Community Energy Saving Programme (CESP) 2009-2012

the six obligated suppliers achieved all of their targets under CESP. The maximum that suppliers can carry over is likely to be 15%. Based on the distribution of suppliers that achieved their targets under CERT and CESP the actual progress against CERO is likely to be between 25 and 32% i.e. reported progress added to our estimation of carryover. It is important to note that the additional 6 to 8% achieved through carryover has already been paid for by customers via their energy bills. This excess can be carried over and put towards their targets for ECO. From information published by Ofgem and industry data, we estimate that this carry over will reduce the CERO part of ECO overall by 5%. This has not been factored into public discussions of ECO costs.

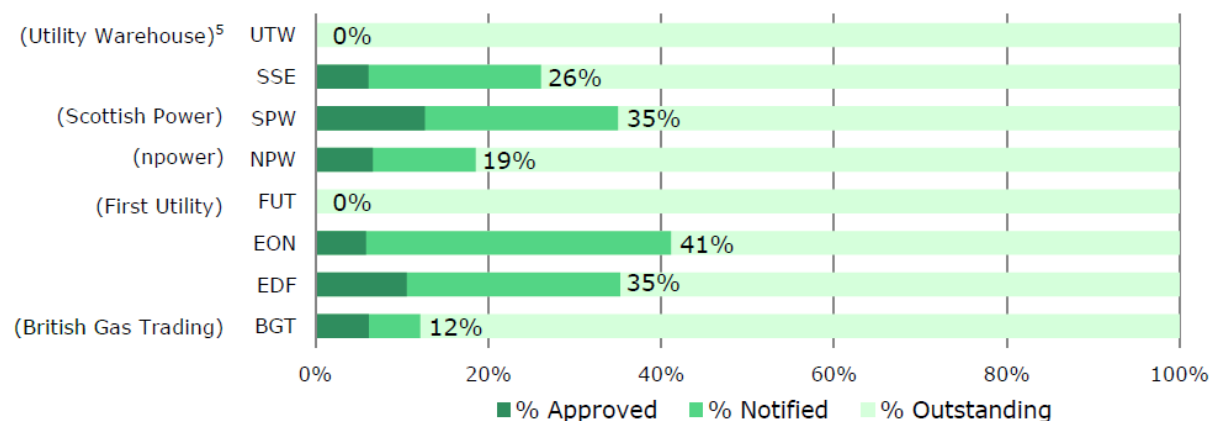
Table 5.1. Overall analysis of ECO obligation progress by stream (based on Ofgem¹⁵ figures, end of December 2013).

Obligation	Lower	Upper	Overall
CERO	0%	41%	25%
<i>Carry over to CERO</i>	<i>6%</i>	<i>8%</i>	<i>7%</i>
CSCo	23%	66%	30%
HHCRO	67%	105%	74%

Table 5.2. Analysis of ECO obligation reported progress by supplier (based on Ofgem figures, end of December 2013).

Obligation	Utility Warehouse	SSE	Scottish Power	RWE npower	Eon	EDF	BG	First Utility
CERO	0%	26%	35%	19%	41%	35%	12%	0%
<i>Carryover</i>	<i>0%</i>	<i>0%</i>	<i>12.5%</i>	<i>10%</i>	<i>12.5%</i>	<i>12.5%</i>	<i>0%</i>	<i>0%</i>
CSCo	0%	35%	49%	23%	66%	17%	14%	0%
HHCRO	0%	51%	72%	86%	105%	72%	67%	305%

Figure 5.1. Ofgem figures on approved and reported progress for ECO CERO (phase 1 and 2) by supplier (based on Ofgem figures, end of December 2013).

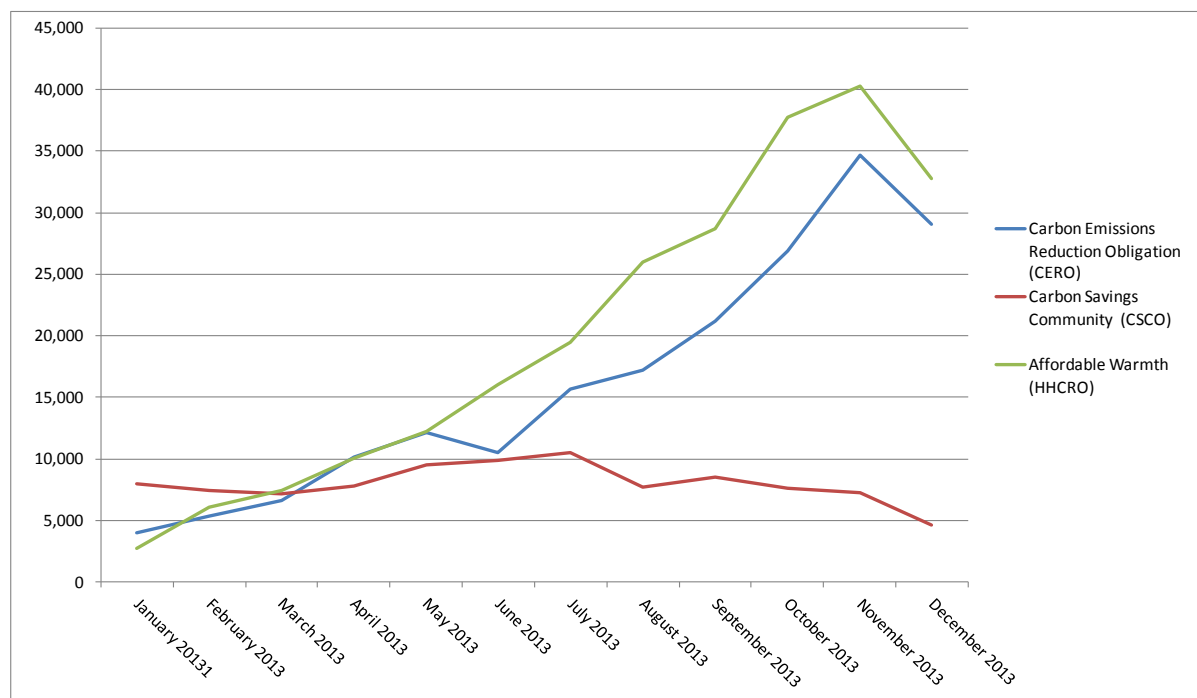


Despite the allowance for carry over, initial ECO progress under CERO to date has been slow. However, as shown in Figure 5.2. DECC figures on measures installed under each aspect of the obligation by month, below, the number of measures installed per month has increased significantly over the first twelve months of the obligation for CERO and HHCRO. This reflects the steep learning curve associated with the ECO's delivery as reported to us in the stakeholder surveys. However, the

¹⁵ Ofgem: Annex to the October Energy Companies Obligation (ECO) Compliance Update (Issue 6) published January 2014

majority of those involved in the supply chain now have systems in place and the burden that reporting has on costs can only be reduced dramatically by structural changes to the programme. The forthcoming statistics on installations from January to March will highlight any issues to the supply chain as a result of the Government's announcements in December (with subsequent three month wait for the details of the consultation).

Figure 5.2. DECC figures on measures installed under each aspect of the obligation by month.



5.1.2 Analysis of data on delivery cost (based on supply chain and supplier feedback)

Table 5.3. Delivery costs by obligation and total predicted cost (at the end of December 2013).

	DECC impact assessment cost (No 0072)	Based on supplier cost submissions (average)	Based on discussions with GDPs / installers	Average cost from brokerage
CERO*	£83 (lt CO ₂)	£107 (range £50)	£80- £110	£105
CSCo	£60 (lt CO ₂)	£79 (range £30)	£50-70	£53
HHCRO**	£0.19 (cost/point)	£0.17 (range £0.06)	£0.15-0.18	£0.18

* - Units shown for CERO and CSCo are those for costs per lifetime tonne of CO₂

** - Units shown for HHCRO are those for average cost per point

Table 5.3 shows average costs of delivery for each obligation based on the data submitted to us by suppliers, our discussions with GDPs and installers and our own analysis of published brokerage lots

i.e. the average price paid per lot. The average cost of delivery via brokerage for CERO is almost identical to that derived from supplier based submissions.

Whilst we are unable to provide a breakdown for each supplier the range of costs amongst suppliers is shown. The range of delivery costs reported by suppliers across each aspect of the obligation is relatively large. This suggests that there is considerable scope to reduce the cost of the policy's delivery if the market can be encouraged to converge on the optimal price. The extent to which these vary as a result of each supplier's approach to delivery is unclear. The differences are likely to be driven by a number of factors (some of which are inter-related), namely:

- The varying size of their obligations
- The extent of their carryover from CERT and CESP
- The mix of measures offered by each scheme (notably CERO includes an expensive and a far cheaper measure, the former potentially increasing the price point for the later)
- The extent of the internal setup up costs which have or have not been included
- Suppliers' approach to delivering the obligation, i.e. partnership types

Table 5.4. Final delivery costs based on average costs to date (end of December 2013).

Obligation	DECC impact assessment cost (No 0072)	Based on supplier cost submissions (average)	Total cost based on industry figures	Prediction based on brokerage auction price
CERO	£760m	£994m	£880m	£976m
CSCo (exc rural)	£190m	£237m	£181m	£160m
HHCRO	£350m	£313m	£304m	£338m
Total	£1,300m	£1,544m	£1,365m	£1,475m

Table 5.4 above shows the final delivery cost based on the current rates shown in Table 5.3. The estimated cost of approximately £1.54 Bn per year is within the bounds of the final DECC Impact Assessment of £1.3 Bn (note that the experienced costs in the future are likely to be lower following the recent changes announced in the future of the ECO consultation). The brokerage figures shown in Table 5.4 would result in an overall delivery cost of £1.48 Bn at a slightly lower cost per customer. DECC officials were unable to provide a provisional target for brokerage, although they highlighted the considerable number of companies who have traded on the system to date.

The costs discussed above are encouraging as they are within the bounds of the impact assessment but it should be noted that these reflect the first 12 months of the programme. These costs need to be treated with some caution for the following reasons (based on this analysis and discussions with stakeholders in the interview process):

- The costs are likely to reduce as the Government has announced significant changes to the ECO. Attempting to account for the financial impact of these changes is beyond the scope of this study. However, DECC predict a cost reduction of 500m in the technical annex that supports their consultation.
- To date the CERO market has been heavily dominated by HTTC as shown in the figures reported to us and the latest statistics from DECC (by the end of December 2013). Despite

DECC's own research¹⁶ on the prevalence of HTTC (3.9 – 5.8 million), the actual extent of the market is unknown i.e. the Housing Condition Surveys are unable to accurately¹⁷ identify them.

- Ofgem's ongoing investigation of 27,000 HTTC which has resulted in tighter reporting requirements for this measure post-December 2013 (N.B. some measures still may be refused as a result, requiring suppliers to find additional measures).
- The delivery of CERT and CESP resulted in far higher prices for measures at the end of the obligation as suppliers found it increasingly difficult to meet their targets. This resulted in over-inflated prices for CWI and loft insulation respectively under CERT. Suppliers have legitimate concerns about partners waiting for higher rates as experienced in previous obligations. However, the reintroduction of easy-to-treat cavities and loft insulation as primary measures under CERO should help address this.

5.1.3 Analysis of delivery approaches

Table 5.5. Based on the average split of contracts as reported by all obligated suppliers

			Local authority and housing associations
Bilateral	Brokerage	In-house	
55%	34%	1%	11%

CERO	CSCo	HHCRO	CSCo-rural
45%	18%	36%	1%

Table 5.5 shows the initial distribution of direct contracts (value of commissioned work) across the four main delivery options available to suppliers. The analysis above represents activity to the end of June when the data was requested for the first phase of this study. This aspect of the study was not updated for the final phase.

It is worth noting that the amount of in-house delivery is minimal (1%) compared to previous obligations where suppliers have delivered relatively significant proportions in-house. Despite the emerging nature of these findings the low proportion of in-house delivery is interesting as this may allay some historic issues raised by the supply chain (i.e. that suppliers may choose to do all their ECO activity in-house). The recent changes and proposals to increase the amount of easy to treat measures may change the distribution of contracts i.e. potentially increasing in-house activity in line with previous obligations.

The distribution represents the earliest phase of the programme and as highlighted by the interviews and shown by Figure 5.3 (page 55), the amount of brokerage activity (denoted by the size of the bubbles) has declined in recent months (due to concerns about the standard contract, quality of works, etc). It is also worth noting that there will be a number of contracts between suppliers and bilateral / brokerage partners that also deliver local authority work i.e. as this is managed through an agent the contract is not directly with the local authorities. Allowing for the decline in brokerage

¹⁶ Study on hard to fill cavity walls in domestic dwellings in Great Britain, DECC ref: CESA EE0211

¹⁷ Story height is known but width and state of cavity are unknown

activity and feedback in the interviews, the overall supplier approaches to delivering the ECO can be summarised as follows:

- Two suppliers' approach to delivery is most heavily focussed on bilateral agreements
- Two suppliers are using bilateral agreements with limited but ongoing involvement in brokerage
- One supplier is using a wider range of delivery options e.g. bilateral agreements, brokerage and social landlords
- One supplier is currently using bilateral agreements and social landlords

5.2 Overview of the recently published statistics

5.2.1 DECC statistics on measures installed

Table 5.6. Latest figures on installed measures by obligation from DECC (to end of December 2013)

Measure Types	Obligation			Total number of ECO measures delivered	Percentage of ECO Measures
	Carbon Emissions Reduction Obligation (CERO)	Carbon Savings Community (CSCo)	Affordable Warmth (HHCRO)		
Boiler	N/A	N/A	167,297	167,297	31.6
Cavity wall insulation	136,411	26,454	9,297	172,162	32.6
Standard CWI	1,088	25,258	9,211	35,557	6.7
HTTC: Cavity wall insulation solution	134,170	1,196	86	135,452	25.6
HTTC: Solid wall insulation solution	1,153	0	0	1,153	0.2
Loft Insulation	29,470	66,641	33,429	129,540	24.5
Loft Insulation Ceiling Level Virgin	11,094	17,692	7,549	36,335	6.9
Loft Insulation Ceiling Level Topup	18,306	48,858	25,809	92,973	17.6
Micro-generation	N/A	N/A	0	0	0.0
Other Heating	586	395	29,365	30,346	5.7
DHS: Gas/Oil boiler new connections	481	185	0	666	0.1
Heating Controls	N/A	N/A	29,353	29,353	5.5
Other Insulation	1,068	643	57	1,768	0.3
Draught Proofing	618	80	37	735	0.1
Hot Water Cylinder Insulation	217	119	N/A	336	0.1
Solid Wall Insulation	25,556	1,952	10	27,518	5.2
EWI: Solid brick walls, built from 1967	4,641	327	0	4,968	0.9
EWI: Solid brick walls, built pre 1967	11,135	1,304	10	12,449	2.4
EWI: Solid non-brick walls	8,740	286	0	9,026	1.7
IWI: Solid brick walls, built pre 1967	708	33	0	741	0.1
IWI: Solid non-brick walls	231	0	0	231	0.0
Window Glazing	246	8	1	255	0.0
Total number of measures	193,337	96,093	239,456	528,886	100
Total number of unique properties	160,862	87,609	202,348	447,583	

The current scale of ECO costs, as discussed above, may perhaps represent a success story for the policy, i.e. it is within the bounds of the impact assessment. However, this needs to be taken in the context of the reported statistics on the types of measures installed and the original aspirations for the ECO. Table 5.6 above shows that there is currently little or no market for solid wall insulation under the CERO element of ECO. As highlighted by the interview with the GDFC, without a market for solid wall insulation there is little need for Green Deal Finance i.e. as HTTC can be installed at zero upfront cost based on funding rates at the end of 2013.

In terms of the original impact assessment, one of the key challenges for a policy analyst is the lack of clear disaggregated data from DECC with regard to the cost and scale of a policy; typically the number of measures and assumed cost. The cost figures are often presented as part of an overall evaluation of Net Present Value (NPV) which is typically positive as HM Treasury would not sign a policy off unless the economic benefits were so. However, Table 5.7 below presents a set of assumptions used in a previous study from CSE which assessed the number of measures associated with the policies. It shows that the number of solid wall insulation installations is significantly short of that required to meet the Government's original aspirations for 1.2 to 1.3 million installations by 2020 (175,000 by March 2015 from the final impact assessment).

Table 5.7. CSE and ACE projections¹⁸ for the ECO and Green Deal (based on available data at the end of 2012)

Policy	Measure	2013	Total to 2020
ECO	Cavity wall insulation	75,000	600,000
	GCB	98,394	983,940
	OCB	10,933	109,327
	Solid wall insulation	136,214	1,377,899
Green Deal	Cavity wall insulation	125,289	1,049,140
	GCB	87,000	675,000
	LIT	38,500	385,000

5.2.2 DECC statistics on brokerage lots

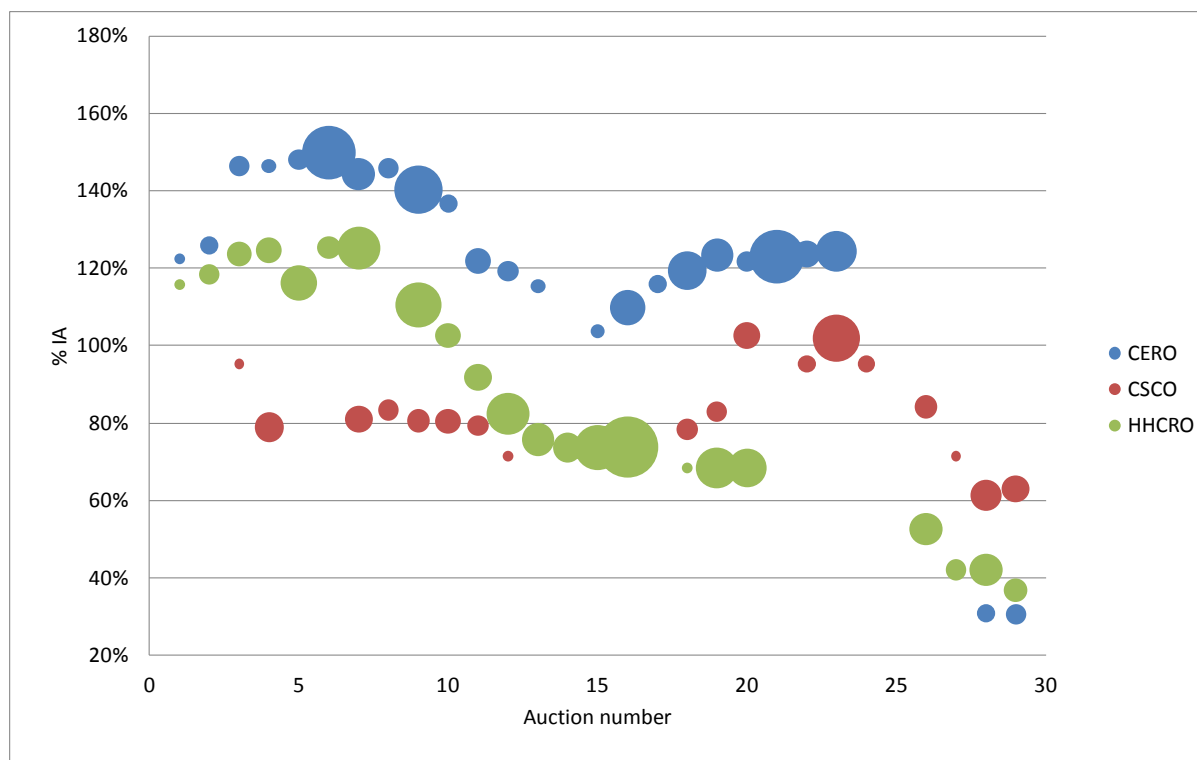
Figure 5.3 shows the average costs from the brokerage auctions as a proportion of the impact assessment value. For example, if the average clearing price for CERO during a brokerage lot was £90 per lifetime tonne of CO₂ then that represents 108% when divided by the impact assessment price of £83. The chart therefore shows the long-term trend for the brokerage price point amongst the three main aspects of the ECO obligation.

Notably, as confirmed by the report, supplier data on cost delivery (up until the end of October), CSCo and HHCRO are being delivered for less than the impact assessment price whereas CERO has consistently been more expensive than predicted by the impact assessment. The announcement of planned changes to the ECO last year had a masked impact on the brokerage market. The last significant lots that sold for CERO and CSCo on the 19th November (with no CERO sales until the 11th February). Subsequently lots have been trading for less than the impact assessment price with

¹⁸ These figures were taken for the central policy scenario most closely designed to match Government thinking from the study, Croft et al. (2012), Impact of energy policy on consumer bills, Consumer Futures

HHCRO lots notably being sold for 8-9p per point. Recent feedback from installers has indicated that Affordable Warmth householders are being offered a boiler if they top up the funds themselves. If an Affordable Warmth customer has a broken boiler then they may be using high cost finance to bridge this gap which could place further pressures on household incomes. The policy was designed to fully fund boilers for low income households.

Figure 5.3 ECO brokerage lots by auction number (sale value shown as a proportion of the impact assessment).



5.3 Analysis of measures installed under CERO

Table 5.8 shows the analysis of carbon scores by measure (excluding measures with low numbers i.e. less than 200).

Table 5.8. Analysis of CERO carbon scores by measure

Measure	CERO Carbon Score (tCO ₂)						
	Count	Mean	Mean (yearly)	Median	Min	Max	Standard Deviation
HTTC – CWI	101,499	23.38	0.6	19.93	.06	966.58	24.77
LI – topup	13,147	10.81	0.3	7.74	.03	613.43	13.91
EWI - solid pre-1967	7,873	34.96	1.0	31.48	.15	492.75	25.61
LI – virgin	6,930	17.26	0.4	8.98	.03	644.66	23.15
EWI - non-solid	6,448	38.13	1.1	35.07	.14	660.12	23.00
EWI - solid from-1967	3,448	41.90	1.2	37.26	.73	183.68	26.94
Standard CWI	859	10.66	0.3	8.76	.27	310.89	14.89
HTTC – SWI	621	21.35	0.6	20.70	.21	71.46	13.81
Total	143,035	23.5		19.4	0.01	966.6	25.0

Measures installed under CERO during the first year of phase 1 and 2 are clearly driven heavily by HTTC, which comprises 71% of all CERO measures in the dataset. The results show that funding for hard-to-treat cavities is likely to be in the region of £1,870 to £2,690 based on rates of £80 to £115 per lifetime tonne of carbon (using the mean carbon score in the table above). These values are higher than those typically quoted for a HTTC job by installers. CSE's discussions with suppliers and installers show that the costs for HTTC clearly range considerably and may be significantly lower than imagined for the impact assessment. We have been quoted figures of £40 to £60 per lifetime tonne of carbon, and so the actual installation cost may be considerably lower i.e. £1,090 to £1,565.

Understanding the experienced costs of cavity wall insulation will be key to ensuring that future obligations are delivered at reasonable costs. Notably the term "hard to treat" emerged during the development of the ECO. There is clearly a spectrum of cavity wall types and conditions with some costing more to treat than others. To reduce the market distortion associated with HTTC the Government's recent future of the ECO consultation focussed on; the reintroduction of easy-to-treat cavity wall insulation; a 33 per cent reduction in CERO for the period to 2015; and setting a target for the period to 2017 reflecting this same level of activity.

Across the three types of external wall insulation listed in the table above, the likely ECO contributions range between around £3,000 to £4,300 (based on the weighted average of the means of each of these three measures and the range of £80-£115 per lifetime tonne of carbon). Whilst the costs of measures are unknown (as the data on this was not provided), our own schemes experience and discussion with suppliers suggest installed costs of approximately £10,000. The Green Deal potential is unclear as the bill saving is not included in all of the data. However, based on estimation from the carbon saving (~1 tonne per year in gas heated properties) the total finance available is likely to be in the region of £2,800 to 3,000, meaning a significant customer contribution is required. Whilst this is in line with Table 49 of the final impact assessment, the limited solid wall market to date has focussed on external insulation rather than internal, which is where DECC felt that the measure could be funded at no upfront cost.

One of DECC's stated aims of the ECO is to stimulate the development of a solid wall insulation supply chain, particularly for one-off private homes. This is not happening, mainly because suppliers are relying much more heavily than anticipated by DECC on HTTCs to meet their ECO. This strategy will keep overall ECO costs down, but the important goal of developing a supply chain is being missed.

The recent changes to the ECO include a proposed minimum target for the treatment of the equivalent of 100,000 solid walled properties by March 2017. CSE as independent author of this report believe this minimum to be significantly lower than that required to develop a meaningful level of solid wall activity. The term meaningful here is meant to describe the level required to; stimulate a market for solid wall insulation in the non social housing sector i.e. one off jobs; and necessary to meet our carbon budgets. DECC have also announced generous cashbacks for solid wall insulation which may help stimulate the market for solid wall; however, their longevity or overall target for total installations is not clear.

Savings from solid wall insulation are higher than those for cavity wall insulation, but still do not reflect the cost of installation. With regard to solid wall insulation, actual measured performance is required to sense check the in-use factors used.

Table 5.9. Analysis of CERO mean carbon scores by measure and main heating fuel

Measure	Gas		Electric		Other	
	Number of measures	Mean Carbon Score	Number of measures	Mean Carbon Score	Number of measures	Mean Carbon Score
HTTC - CWI	86,930	22.7	13,173	27.3	1,394	30.1
LI - topup	12,293	10.1	599	20.9	254	19.2
LI - virgin	6,250	14.9	501	36.7	179	46.9
EWI - non-solid	5,599	34.4	473	67.1	376	56.9
EWI - solid pre-1967	6,422	29.6	976	54.1	469	68.9
EWI - solid from-1967	2,226	32.6	903	62.1	134	67.9
HTTC - SWI	280	17.0	303	26.6	38	11.7
Standard CWI	848	10.6	8	12.9	3	17.1
Total	122,101	21.9	17,386	31.5	2,892	1.2

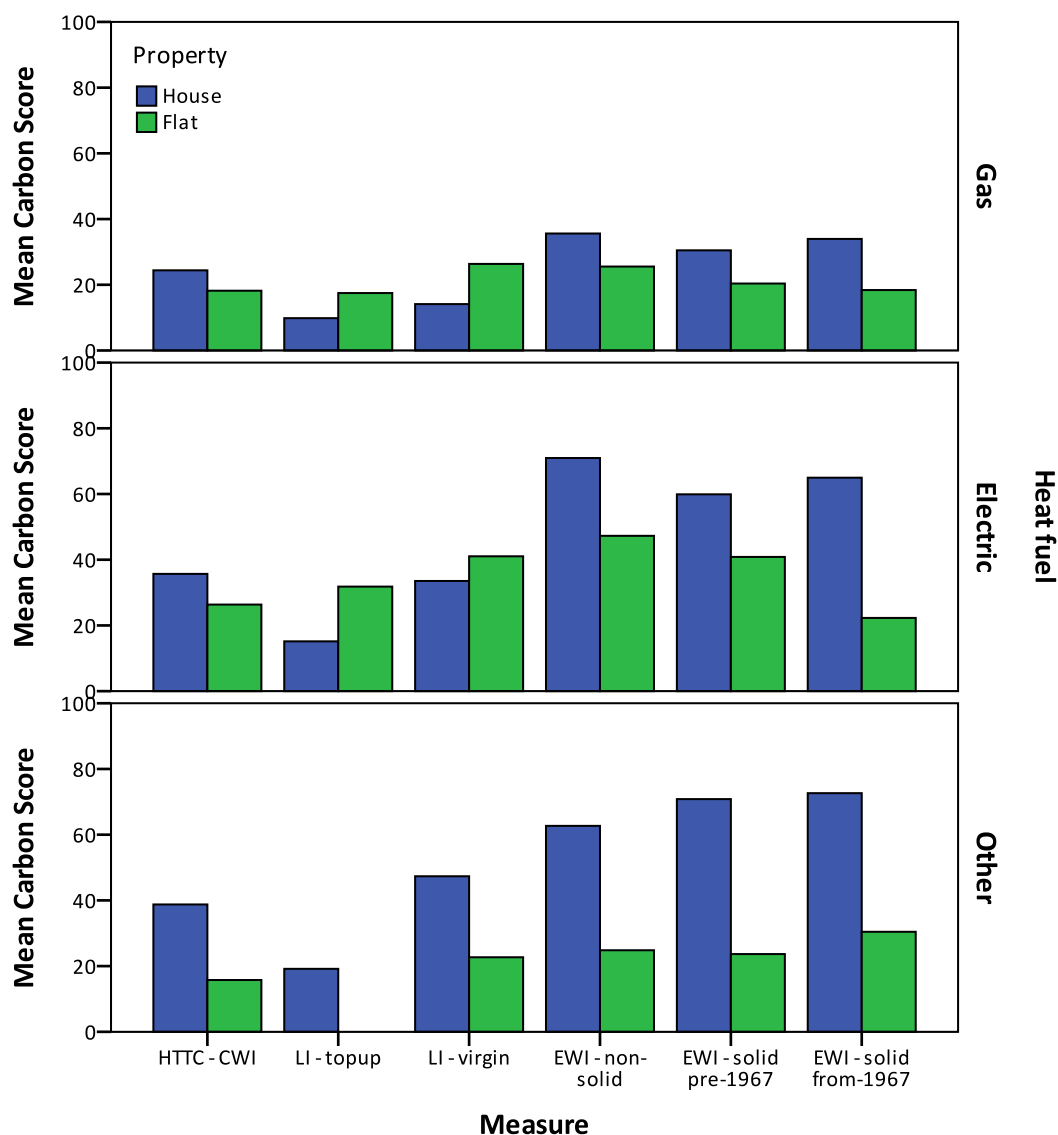
Table 5.9 shows mean carbon scores for CERO measures according to the reported heating fuel (measures with low numbers have been excluded). Eighty-five percent of CERO installations were in households that use gas as a heating fuel (which aligns with the 85%¹⁹ of households in England that use gas as a heating fuel). In general the carbon score is slightly higher for measures in households heated by electricity or other, which is what we would expect. Lack of activity in households using electricity and other fuels is disappointing however, as the expected carbon savings would be much higher in off gas areas; and as discussed earlier these households are likely to be amongst the hardest hit by the cost of energy policy in 2020.

Figure 5.4 shows mean CERO carbon scores for the most common measures, comparing flats and houses by heating fuel. In general carbon scores are higher for houses than for flats, apart from the case of loft insulation (and this may be due to the smaller sample size of these groups (fewer than 500 installations)). For external wall insulation, carbon scores are much higher in non-mains gas heated properties.

For more detailed analysis of the distributions of scores see the box plots in Annex I at the end of this report. One finding of note from the detailed analysis is a wider range of scores for houses when compared to flats.

¹⁹ English Housing Survey 2011

Figure 5.4. Mean CERO scores for those measures most typically installed



5.4 Analysis of measures installed under CScO

The same detailed dataset of notified measures, as described in section 5.3, was used to analyse measures installed under CScO. There were 62,683 CScO measures in the dataset once measures with errors were removed. Scores and counts by measure are shown in Table 5.10 (measures with low numbers have been excluded).

It is important to note that at the time of analysis there had yet to be any significant activity in CScO rural areas (only ten measures in the dataset). This lack of activity in part links to a lack of guidance on the qualifying areas (i.e. a list of postcodes) and also the precise nature of the target (i.e. both Affordable Warmth and area based). The safeguard element of CScO was meant to ensure that vulnerable rural households were able to access funding. At present it appears that this aspect of the ECO is failing. Loft insulation top-up accounts for more than half of the CScO measures in the dataset.

The figures suggest that CSCo funding for loft top up and standard cavity wall insulation is likely to be £575 and £1,380 respectively based on a rate of £63 per lifetime tonne of carbon. These values are higher than those required to install cavity wall insulation or loft insulation in a typical property (typically around £250 and £500 respectively). Once again it appears that there is considerable scope to reduce delivery cost for CSCo if the rates for delivery are reduced to the scale required to fund the measure, factoring in the cost of administration.

Across the three types of external wall insulation listed the ECO CSCo contributions are likely to be £1,260 (for EWI – solid from-1967) to £2,500 (for EWI – non-solid) (based on the rate of £63 per lifetime tonne of carbon). The actual costs of measures are not included in this dataset.

Table 5.10. Analysis of CSCo carbon scores by measure*

Measure	CSCo Carbon Score (tCO ₂)						
	Count	Mean	Mean (yearly)	Median	Min	Max	Standard Deviation
LI - topup	33,164	9.1	0.22	7.3	0.0	287.4	8.0
Standard CWI	16,879	21.9	0.52	20.8	0.1	320.5	11.9
LI - virgin	9,132	19.9	0.47	15.8	0.1	297.0	17.1
HTTC - CWI	988	19.7	0.47	16.1	1.2	204.6	13.2
EWI - solid pre-1967	960	26.1	0.73	24.9	0.3	154.4	13.5
EWI - solid from-1967	270	20	0.55	19.1	1.1	84.8	11.6
EWI - non-solid	188	40	1.10	40.4	18.5	84.4	10.8
Total	62,683	15.0		10.4	0.02	320.5	13.6

* - There were only ten measures flagged as CSCo rural sub-obligation in the dataset

The level of funding for solid wall insulation suggests the need for partnership delivery with local authorities and RSLs. These findings are consistent with the interviews which suggested that several suppliers are seeking to develop these relationships with CSCo area based schemes seen as a good route to market. It is also worth noting that CERO delivery costs could be decreased here if a scheme can identify private sector households who are interested in SWI, such as infill as part of a social housing scheme (as raised in the interviews with suppliers).

Further analysis of the distribution of carbon scores for all measures installed under CSCo is shown in Annex I at the end of this report. Once again there is a large range of scores with the mean carbon score of 15.0 and the highest scores reaching above 60.

The CSCo analysis doesn't include any analysis by heating fuel or by property type due to the relative homogeneity of the delivery. For example, of the measures reported against CSCo only 2,945 (5%) are in households not heated by gas (electricity and other heating fuel) and 6,915 (11%) are flats.

5.5 Analysis of measures installed under HHCRO

The same detailed dataset of notified measures, as described in section 5.3, was used to analyse measures installed under HHCRO. There were 190,567 measures in the dataset once measures with errors were removed. Scores by measure are shown in Table 5.11 (excluding those with very low counts).

Table 5.11. Analysis of HHCRO cost scores by measure

Measure	Count	Cost Score (£)				
		Mean	Median	Min	Max	Standard Deviation
QB_Replacement	129,035	15,397	14,052	3	268,590	7,196
Heating_controls	23,937	896	622	0	47,540	1,294
LI - topup	23,155	3,018	2,461	13	734,696	5,775
Standard CWI	7,293	6,915	6,224	20	86,184	4,326
LI - virgin	5,586	5,123	3,197	23	53,891	4,809
Non-QB installation	1,097	12,662	11,972	3	79,872	7,769
QB Repair (2 year)	288	2,356	2,234	79	7,105	1,010
Total	190,567	11,402	11,184	0	734,696	8,743

The analysis for HHCRO is not broken down by heating fuel as shown previously for CERO. To date (based on the data supplied to CSE), 99% of HHCRO delivery has been focussed in households heated by gas. Fuel poor rural householders are therefore further missing out on boiler replacements under the Affordable Warmth element of ECO i.e. as CScO rural has yet to begin delivering measures at scale. Whilst heating oil and LPG boilers are included in the scheme, they are being overlooked by ECO providers who instead are focusing on replacing natural gas boilers in urban areas, which are more cost-effective to install and can be delivered at scale. This is resulting in many rural households, who are paying into the scheme, being left unable to benefit from it.

Previous research from CSE has shown that Exchequer-funded programmes to address fuel poverty are not necessarily more efficient at targeting the fuel poor. A study²⁰ for eaga charitable trust found that the correlation between Warm Front grants delivered between 2000 and 2008 was strongest in 'urban' areas and weakest in 'hamlets'. However, 'hamlets' have similar levels of fuel poverty to 'urban' areas, suggesting that Warm Front did not reach fuel poor households in 'hamlets'. However, despite this an Exchequer-funded programme would have the authority to ensure that measures are targeted to need rather than least cost delivery.

The annual savings for a boiler repair and broken boiler are in the region of £1,100 and £2,200 respectively (based on average 2013 market rates). The savings reflect the assumption that the home is heated to the demand temperature with plug in electric heaters. SAP assumes that the installed heating systems are operational and takes no account of whether they are working or not. However, in the case where the main heating unit (e.g. boiler) is missing and thus the dwelling has no installed main heating system, or if there is no heating system present at all, the calculation of savings should assume that direct electric heaters are used in all rooms (with no secondary heaters).

However, in reality a householder would not heat the property to the demand temperature with plug in electric heaters, nor would they do this for the whole of the property during the standard assumed hours. The cost savings could better reflect a householder's use of energy in the event of a boiler breaking. The main concern is that the broken boiler assumptions skew the market for HHCRO heavily towards boilers rather than enabling a full range of measures in the homes of the Affordable

²⁰ Baker et al. (2008), Quantifying rural fuel poverty, eaga CT

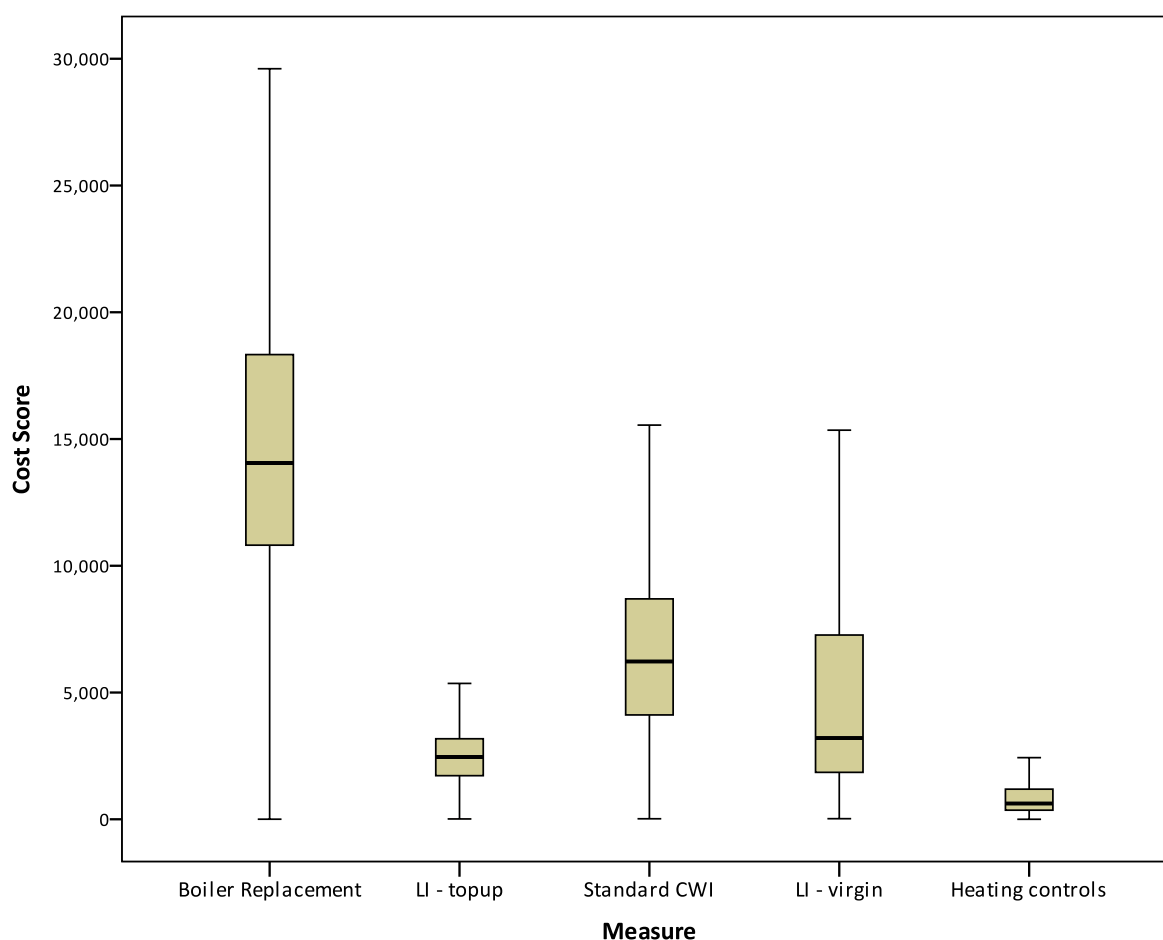
Warmth group. Sixty-eight percent of all HHCRO measures in the dataset are boiler replacements or repairs.

Likely funding available for a gas boiler (replacing a broken boiler) ranges from £2,310 to £2,600 based on the mean cost score and costs per point of £0.15 and £0.17. Therefore only straight boiler replacements are really viable. This would make oil, LPG, gas back boilers and boilers with enhanced controls less attractive.

Given the mean scores reported the rates of around £0.16 would result in sufficient funding for standard insulation measures (lofts and cavities) i.e. possible funds in excess of £500 for lofts and £1,000 for CWI. However, heating controls are only able to attract funding in the region of £140 which reflects the value that Rd SAP and SAP place on controls. Whilst they do improve the efficiency of delivering the standard heating regime, the wider benefits that they offer to the householder in terms of comfort and regulation are not fully captured and valued.

The box plots in Figure 5.5 show cost scores for the most commonly installed measures under HHCRO. Some extreme outliers (very high or low scores) have been excluded. Further detail on the distribution of scores, including the extreme outliers are shown in Annex II at the end of this report.

Figure 5.5. Box plots of HHCRO scores for the most commonly installed measures (excluding extreme outliers)



5.6 Distribution of benefits by income deprivation, fuel poverty and rurality

The detailed measures dataset available from the DECC website contains postcode information for each property where measures have been installed (excluding a few records where this field is missing). Using postcode, the LSOA / Datazone code was added to the dataset including the government statistics on fuel poverty and income deprivation. This enabled an analysis of how measures are distributed relative to levels of fuel poverty and income poverty at the LSOA level. An important consideration when examining the data below is that the methods used to calculate deprivation differ between each of the devolved powers. In England a score based system is used where 1 is most the deprived and 0 is the least deprived. Wales and Scotland use a ranking system whereby all of their LSOAs are ranked from most to least deprived. Therefore 1 is still the most deprived but the least is the 1,896, in the case of Wales and 6,505 for Scotland.

5.6.1 Income Deprivation: England

The 2010 English Indices of Multiple Deprivation (IMD) identify the most deprived areas across the country by combining a number of indicators²¹. One aspect of this is the income score, which uses a range of datasets on benefits to identify the proportion of the population which lives in income-deprived families (either out of work or on low incomes). As explained above, the higher the score the more income-deprived the LSOA. In order to present the data more clearly in graphs, the 32,482 LSOAs in England (based on 2001 Census boundaries, due to the date of the production of the IMD) were grouped into 10 bins, each containing an equal number of LSOAs. The horizontal axis for figures 5.6-5.8 therefore shows the full range of English income scores for the whole country.

Figure 5.6 shows the percentage of all properties with measures installed under each obligation which is plotted along the vertical axis. This percentage is calculated by dividing the number of properties with measures installed within each LSOA by the total number of households in that LSOA. The individual LSOA scores are then grouped appropriately to correspond with to the 10 bin groupings of the horizontal axis. Each obligation category is represented individually and cumulatively. CSCo measures only appear in the higher income bins, which is to be expected as the target LSOAs for CSCo are defined by the IMD²². For CERO, measures increase somewhat as income score increases.

Figure 5.7 shows the average carbon reduction for each bin as an average carbon score on the vertical axis. HHCRO is not included as carbon saving is not the objective of this policy and is represented in figure 5.8. The graph represents the total carbon score for all measures installed per bin; as with figure 5.6, this is calculated by dividing by the number of households in each bin (not just the number of households with measures installed). In the top three deciles, carbon score increases somewhat under CERO but due to CSCo installations in the higher deciles, overall carbon score is higher in the higher deciles, reflecting both a higher number of properties with measures installed and a higher carbon score per property.

²¹ www.gov.uk/government/collections/english-indices-of-deprivation

²² CSCo LSOAs are defined by the full IMD, not just the income deprivation element, which is why CSCo appears in the top three deciles here, not just the top two, which is what we would see if installations were plotted against the full IMD rather than just the income deprivation element.

Figure 5.8 shows the average estimated financial savings from HHCRO as a Cost Score for each bin. This is the total cost score for all measures installed in this bin, divided by the total number of households in the bin (not just the number of households with measures installed). The Cost Score increases steadily by decile, reflecting an increase in the number of measures in the higher deciles (although cost score per *property with measures installed* does not vary significantly between deciles).

Figure 5.6: Properties receiving measures under each obligation category (England)

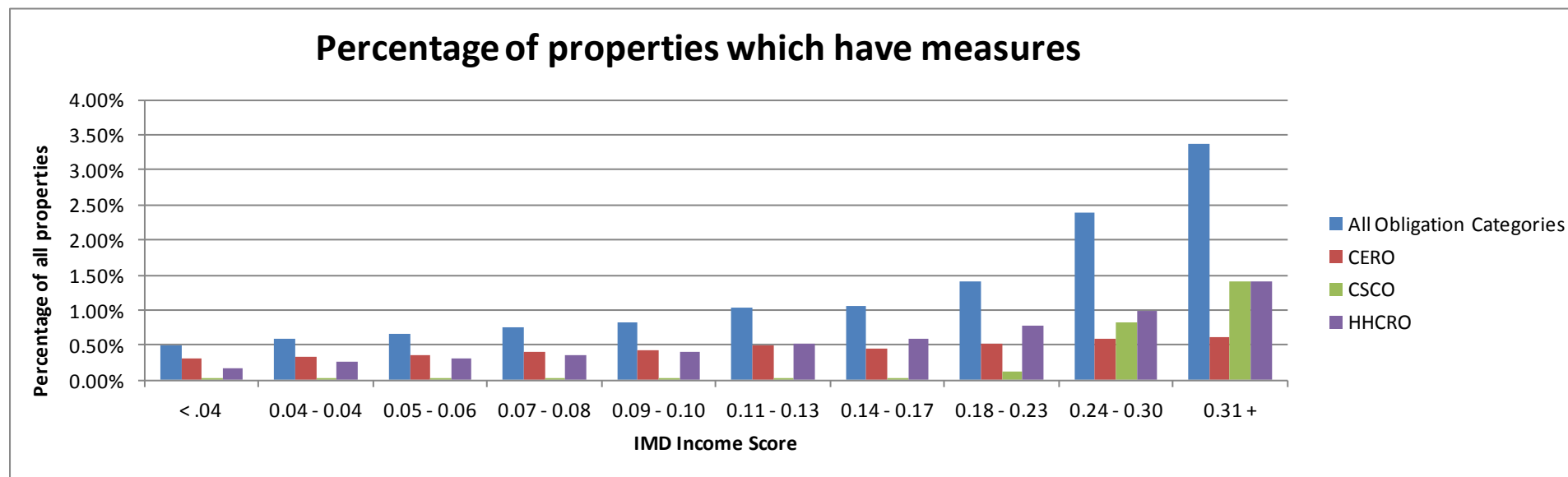


Figure 5.7: Average Carbon Score by Income Score (England)

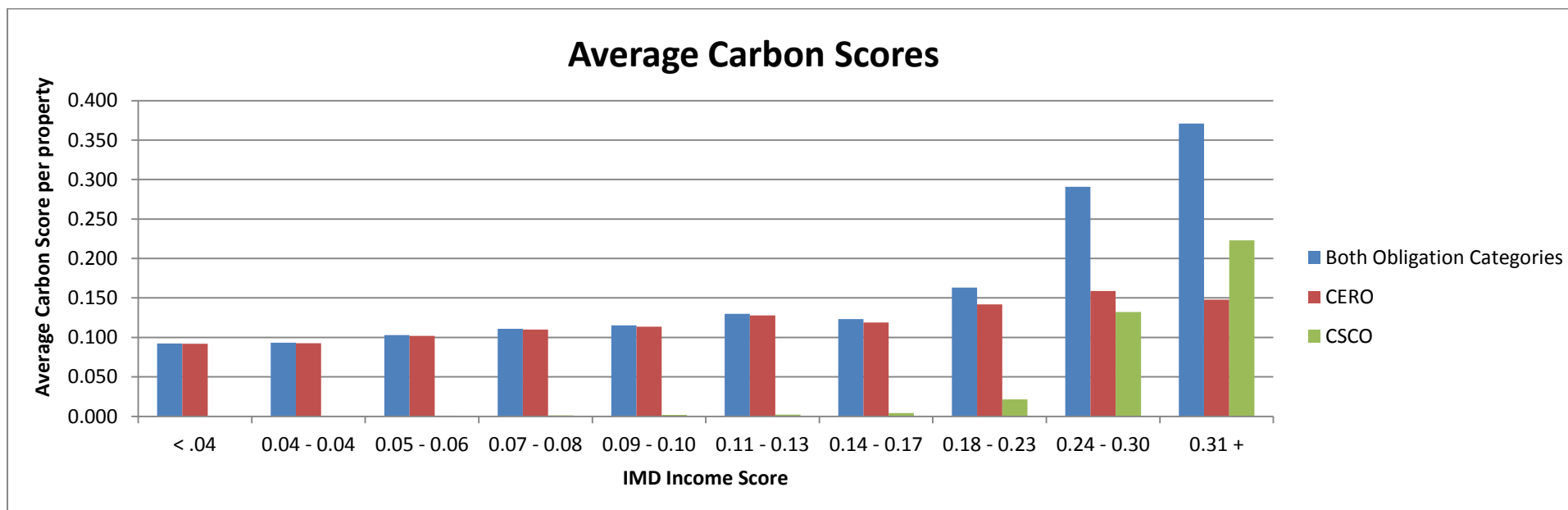
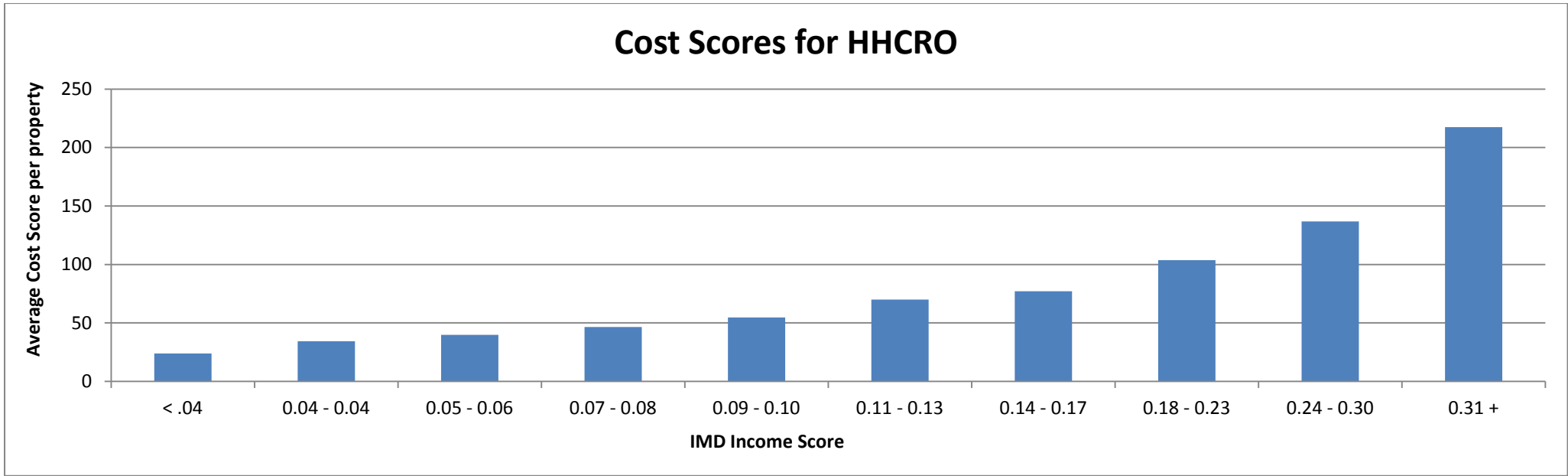


Figure 5.8: Average Cost Score by Income Score (England)



5.6.2 Income Deprivation: Wales

The same analysis was undertaken for Wales, using the income element of the Welsh Index of Multiple Deprivation (WIMD). The graphs in Figure 5.9 to Figure 5.11 show the same information as the graphs for England, but the horizontal axis is now reversed to show that deprivation is highest on the left of the horizontal axis and lowest on the right; as explained in this first paragraph of this section, 1 is still the most deprived. The proportion of properties with measures installed is highest in the most deprived deciles, especially the top two. Overall, the proportion of properties with measures increases as deprivation increases.. The Carbon scores, which is calculated in the same way to show the average score across all properties in the bin, not just those with measures, is highest in the two most deprived deciles. Below this it drops sharply with no pattern among the remaining deciles. The Cost scores, which is also calculated in the same way as for England, is higher in the second most deprived decile than in the first, and then progressively declines with reducing deprivation.

Figure 5.9: Properties receiving measures under each obligation category (Wales)

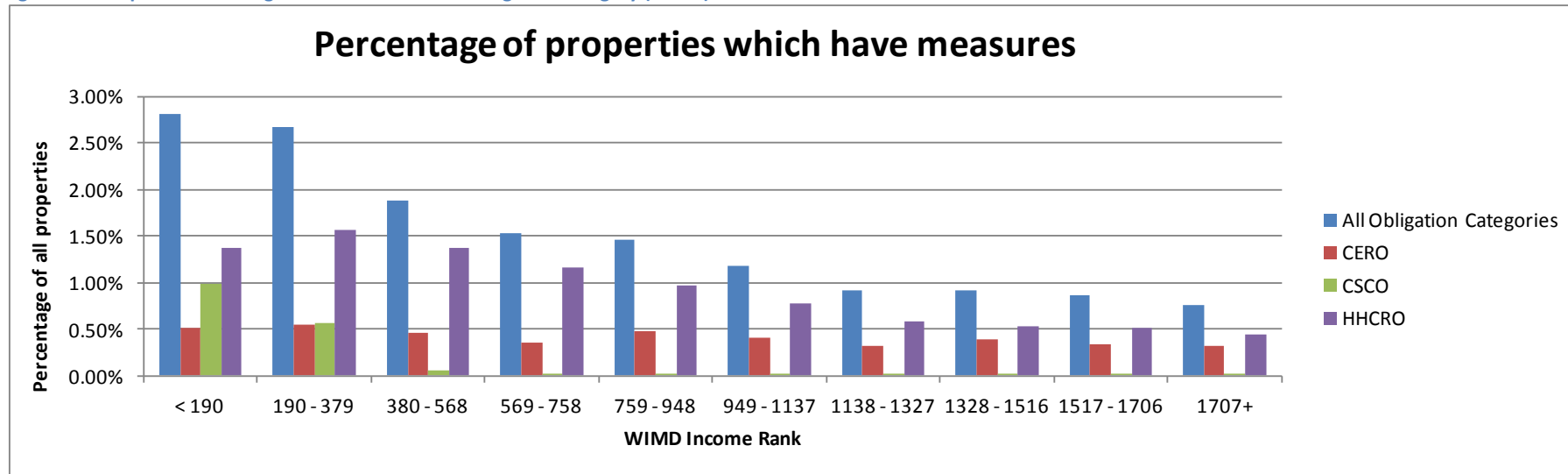


Figure 5.10: Average Carbon Score by income rank (Wales)

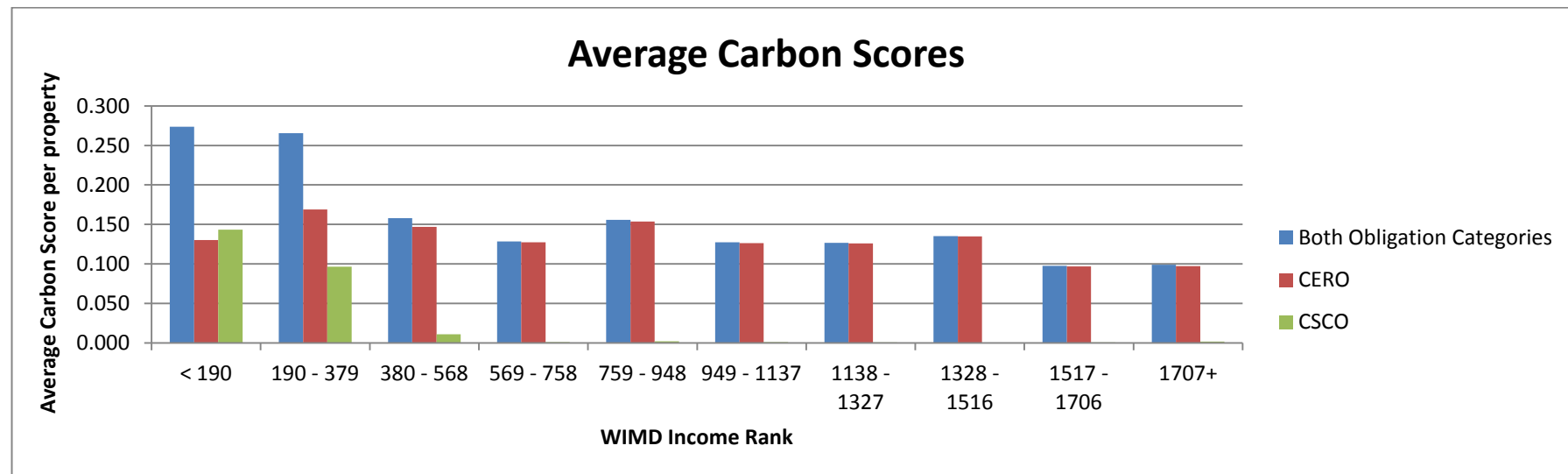
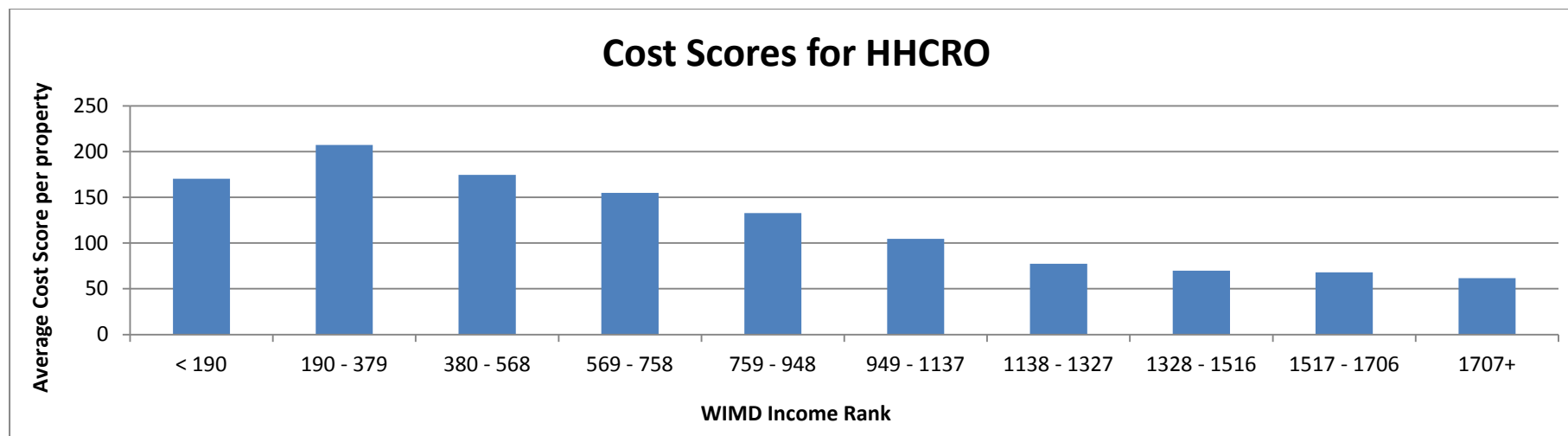


Figure 5.11: Average Cost Score by income rank (Wales)



5.6.3 Income Deprivation: Scotland

The same analysis was undertaken for Scotland, using the income element of the Scottish Index of Multiple Deprivation (SIMD) using the same calculations and methodology as for England and Wales. The graphs in Figure 5.12 to Figure 5.14 show the same information as the graphs for Wales (with deprivation reducing from left to right on the horizontal axis due to their shared ranking system). Overall, the percentage of properties in each decile declines steadily as deprivation reduces, although for HHCRO measures the percentage of properties peaks in the second most deprived decile rather than the most deprived. The Carbon scores are highest in the most deprived decile and declines across the next four deciles before increasing again. The Cost scores peak in the second most deprived decile and decline with reducing deprivation, but the average cost score in the most deprived decile is lower than that in the following three deciles.

Figure 5.12: Properties receiving measures under each obligation category (Scotland)

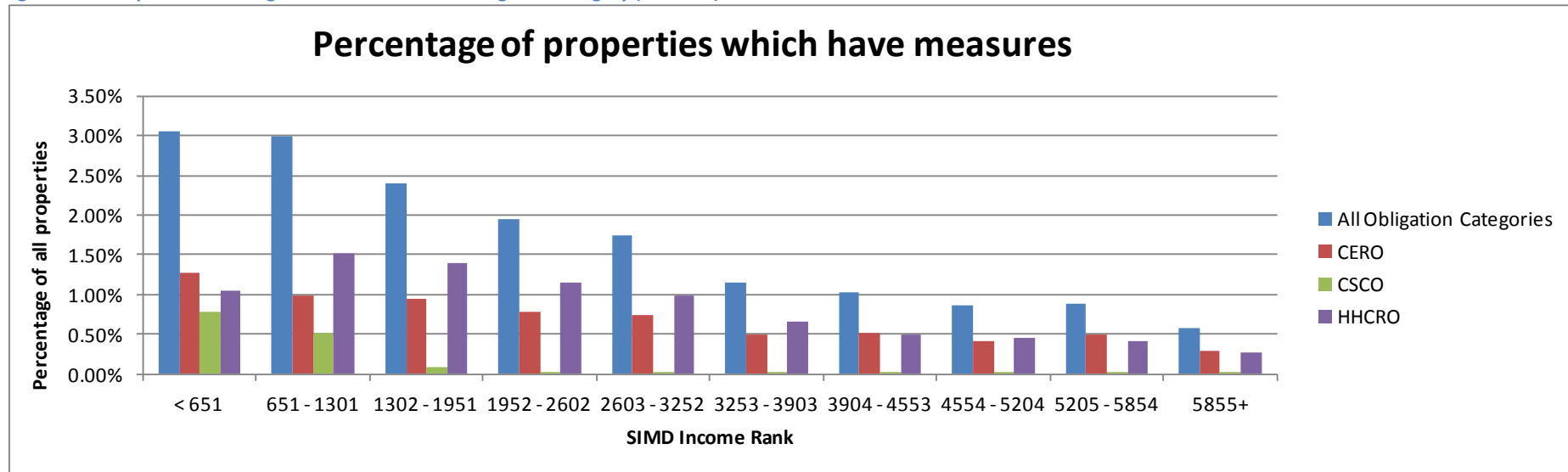


Figure 5.13: Average Carbon Score by income rank (Scotland)

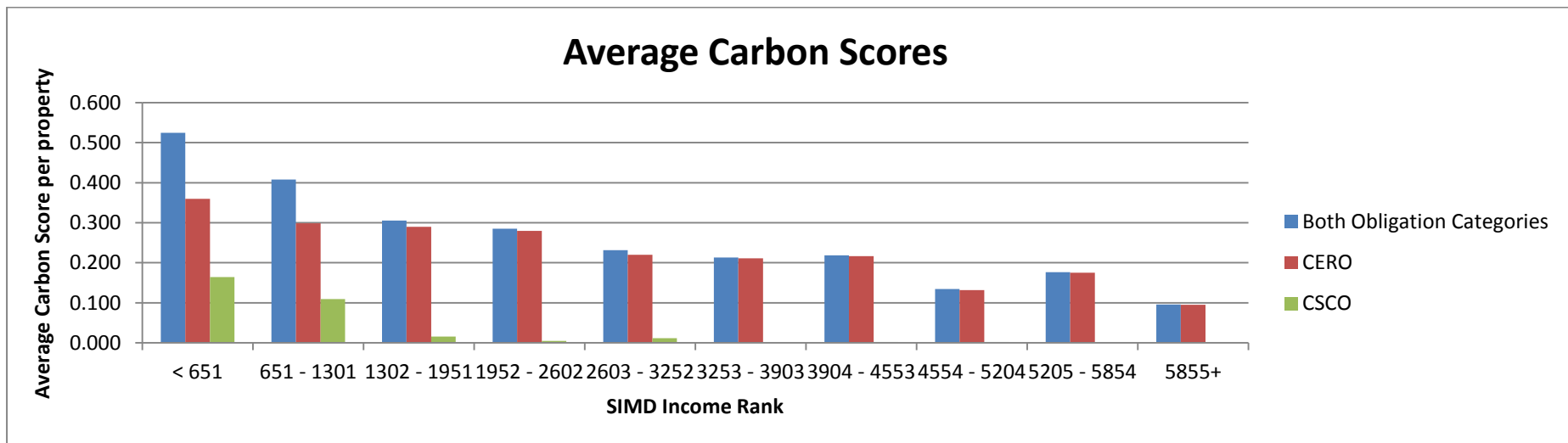
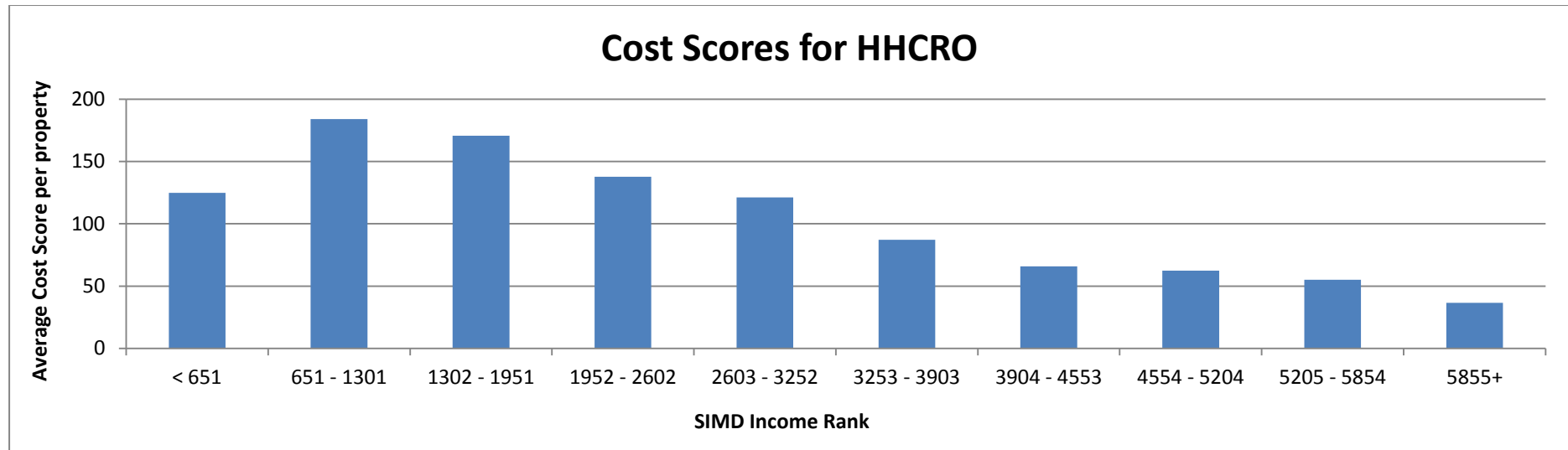


Figure 5.14: Average Cost Score by income rank (Scotland)



5.6.4 Fuel poverty

The income element of the IMD is a useful method for identifying fuel poverty but DECC compiles its own sub-regional statistics which should also be considered against the number of installed measures to create a broader picture of how well ECO is addressing fuel poverty. The 2011 figures were used to look at the distribution of installed measures²³ and give an estimate of the number of households in each LSOA which are in fuel poverty. This was done using both definitions of fuel poverty:

- The 'old' definition whereby any household which spends 10% or more of their income fuel costs is said to be in fuel poverty and
- the new definition which uses the low income, high cost (LIHC) metric.

This analysis has only been undertaken for England, as comparable statistics at the same geographical resolution are not currently available for Scotland and Wales. Similarly to the IMD graphs above, LSOAs were sorted into ten bins of equal size, according to the percentage of people in fuel poverty per LSOA. The LIHC definition estimates fuel poverty to be lower overall meaning the percentages of households in fuel poverty for each decile is lower than under the 10% definition and this is represented in the horizontal axes. As with the previous graphs, the number of measures installed in each bin is shown as a percentage of the total number of households for all the LSOAs in the bin.

The graphs for the two different definitions are shown together on the same page for ease of comparison. Figure 5.15 and Figure 5.16 show the percentage of properties which have had measures installed. Under the ten percent definition (Figure 5.15), when all obligation categories are summed, the percentage of properties with measures increases up until the ninth decile, but at the highest decile (fuel poverty of 22% plus), it drops slightly. This reflects a drop in both CERO and HHCR0 measures in this decile. However, under the Low Income High Cost definition (Figure 5.16), the top decile has by far the highest proportion of measures, driven by both CScO and CERO.

Figure 5.17 and Figure 5.18 show the Carbon Scores in each decile, by taking the total carbon score for all LSOAs in the bin and dividing it amongst all of the properties in the bin (not just the ones that received measures). This enables a meaningful comparison of carbon savings between deciles.

Figure 5.19 and Figure 5.20 show the Cost Scores in each decile, for each definition. This is calculated in a similar way to the Carbon Scores, but involves summing the total Cost Scores for all properties in the bin, and dividing it by the total number of properties in the bin.

For both the Carbon Score and the Cost Score there is a similar pattern - under the ten percent definition there is a peak in the ninth decile, and under the Low Income High Cost definition there is a peak in the top decile.

²³ www.gov.uk/government/collections/fuel-poverty-sub-regional-statistics

Figure 5.15: Properties receiving measures under each obligation category - ten percent definition of fuel poverty

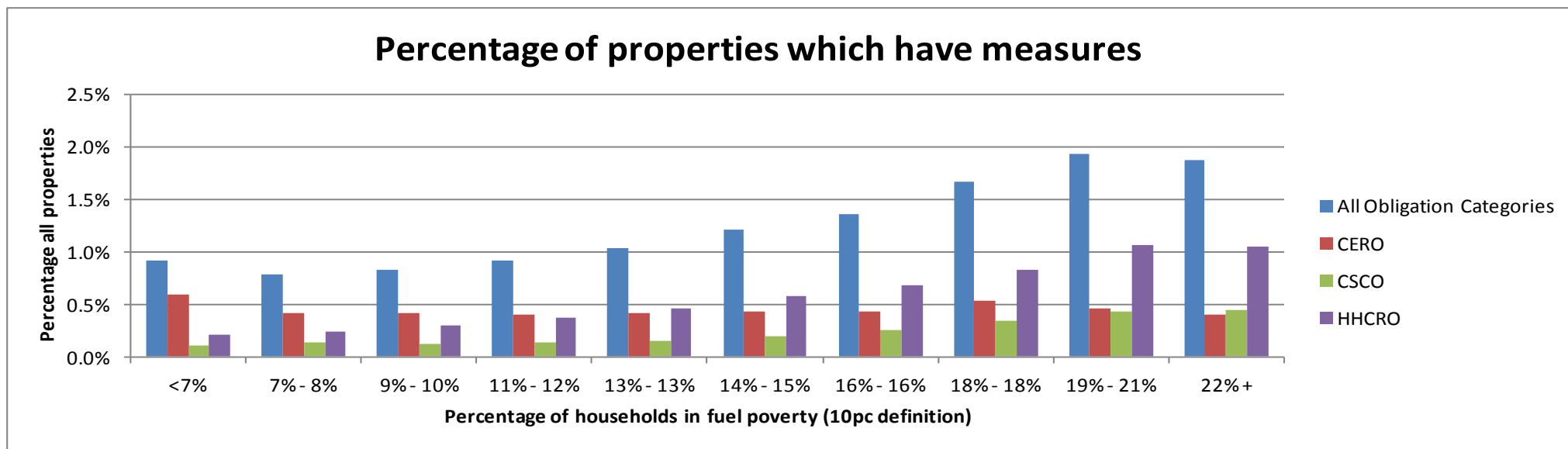


Figure 5.16: Properties receiving measures under each obligation category - Low Income High Cost definition of fuel poverty

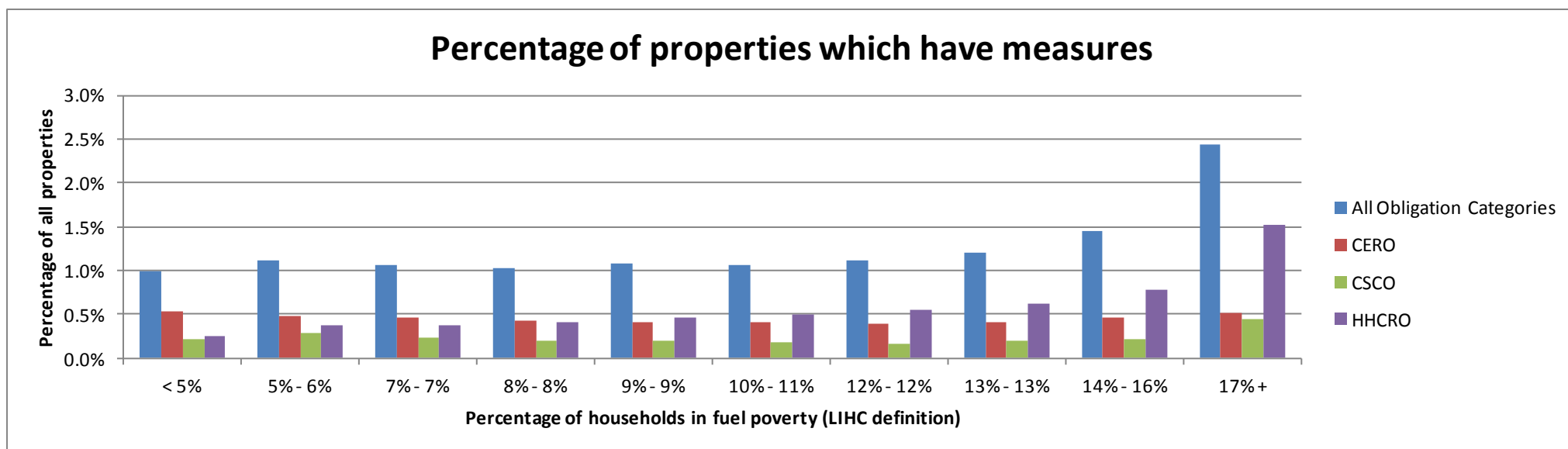


Figure 5.17: Average Carbon Score by fuel poverty decile - ten percent definition of fuel poverty

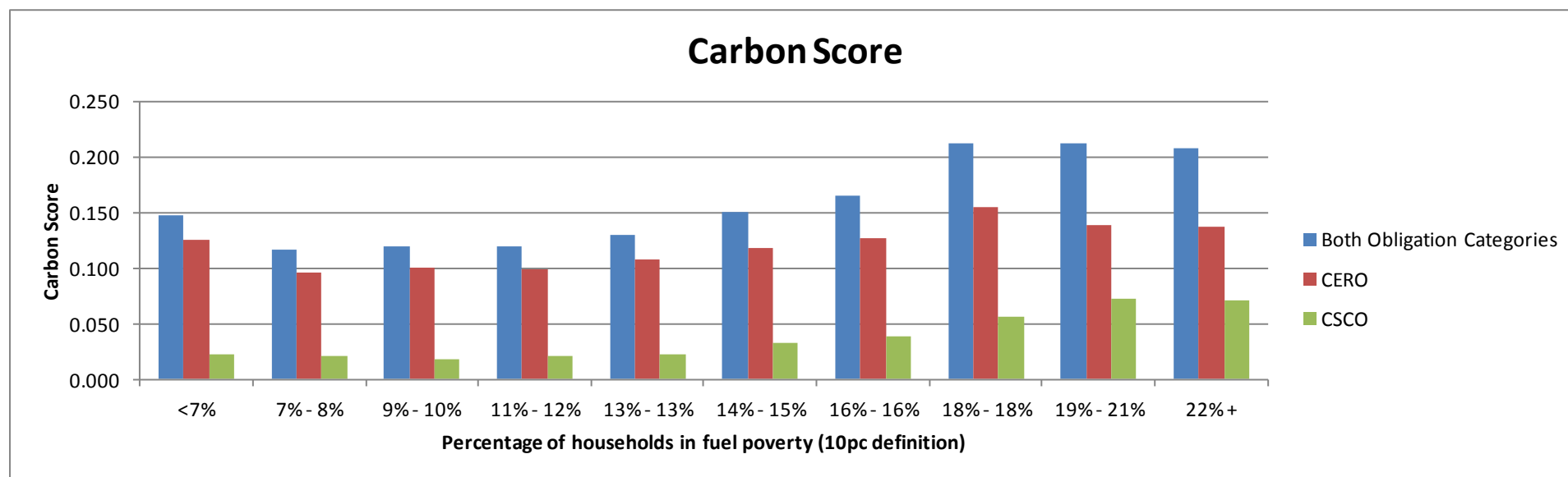


Figure 5.18: Average Carbon Score by fuel poverty decile - Low Income High Cost definition of fuel poverty

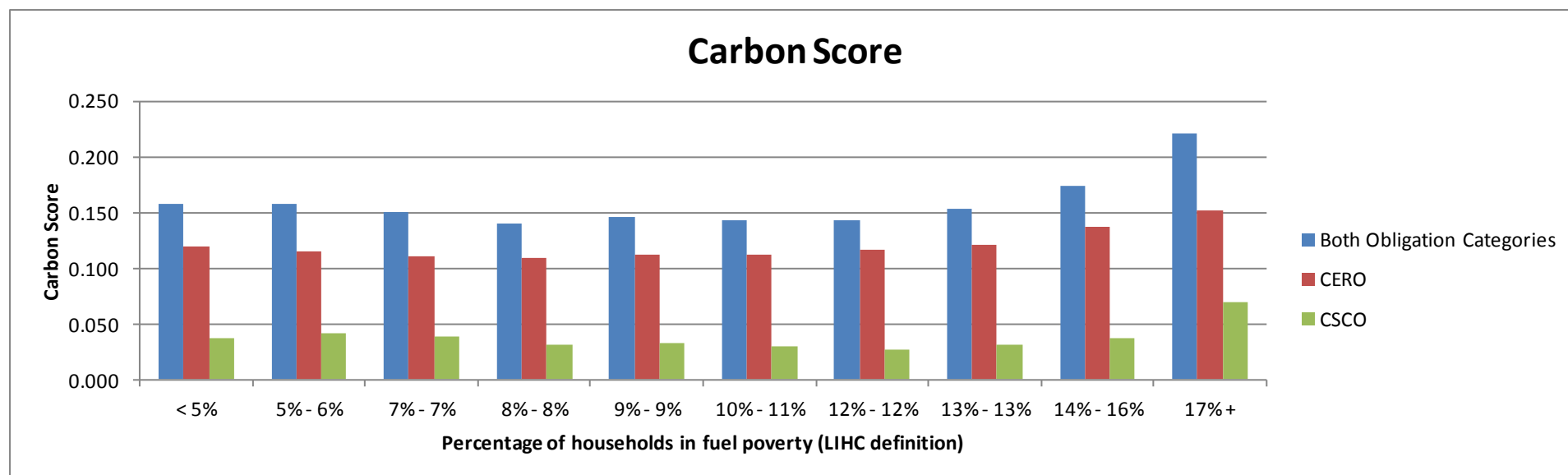


Figure 5.19: Average Cost Score by fuel poverty decile - ten percent definition of fuel poverty

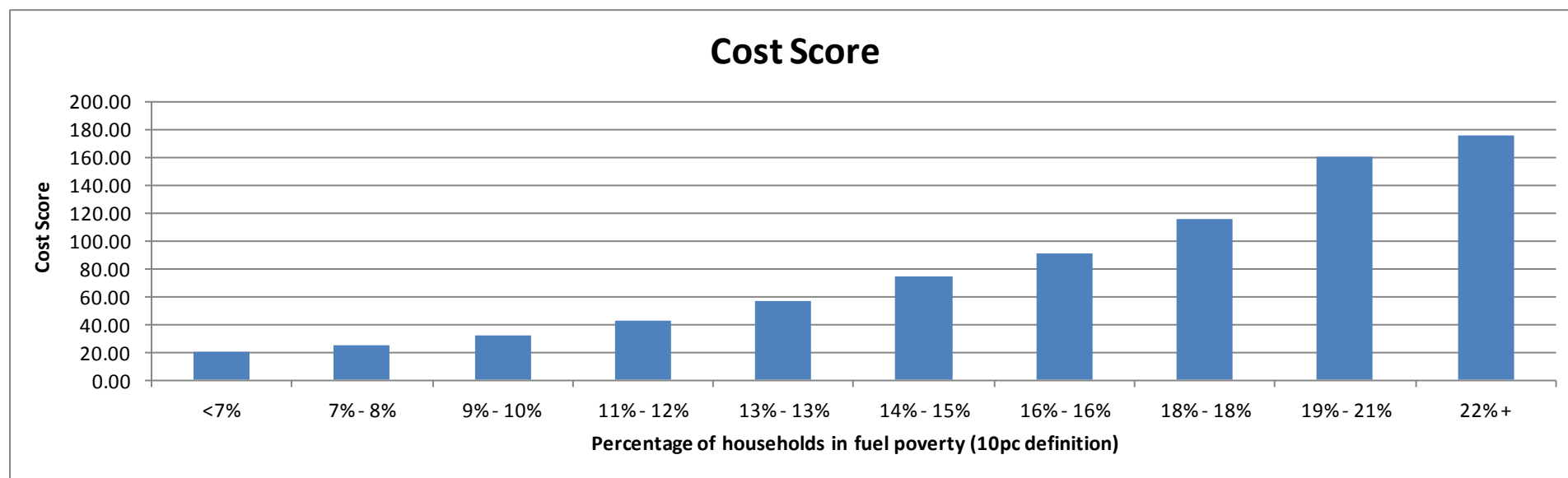
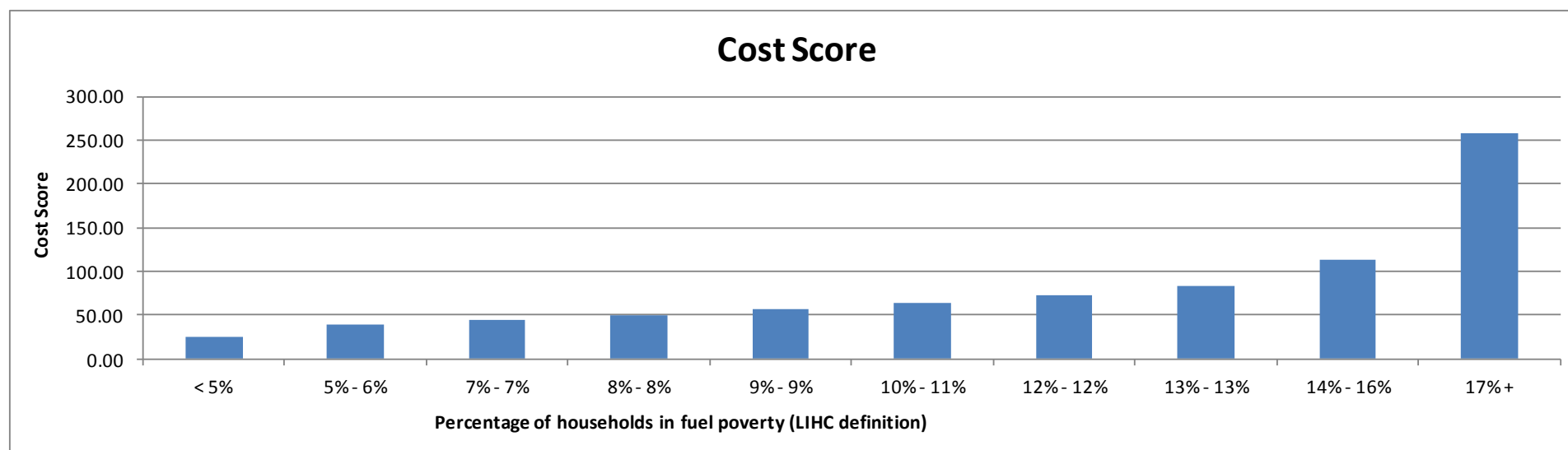


Figure 5.20: Average Cost Score by fuel poverty decile - Low Income High Cost definition of fuel poverty



5.6.5 Rurality

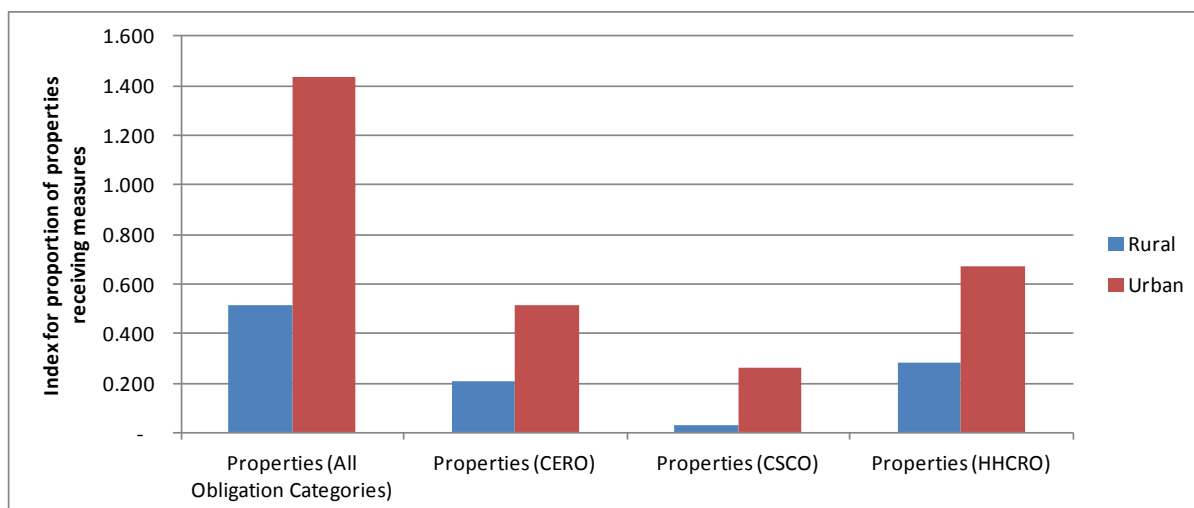
In order to look at distribution of ECO benefits between rural and urban areas, a rurality indicator was added to each property in the dataset. This was based on the output area where the property was located and followed the definition of 'rural' from the CScO guidance. This particular strand of ECO includes a requirement for 15% of the target to be completed in rural areas; although the analysis below examines the rural component of all obligation categories.

In Great Britain over 20% of homes are in rural areas. In order to be able to compare the figures for rural and urban areas in the following graphs, the numbers of properties with installations were weighted by dividing them by the total number of households in all rural areas (or urban areas, as appropriate). As this produced very small numbers, these were then multiplied by 100 to create an index. This can be used to compare the proportions of households receiving measures in rural and urban areas. Numbers have been appropriately weighted to accurately represent the proportion of properties in rural and urban areas, so if the distribution between the two was fair the bars of the graphs below would be of equal height.

Across Great Britain, urban areas have benefited significantly more than rural areas, with rural properties comprising only 7.5% of all properties receiving measures to date. Despite the rural requirement within CScO, the number of properties receiving measures under CScO in rural is the lowest of all obligation categories (Figure 5.21). This reflects the fact that the rural sub-obligation element of CScO has not yet been put into practice; our dataset contained only ten measures labelled by suppliers as qualifying for this sub-obligation.

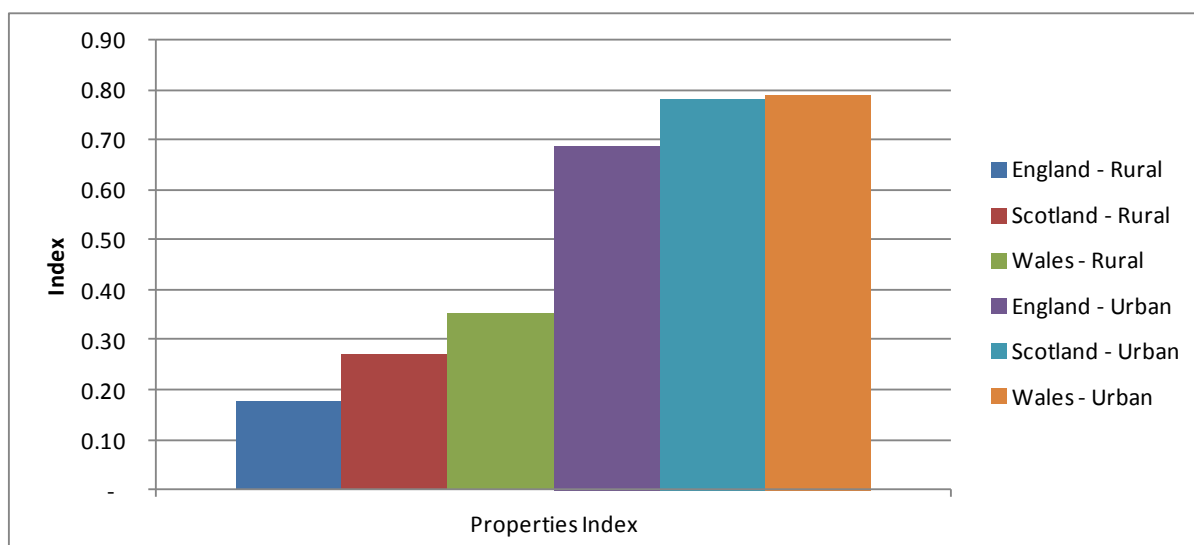
Future incarnations of the ECO therefore need to make adequate provision for those households who do not have access to mains gas, and/or live in rural areas. These households face higher average fuel prices per unit to heat their home; have contributed to the ECO and previous obligations; are hardest hit by future energy policy costs; and are currently receiving fewer policy benefits. The CScO rural safeguard is clearly not working effectively to ensure rural households get help. Specific analysis should be performed to ensure that the ECO can integrate with the Renewable Heat Incentive for wealthier households including work with DNOs to capitalise on any opportunities for demand side management to specifically help low income households without access to gas.

Figure 5.21: Comparison of properties with measures in rural and urban areas, by obligation category



When the results are split by country, we can see some differences. The chart in Figure 5.22 shows the proportion of properties receiving measures (across all obligations) in rural and urban areas, split by country.

Figure 5.22: Comparison of properties with measures, by country and rurality

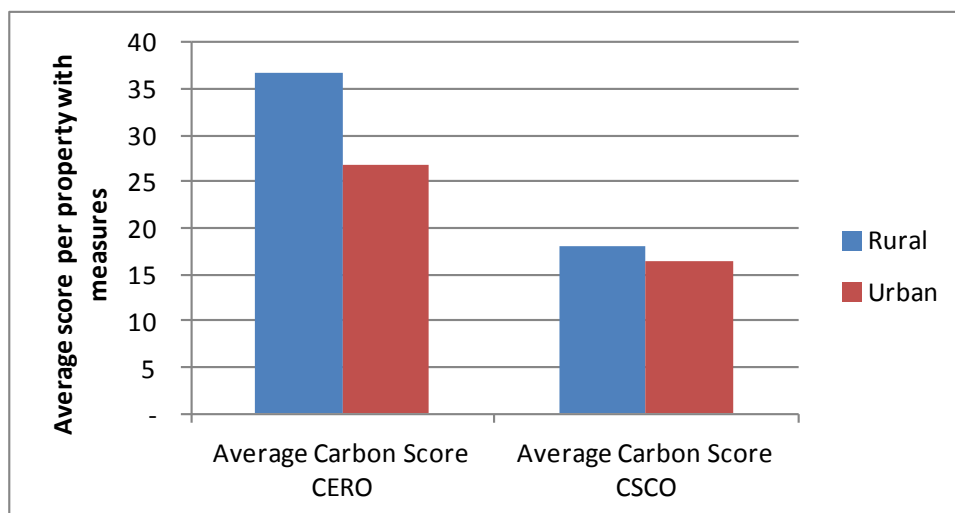


Within each country, there is a higher proportion of properties with measures in urban areas relative to rural areas. Rural England has the lowest proportion of properties reached, followed by rural Scotland. Urban Wales and Scotland have the highest number of properties reached.

Figure 5.23 and Figure 5.24: Average cost scores in rural and urban areas show the average carbon and cost scores in rural and urban areas. These are not weighted by the total number of properties but simply show the respective totals for carbon and cost score in rural / urban areas divided by the number of properties *with measures*. Therefore they are the average scores for properties which received measures.

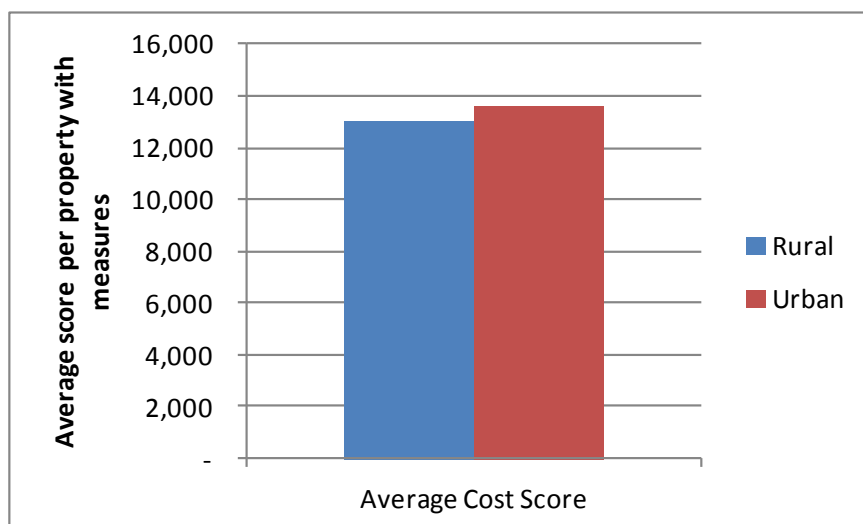
Across properties which have received measures, the average carbon score for CERO was actually higher for rural properties than for urban properties. For CScO the score was around the same for urban and rural properties.

Figure 5.23: Average carbon scores in rural and urban areas



For HHCRO, the average cost score was higher in urban areas, most likely due to the greater opportunities for installing gas boilers in urban areas. However, there are a several erroneously high cost scores in urban areas and these may be affecting the overall result. Annex III at the end of this report contains further analysis of scores by rurality.

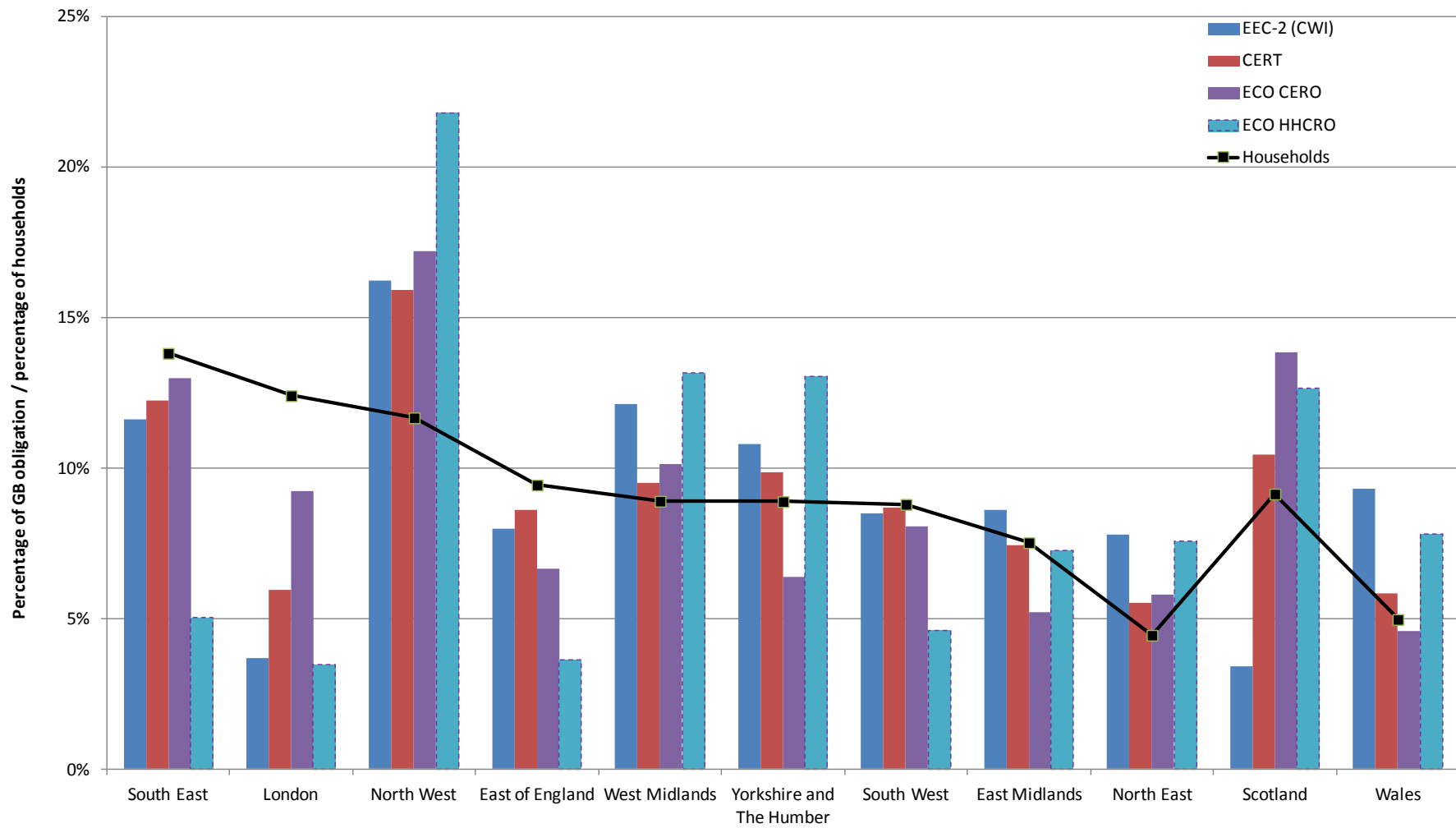
Figure 5.24: Average cost scores in rural and urban areas



5.7 Comparison of regional distribution of ECO and previous energy supplier obligations

Figure 5.25 shows how ECO compares with previous energy supplier obligations when divided between the regions and devolved nations of Great Britain. The black points linked by a line show the percentage of GB households which are found in the region or nation, while the bars show the proportion of each obligation that was delivered in each area, according to the number of households which received measures. For ECO the focus is CERO and HHCRO as the number of CSCo installations is so low and of course only includes the period covered by this evaluation. Therefore if the bars showing the proportion of completed obligation are at the same height as the point showing the proportion of households in a particular area, it would be receiving its 'fair share' of the obligation. However, it must be noted that while this provides interesting insight into the distribution of measures nationally, the number of properties represented in the graph does not equate to the number of *energy inefficient properties* within Great Britain as currently such data-sets are unavailable.

Figure 5.25: Regional distribution of ECO and previous energy supplier obligations



The North West has consistently fared the best: although it has only the third highest population, it has the highest number of households receiving measures in all of the obligations shown. London has fared the worst, because although it has the second highest population, it obtained the second lowest number of EEC-2 cavity wall insulation installations (after Scotland), the third lowest number of CERT measures (after Scotland and the North East, which have lower populations), and the third lowest number of HHCRO households (after the East of England and the South West). London has a higher number of CERO households, but relative to its population this is still low.

Under CERO, the South East is receiving approximately its fair share, with the North West, South West, North East and Scotland receiving benefits for proportionally more households relative to their population and the remainder receiving less than their fair share.

For HHCRO, the East Midlands is receiving approximately its fair share, while the South East, London, East of England and the South West getting measures in fewer households relative to their population, and the remainder receiving proportionally greater benefit proportional to their population.

The figures behind Figure 5.25 are shown in Table 5.12.

Table 5.12. Regional distribution of ECO and previous energy supplier obligations

Region / Nation	Proportion of GB households receiving measures under obligation						Households
	EEC-2	EEC-2 (CWI)	CERT	ECO CERO	ECO CSCo	ECO HHCRO	
South East	20.3%	11.6%	13.0%	4.5%	5.0%	5.7%	13.8%
London	14.6%	3.7%	9.2%	11.7%	3.5%	4.4%	12.4%
North West	10.4%	16.2%	17.2%	22.6%	21.8%	20.2%	11.7%
East of England	2.9%	8.0%	6.7%	3.6%	3.6%	3.5%	9.4%
West Midlands	8.7%	12.1%	10.1%	16.2%	13.2%	16.0%	8.9%
Yorkshire and The Humber	8.9%	10.8%	6.4%	13.0%	13.1%	11.3%	8.9%
South West	7.6%	8.5%	8.0%	3.1%	4.6%	3.8%	8.8%
East Midlands	6.9%	8.6%	5.2%	6.7%	7.2%	7.4%	7.5%
North East	5.4%	7.8%	5.8%	8.3%	7.6%	8.5%	4.5%
Scotland	9.8%	3.4%	13.8%	6.5%	12.6%	12.0%	9.1%
Wales	4.6%	9.3%	4.6%	3.8%	7.8%	7.3%	5.0%
Total	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%

5.8 DECC's understanding of the ECO 'markets' and its likely impact on market behaviours

It seems clear from the analysis in this report that the ECO has stimulated market behaviours which are significantly different to those anticipated by DECC at the time the policy was being developed. This conclusion is reinforced by some DECC officials who have suggested, in the context of this study, that energy suppliers have not been delivering ECO as they had anticipated.

In particular the surveys and data analysis has highlighted the following:

- The strong focus on HTTC by all suppliers and contractors, largely at the expense of solid wall insulation
- The relatively high prices paid for HTTC (cf HTTC costs)
- The high start followed by a drop in brokerage prices for CERO, though not to a level that more closely reflected the actual costs of delivering the HTTCs which made up the lots
- The shift towards 'client contributions' in the HHCRO heating market.
- The wide variation in 'scores' emerging from the assessment process across all ECO components
- The almost non-existent integration with Green Deal
- The lack of any significant efforts to test solid wall 'offers' in the private owner-occupied market to find subsidy price point which would secure take-up

While there is a risk of criticising DECC with the benefit of hindsight, it should be noted that many of these outcomes were predicted within consultation responses. More importantly, as explained below, they are all broadly predictable if a genuine commercial analysis is made of ECO and are largely unrelated to the limited development of the market for Green Deal during the first year of ECO.

It is, for example, rational for any commercial organisation faced with delivering their ECO obligation to focus on securing measures which are (a) cheaper and (b) being presented to them by an active insulation supply chain which has quickly adjusted from 'easy cavities' to 'hard cavities' and appears to have little difficulty in finding them in large numbers.

It is less rational, but predictable from behavioural economics, for each obligated party and every insulation contractor to presume that they had a successful strategy. They would therefore secure more than their fair share of the available HTTCs. They could also reasonably assume that more HTTCs would be available than previously expected, given the ease with which the market developed and secure take up. These strategic presumptions further weaken any impulse to develop other approaches considered more problematic and expensive (such as solid wall insulation offers to owner-occupiers).

The early high prices on the CERO brokerage are also predictable given the anchoring effect of the Impact Assessment on suppliers' anticipation of the costs of delivering ECO. It turns out these brokerage offers were mainly for low cost measures (HTTC) but that information was not available within the process. Faced with early brokerage prices at or below impact assessment predictions, these offers look attractive to obligated suppliers expecting impact assessment prices, which is why they were snapped up.

As it became clear that HTTCs were cheaper than anticipated to deliver and dominating CERO, appetite for paying high brokerage prices for these measures waned. However, this effect would also be countered to some extent by supplier concerns to 'get more than their share' of HTTCs (to reduce the possibility of having to do 'much more expensive' SWI) and insulation contractors offering bilateral arrangements to so as to deliver. In this setting, aided by fears amongst suppliers of having to resort to SWI, insulation contractors enjoy much higher prices than they would need to be motivated to find and install HTTC.

A similar affect may be taking place in the HHCRO market, where initial expectations – embedded in the Impact Assessment – were that heating systems would have to be 'heavily subsidised' in order to secure take up in what was designed to be a low income target group i.e. given the difficulties in identifying the super priority group at the end of CERT. However, even in that target group, some households are more able to contribute to the cost of heating than others. Once that opportunity becomes clear, a commercially-driven organisation will start to target it and prices will drop to reflect the lower level of subsidy required. While this shows a market mechanism at work (as policy intended), that does not mean this particular outcome was intended – or is desirable. For example, it would be naive for an economist to support this approach over the longer-term as the source of finance for the top-up and / or the impact of this expenditure on a low income household are unknown.

5.9 Assessing fairness in policy design

In addition to the comparison with the original impact assessment it is also important to consider the equity of energy policy i.e. when thinking about an obligations design. Previous analysis^{24,25,26} by CSE has shown that energy policy appears to be broadly progressive with households on average standing to benefit if policy is implemented successfully; however, this masks a wide variation with wealthier households standing to receive greater benefits with lower income households' policy contribution representing a much larger proportion of their income. In particular, our report *The hardest hit, going beyond the mean* shows that those that use electric heating (by 2020) get 7% of the measures or benefits, make up 10% market share and pay 20% of the policy costs i.e. as electricity is used to recover the vast majority of energy policy costs. This is clearly unfair as more low income homes use electricity to heat their houses. Table 5.6 above shows that the Affordable Warmth aspect of the ECO is currently doing nothing to protect these households from the price rises associated with energy policy costs i.e. supporting gas boiler replacements and low cost insulation measures.

In terms of stimulating the solid wall market further, there is a clear argument for the additional use of funding from general taxation. Generally taxation is more progressive and should be used to fund those measures which may not currently be market ready i.e. where the supply chain requires development. The RHI is one area where the Government have got this right as low income households are unlikely to install these measures and as such using their energy bills to fund them would be wrong. In the short term the recent consultation proposals to increase the solid wall insulation cashback to £4,000 should help stimulate the market without undue burden on low income households.

²⁴ Preston et al. (2011), Distributional Impacts of Energy policy, eaga Charitable Trust

²⁵ Preston et al. (2013), Distribution of carbon emissions in the UK: Implications for domestic energy policy ,JRF

²⁶ Preston et al. (2013), The hardest hit, going beyond the mean, Consumer Futures

Annex I: Detailed distributions of scores by obligation

CERO box plots and distributions

The box plots in Figure A5.1 show the range of carbon scores for the more common measures, split by heating fuel reported. There is very large variation in scores for all measures, with some very high scores which give the distribution a long tail. The dataset contains scores which are strikingly high (e.g. yearly carbon savings of 5.5 tonnes for HTTC in a property most likely heated by gas) which we have no full method of evaluating without the xml data.

HTTC CWI is the only measure with enough installations in households heated with fuels other than gas to be able to make useful comments on the results (4,400 installations of HTTC CWI in electrically heated households, compared to 250 for the next most common measure). This further illustrates the ECO's focus on areas that are currently supplied by gas where the theoretical carbon savings are lowest i.e. as gas has the lowest emissions factor. Delivering measures in these areas is likely to be cheaper as the density of housing is typically higher in on gas areas i.e. compared to off gas areas which are likely to be more rural in their nature.

The box plot in Figure A5.2 again shows CERO scores for common measures, this time split by property as well as heating fuel. There is a greater range of carbon scores for houses than for flats. On-gas carbon scores are generally lower.

Figure A5.3 shows the distribution of carbon scores for HTTC CWI installed under CERO, split by gas heating and other (electric and other have been combined here).

Figure A5.1. Box plots of CERO scores for those measures most typically installed.

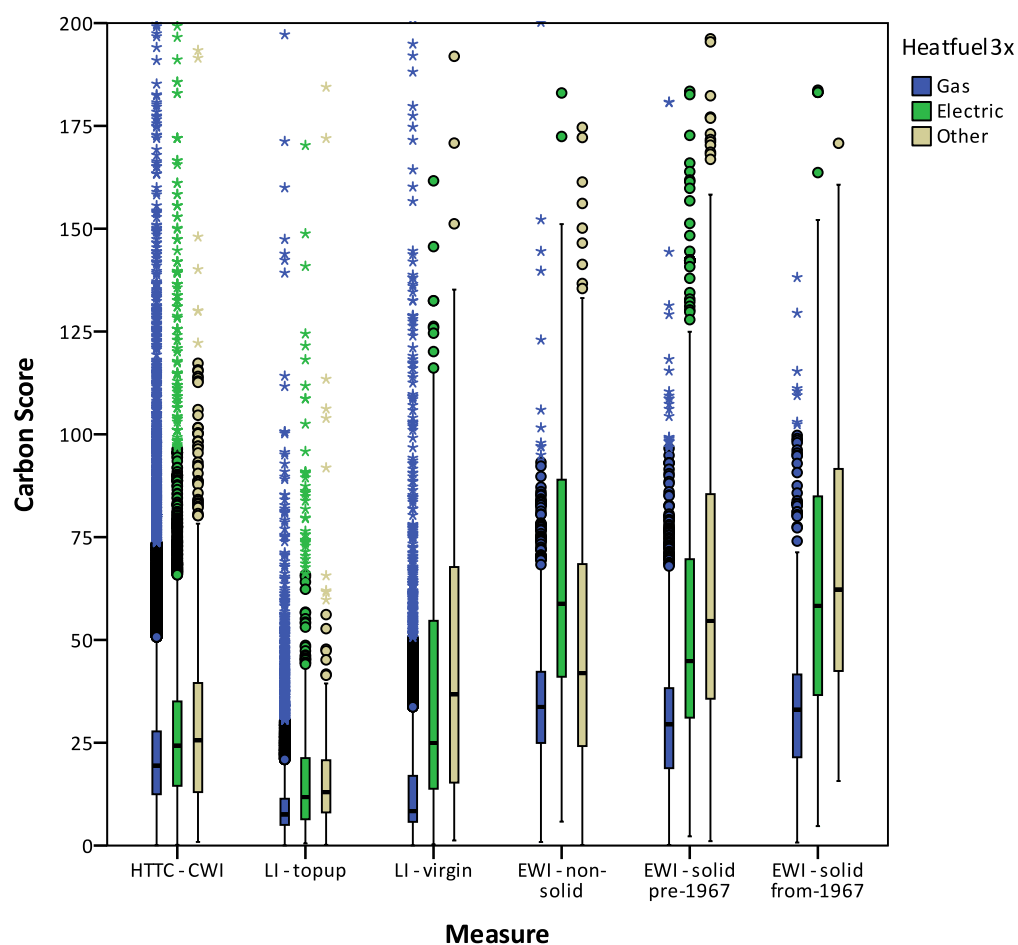


Figure A5.2. Box plots of CERO scores for those measures most typically installed (by property type).

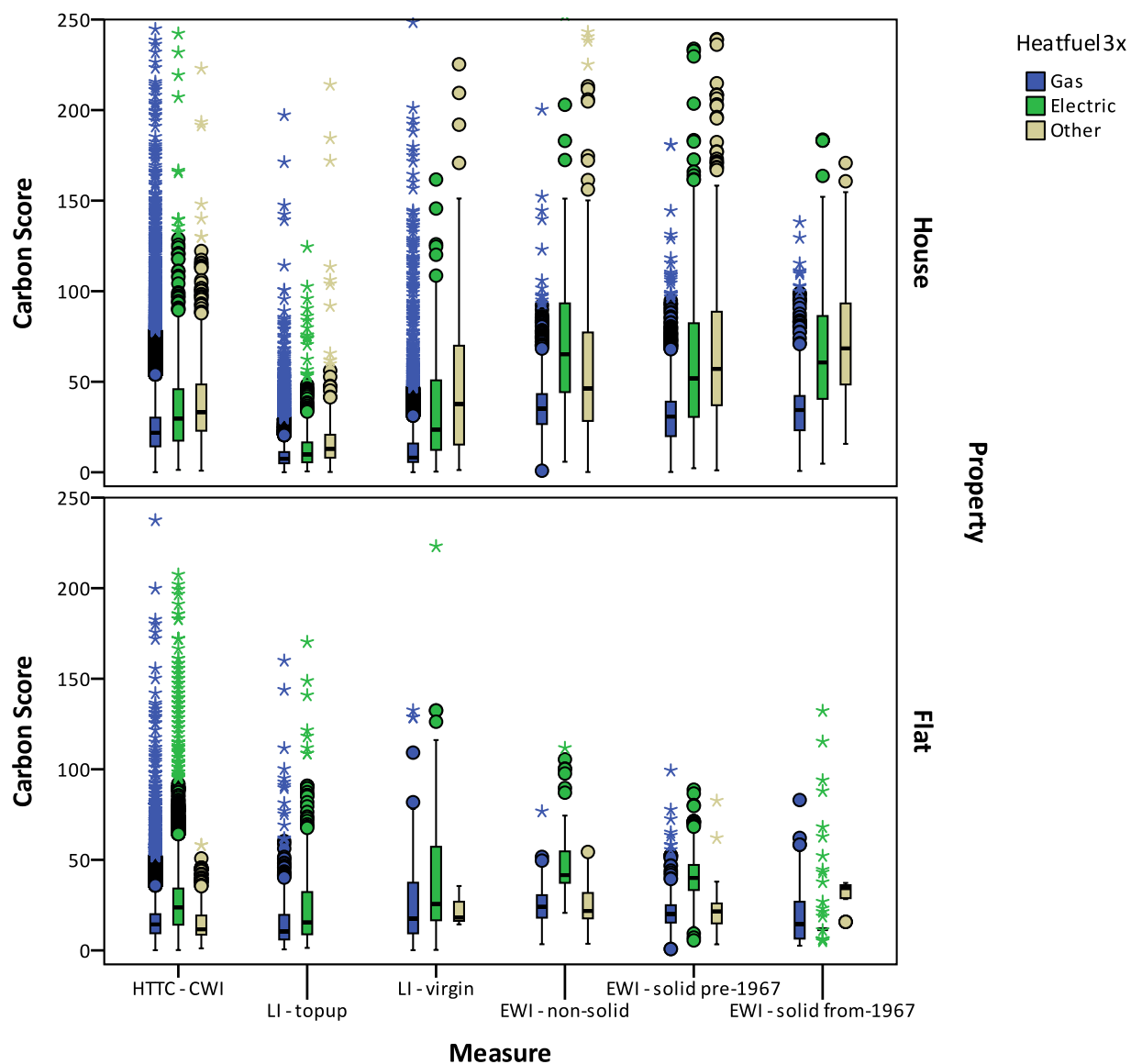
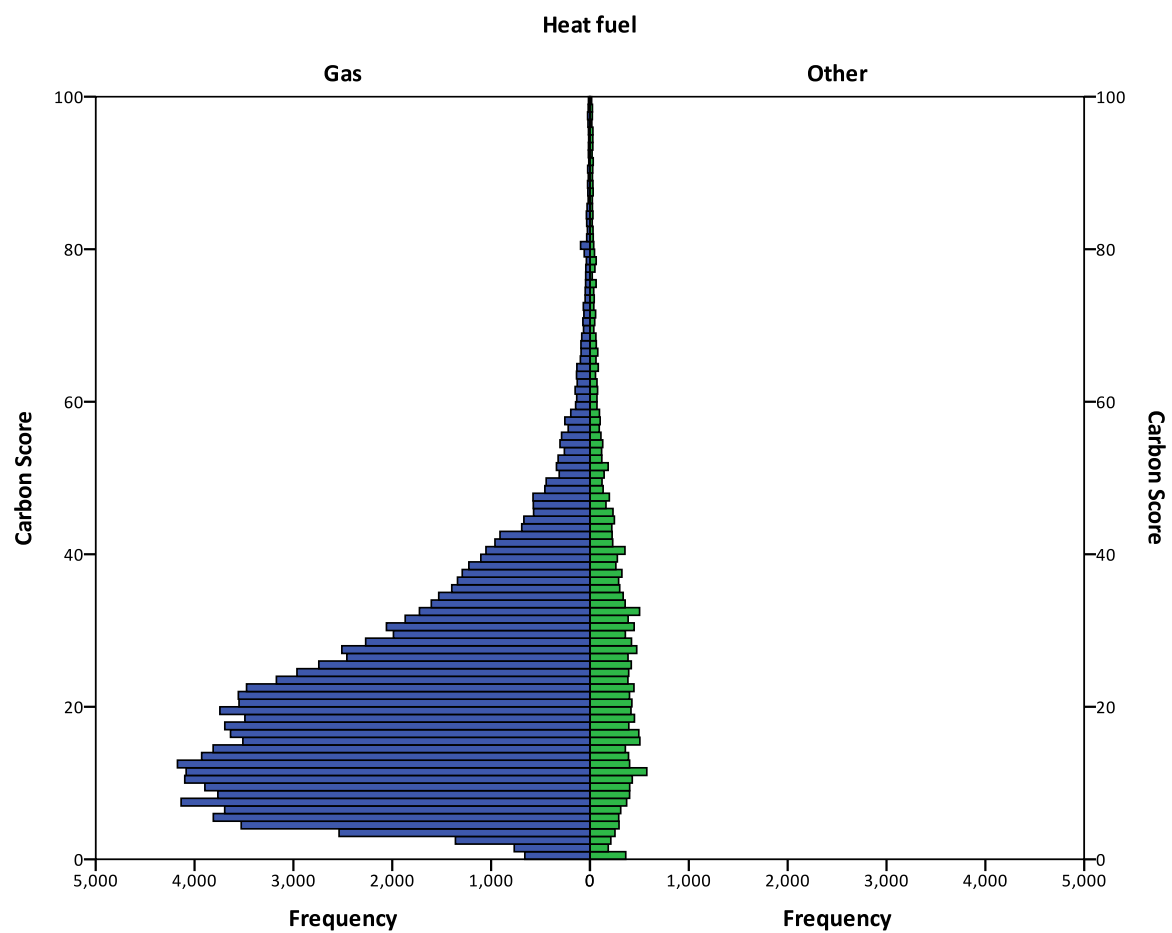


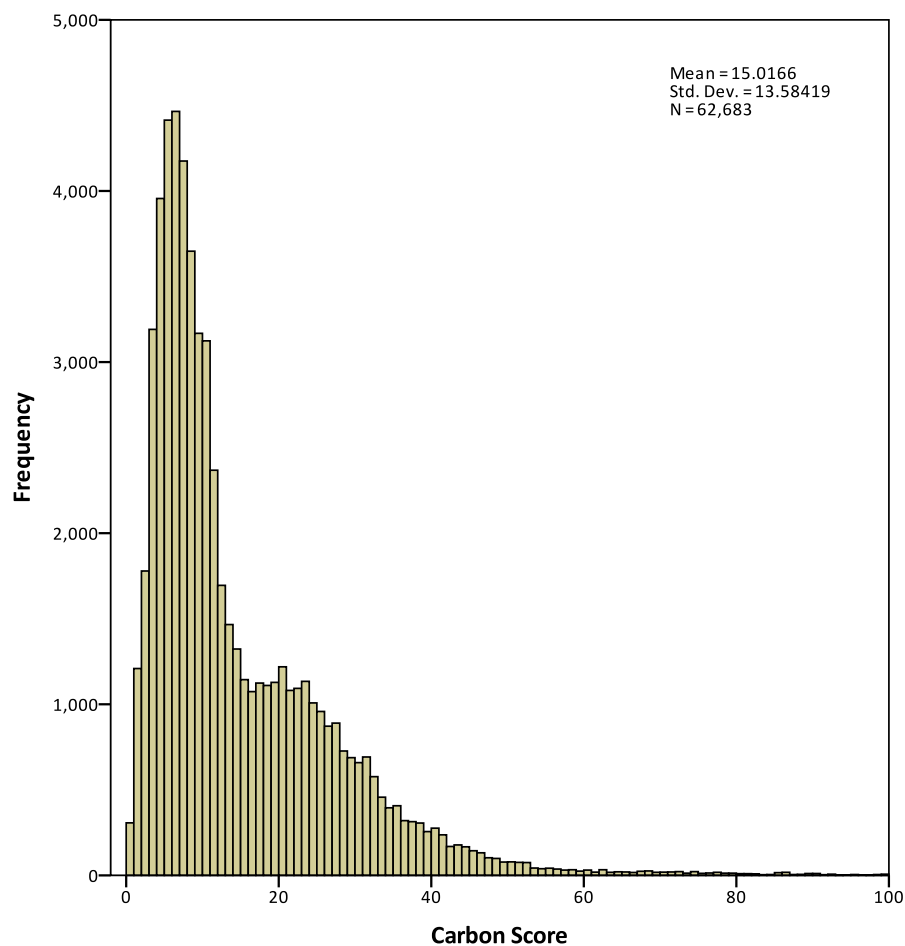
Figure A5.3. Distribution of CERO scores for HTTC CWI split by heating fuel (electric has been combined with other here).



CSCo score distributions

Figure A5.4 shows the distribution of carbon scores for all measures installed under CSCo. The mean carbon score is 14.6, with the highest scores reaching above 60.

Figure A5.4. Overall distribution of CSCo scores for all measures installed.



HHCRO box plots and distributions

Figure A5.5 shows the overall distribution of HHCRO scores across all measures. This shows two peaks in terms of frequency. The first is for standard insulation measures and the second for heating, such as a broken boiler replacement. Similarly to the measures supported under CERO there is a wide range of scores with a long tail of high values.

Figure A5.5. Overall distribution of HHCRO scores for all measures installed.

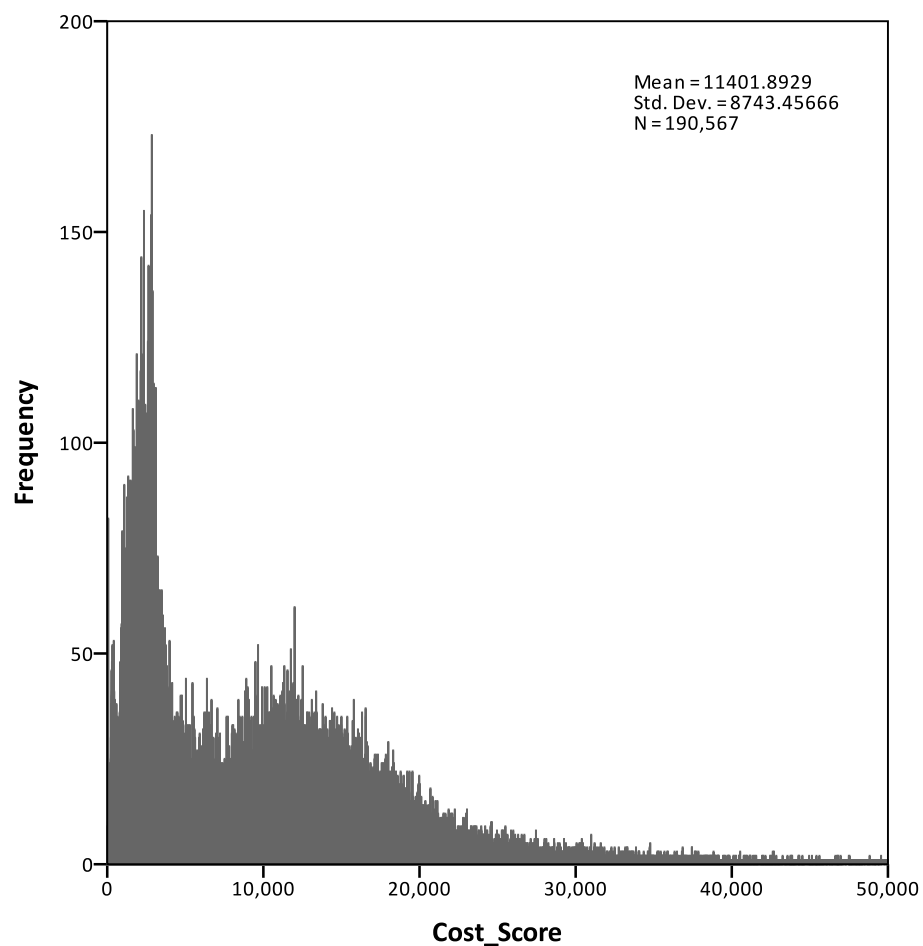
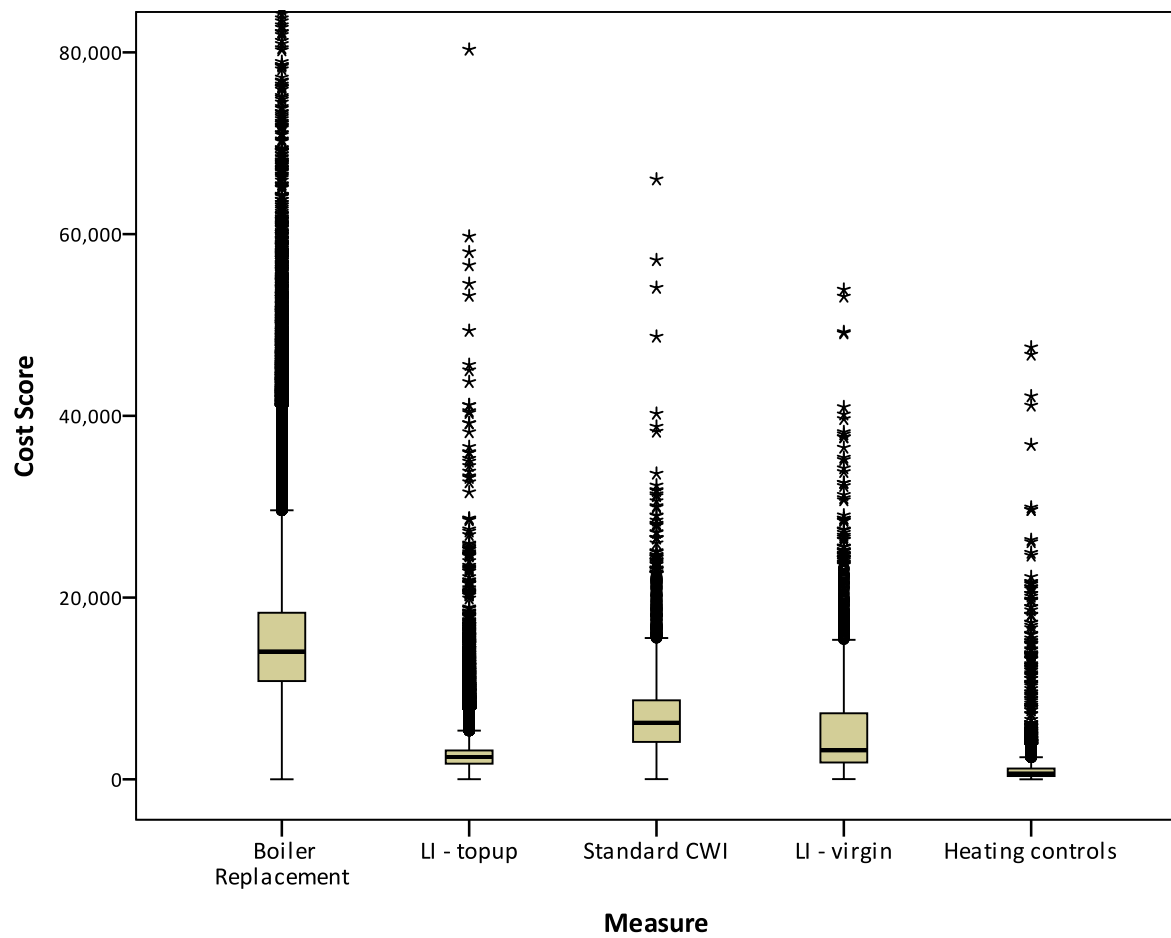


Figure A5.6. Box plots of HHCRO scores for the most commonly installed measures (including outliers).



Annex II: Analysis of a selection of high-scoring measures

The dataset contained some measures with exceptionally high cost or carbon scores. In order to investigate this further, the EPCs for the dwellings where these measures were installed were obtained from the Landmark database. This was possible because in most cases the supplier data contained the RRN, which is the reference number of the EPC.

Forty of the highest scoring measures were investigated, most of which were submitted by the same supplier; however, when this analysis was undertaken not all suppliers had submitted data and so this does not mean that one supplier submitted significantly higher scores than the others. In fact, since this analysis was undertaken further data submitted by others suppliers has given much higher scores than the ones selected for investigation here.

Of the 40 cases investigated, several of the EPC RRNs (Report Reference Numbers) recorded within the data provided by the suppliers were not accessible through the Landmark database. When the RRNs were entered into the database search facility, an error message stating that the RRNs 'did not exist' was returned for nine out of the forty EPCs selected, a 'not for issue' error message was returned for one of the EPCs, and for fifteen properties the pre-installation RRN and the post-installation RRN provided by the supplier were the same. Whilst it is possible for property owners or tenants to opt-out of their properties being searchable by address within the database, their EPCs should still be accessible using the specific RRN. Where this is not the case, it is likely that either the RRN provided is incorrect or that the EPC has not been properly lodged by the assessor (note that an EPC is not classed as a legal document unless it is lodged on the central register). On closer review, a large proportion of these inaccessible EPCs appear to have been produced by assessors linked to the same organisation. However, the size of this organisation is not known: if it is a large organisation this could simply be because the organisation produces many EPCs. It could also be because most of the measures investigated were submitted by the same supplier.

Of the fifteen measures where it was possible to compare the annual cost saving stated by the supplier against the cost saving in the EPC, fourteen measures were boiler replacements. For these measures the annual cost saving in the notified measures data was higher than the total annual running cost taken from the EPC. This is due to the way that cost savings for broken boilers are calculated, based on an assumption that while the boiler is broken the household will be using plug-in electric heaters, rather than basing the cost savings on the original heating system, which is the case for the EPC. In ten cases the annual cost saving exceeded the annual running cost of the property by more than £1,000, showing the impact of the assumption that homes with broken boilers would switch to plug-in electric heaters. The boiler replacements investigated as part of this exercise were the ones with the highest scores in the dataset, but due to the assumptions which the policy allows to be made for these scores, it is not possible to check their accuracy by comparing them with the EPC.

Measure-specific carbon savings are not specifically stated on a standard EPC and are difficult to calculate accurately using the information that is provided within the available documentation. Estimated financial savings are stated on the EPCs for most of the recommended measures individually; however this information is rarely provided for the more expensive measures such as solid wall insulation or hard-to-treat cavity wall insulation. Where this information is available, it is possible to infer carbon savings for the measure relatively straightforwardly where the dwelling is

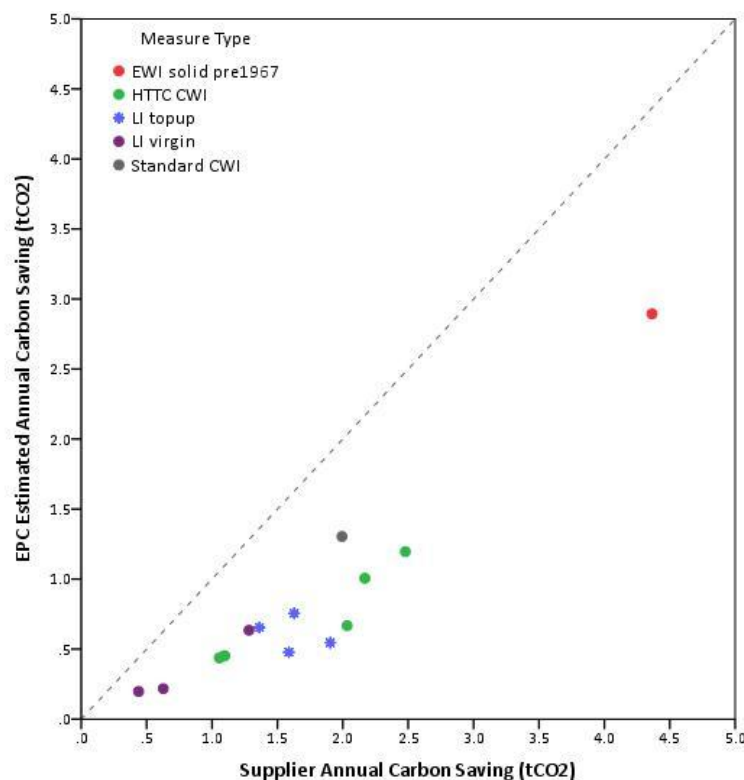
heated by gas, but the range of tariff types available for dwellings reliant on electric heating will mean that emissions calculated via this method are likely to be less accurate in these cases. Table A7.1 shows how carbon savings were inferred from the EPC and compared with those submitted by suppliers for the same measures.

Table A7.1. Illustration of calculation of inferred carbon savings from EPCs

Annual measure-specific saving per year on EPC (£/year)		Cost per unit of fuel (£)		Number of units (kWh/year)		Carbon factor		Estimated annual carbon saving (tonnes)	Annual carbon saving estimated by supplier (tonnes)	Difference (tonnes)		
216	÷	0.0813 (gas)	=	2657	x	0.2055 (gas)	=	0.55	1.904	1.354		
259				3186				0.65	1.362	0.712		
426		0.1653 (oil)		2577		0.259 (oil)		0.67	2.033	1.363		
305				1845				0.48	1.587	1.107		

Of 24 measures under CERO / CScO which were investigated, it was possible to use the EPC information to infer measure-specific annual carbon savings for fourteen measures. In all 14 cases, the annual carbon saving derived from the EPC was somewhat lower than the saving stated in the supplier data, with a range from 0.24 to 1.47 tonnes lower. As stated above, this analysis was undertaken before all suppliers had submitted their data and data submitted after this analysis contained many higher carbon scores investigated here. The graph in Figure A7.1 shows the annual carbon saving against the carbon saving inferred from the EPC, for these measures. The diagonal line shows the point where the stated carbon saving and the saving derived from the EPC would be the same; all of the points are to the right of this, showing that the stated carbon saving is higher than the inferred carbon saving in all of these cases.

Figure A7.1: Comparison of reported annual carbon saving against inferred carbon saving from EPC, for a selection of measures



There are no obvious themes or similarities between the dwellings with the highest scoring EPCs, aside from the fact that all are shown to perform relatively (but not unusually) poorly on the pre-installation EPC, and appear to have a range of characteristics that are typical of inefficient properties in general, such as uninsulated solid brick or system-built walls, as would be expected. Gas and electric heating systems were represented fairly equally in the dwellings under the CScO and CERO obligations, along with two oil-heated properties and three that were heated via a community scheme where the fuel was not specifically stated. All of those classed under the HHCRO were boiler replacements fuelled by mains gas.

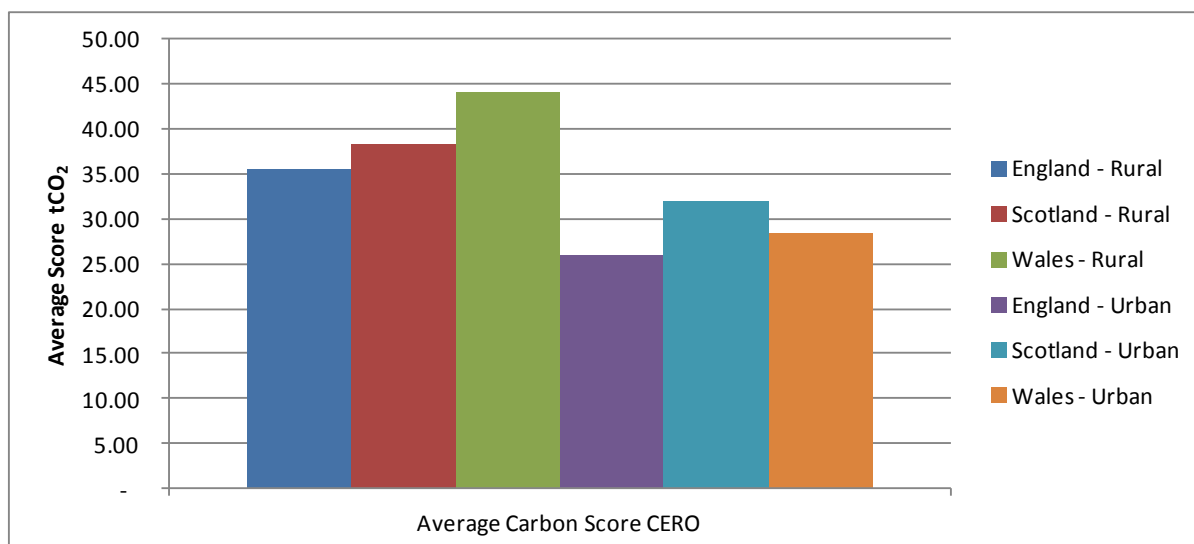
Close inspection of the data contained within the pre- and post-installation EPCs also revealed a number of small inconsistencies in their production in a handful of cases. For example, the post installation EPC for one property shows the depth of loft insulation shrinking by 20mm after installing external wall insulation, and the proportion of energy efficient lighting in another property appears to fall from 71% to 31% of fittings. There are also examples where the pre-installation EPC for a property within the HTTC category indicates that the cavity walls were assumed to have already been adequately filled, and where the category measure type is included within the recommendation section on both the pre- and post-installation EPC for a property, hence it is not clear whether or not the category measure has actually been installed. Whilst some of these instances may be perfectly legitimate, they do raise questions overall as to the level of confidence that can be placed in cost and carbon saving calculations that are based on the SAP calculations behind some of the EPCs submitted. In addition it appears that the EPCs investigated in this selection were particularly poorly produced.

It should be noted that this exercise used a very small sample of the data in order to look at some exceptionally high scores and so it should not be inferred from this that the supplier data in general is inaccurate. However it does show that there is a possibility of high and inaccurate scores being produced and not being filtered out before the measures are notified to Ofgem. It should also be noted that the dataset used consists of notified measures rather than approved measures, and although CSE has removed the obvious errors from the dataset, Ofgem may be taking other additional steps to ensure that only accurately reported measures are approved.

Annex III: Further analysis of carbon and cost scores by rurality

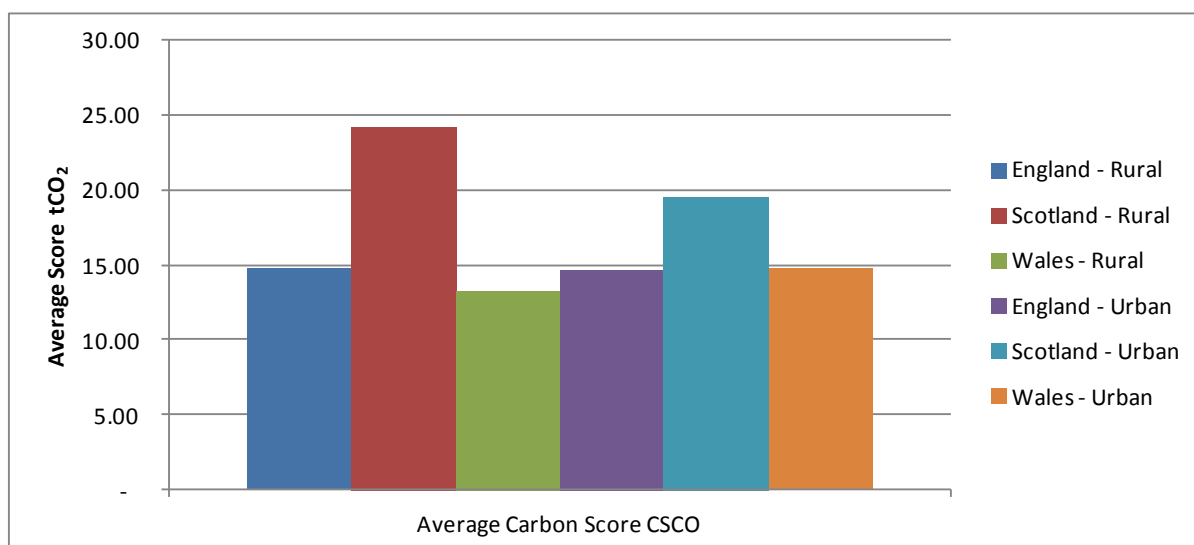
Figure A8.1 to Figure A8.2 show the average carbon and cost scores (averaged across all properties which received measures in the relevant category) split by country and rurality. For CERO, average carbon score is highest in rural areas in England, and lowest in urban areas in Wales. Scotland has a higher average carbon score in urban areas than rural areas, the opposite of both England and Wales.

Figure A8.1: Average CERO carbon score by country and rurality



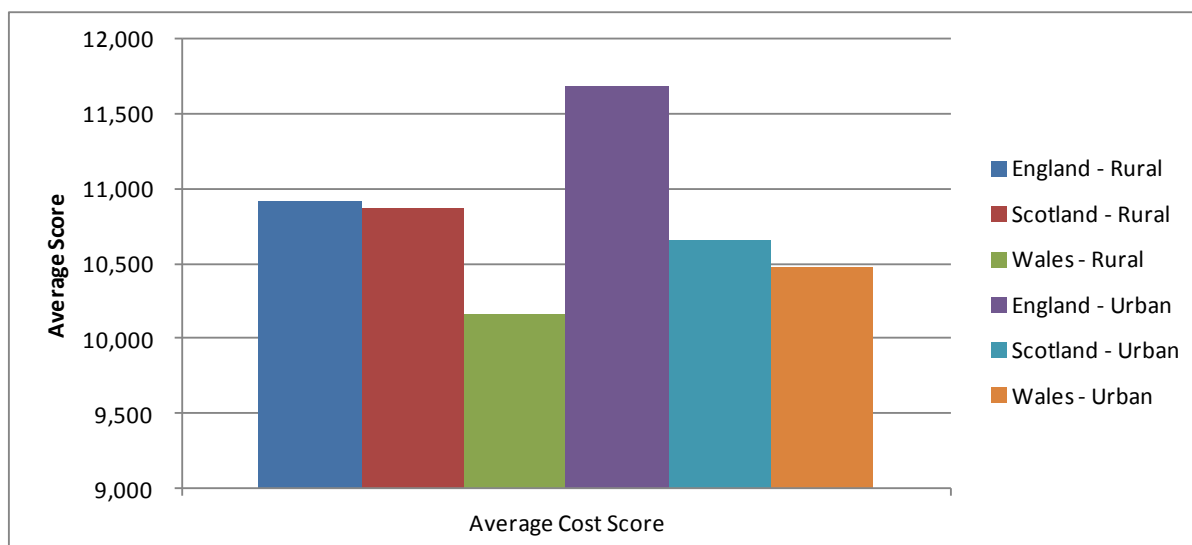
For CScO, average carbon scores are closer together across all categories, with urban areas in Scotland having the highest average, and rural areas in Wales the lowest, although the difference between these two extremes is small.

Figure A8.2: Average CScO carbon score by country and rurality



For HHCRO, the average cost score is lowest in rural areas in Scotland, and highest in urban areas in England. In both England and Wales, scores are higher in rural areas than in urban areas, while in Scotland this situation is reversed.

Figure A8.3: Average HHCRO cost score by country and rurality



Annex IV: Maps of distribution of measures

The maps in Figure A9.1 to Figure A9.11 show the locations of properties where measures have been installed to date, under each obligation category. For England and Wales, LSOAs (lower super output areas 2011 Census) are used²⁷. For Scotland, data zone boundaries for the 2011 Census are not yet available (data zones are the Scottish equivalent of LSOAs), and so data zones boundaries from the 2001 Census have been used (these are unlikely to change significantly when the 2011 data zone boundaries are published). For England and Wales, we have produced maps which show all LSOAs with installations in blue (even LSOAs with only one installation), and we have also made maps showing LSOAs which have an above average number of properties with installations in red (the average is calculated as the mean number of properties from all LSOAs which have at least one installation).

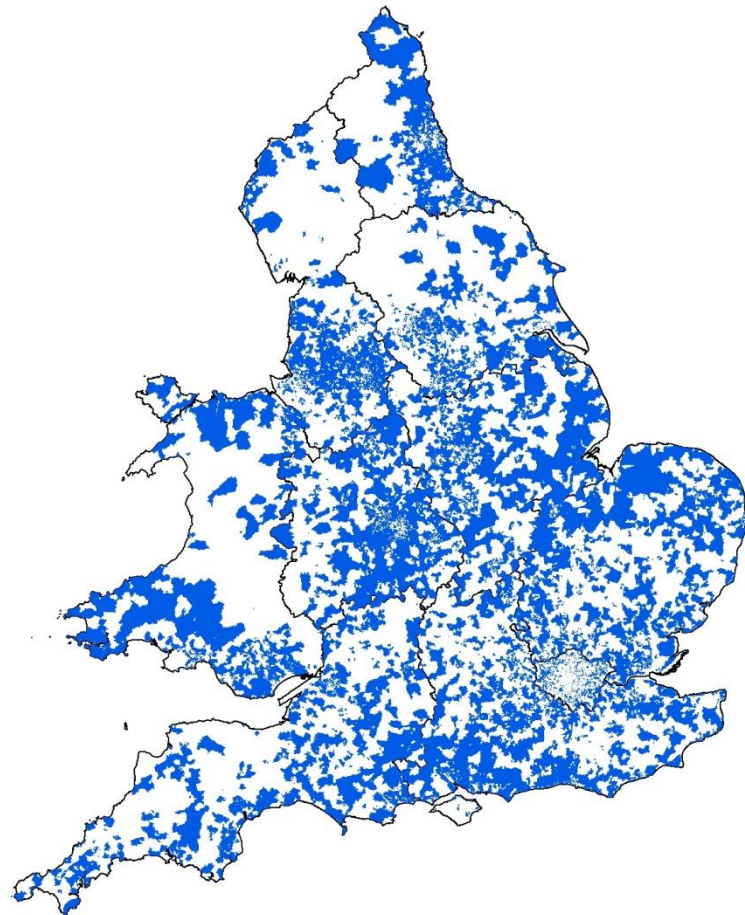
It is worth noting that LSOA and data zone boundaries are set according to the population size of an area, so that each LSOA and datazone has a population within a set range. This means that the less densely populated an area, the larger in terms of land area the LSOAs or datazones in the area will be. Therefore a large coloured-in area on the map is not necessarily a cluster of many areas with measures - it could be one single large area.

In England and Wales, CERO and CSCo measures are fairly evenly distributed (Figure A9.1 and Figure A9.3). For CERO, the LSOAs with an above average number of measures are evenly distributed (Figure A9.2). For CSCo there are some concentrations of LSOAs with an above average number of properties with installations in South Wales, London, the West Midlands, the North West and the North East (Figure A9.4). For HHCRO the LSOAs with an above average number of properties are concentrated in South Wales, the Midlands and the North (Figure A9.6).

In Scotland the distribution of properties with measures in each category is closely related to the areas of most concentrated population, although HHCRO measures are more widely spread (Figure A9.7 to Figure A9.12).

²⁷ LSOAs have a minimum size of 400 households and a maximum of 1,200 households

LSOAs with CERO measures

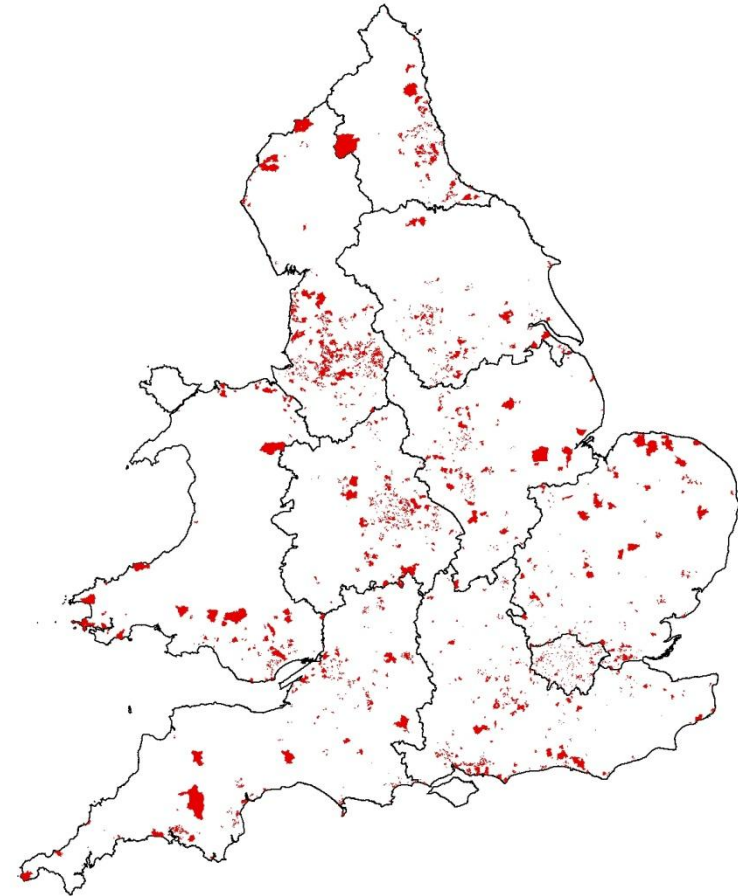


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Figure A9.1: LSOAs with CERO measures

LSOAs with 6 or more CERO properties



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Figure A9.2: LSOAs with above average number of CERO properties

LSOAs with CSCo measures

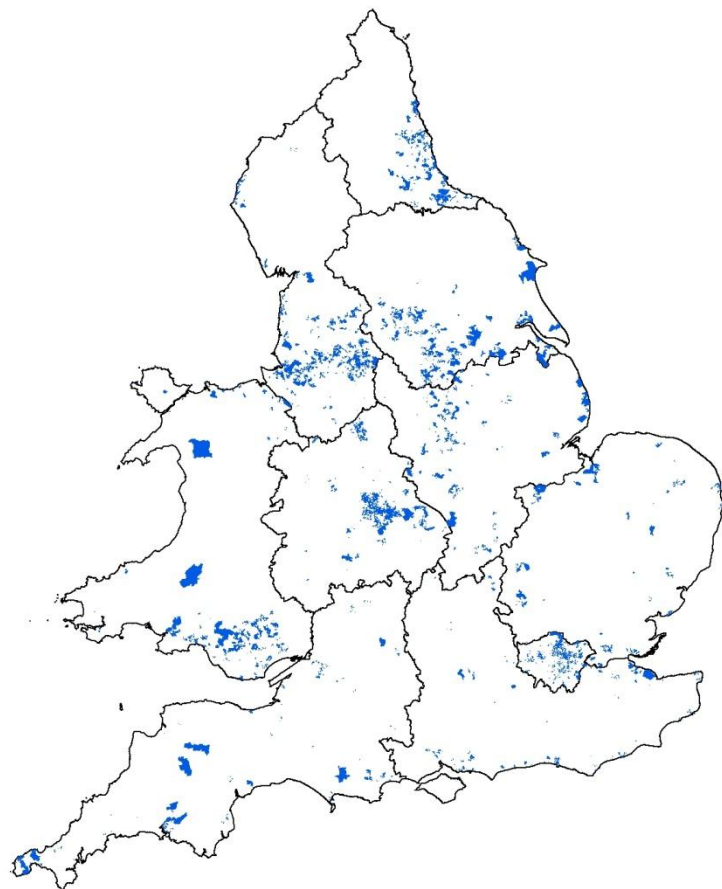


Figure A9.3: LSOAs with CSCo measures

LSOAs with 9 or more CSCo properties

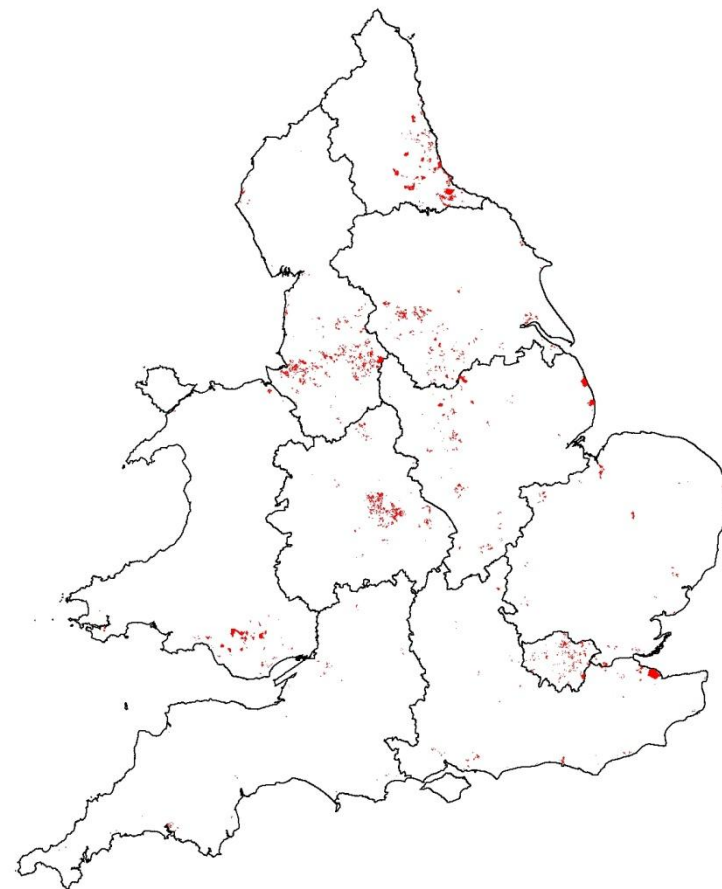
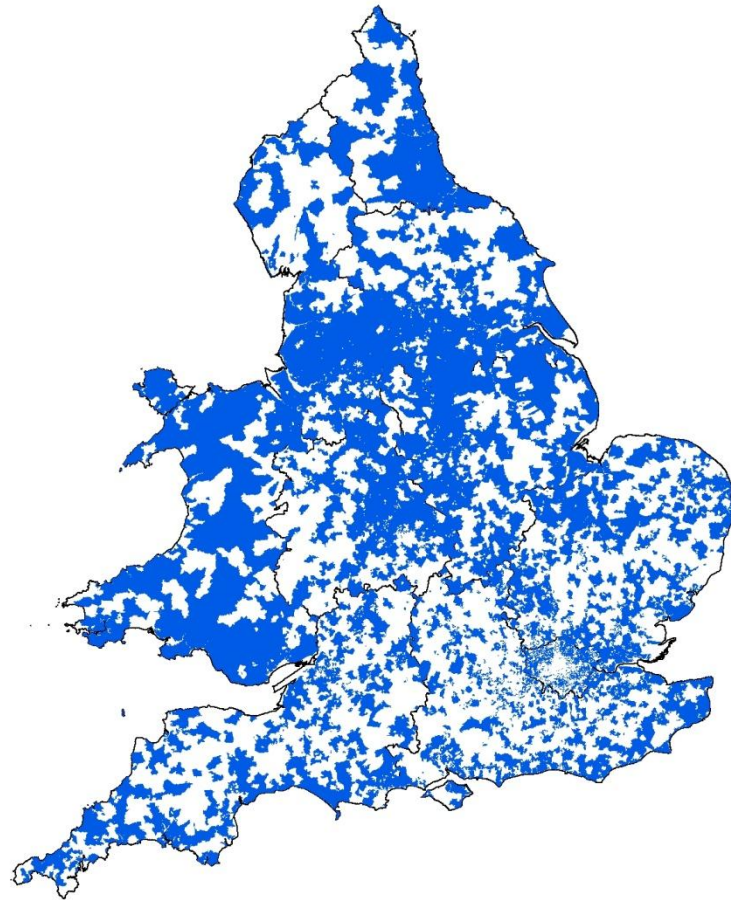


Figure A9.4: LSOAs with above average CSCo properties

LSOAs with HHCRO measures

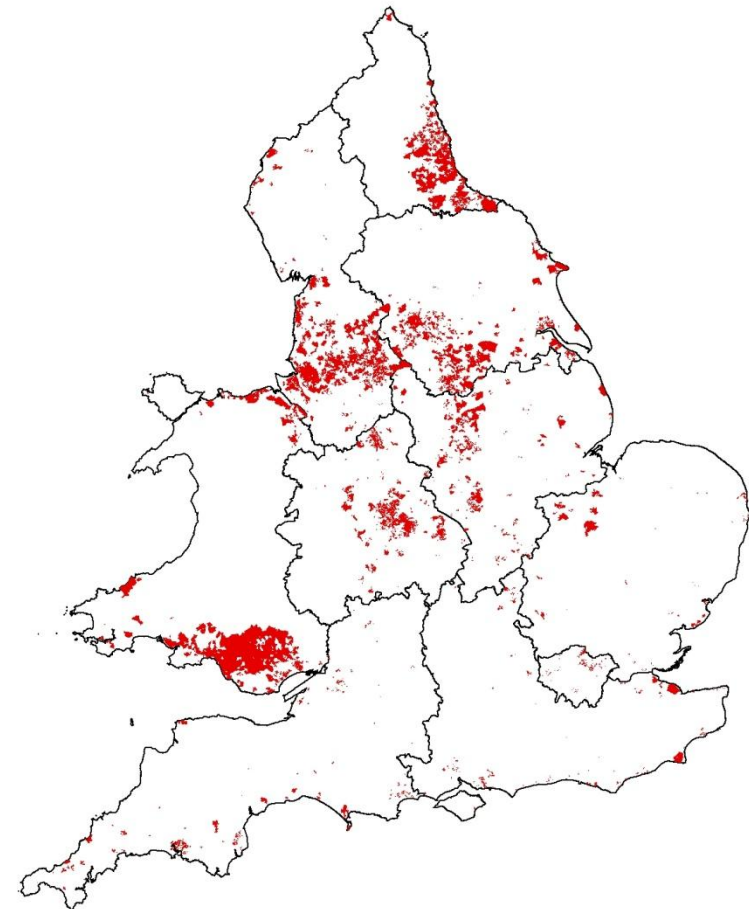


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Figure A9.5: LSOAs with HHCRO measures

LSOAs with 6 or more HHCRO properties

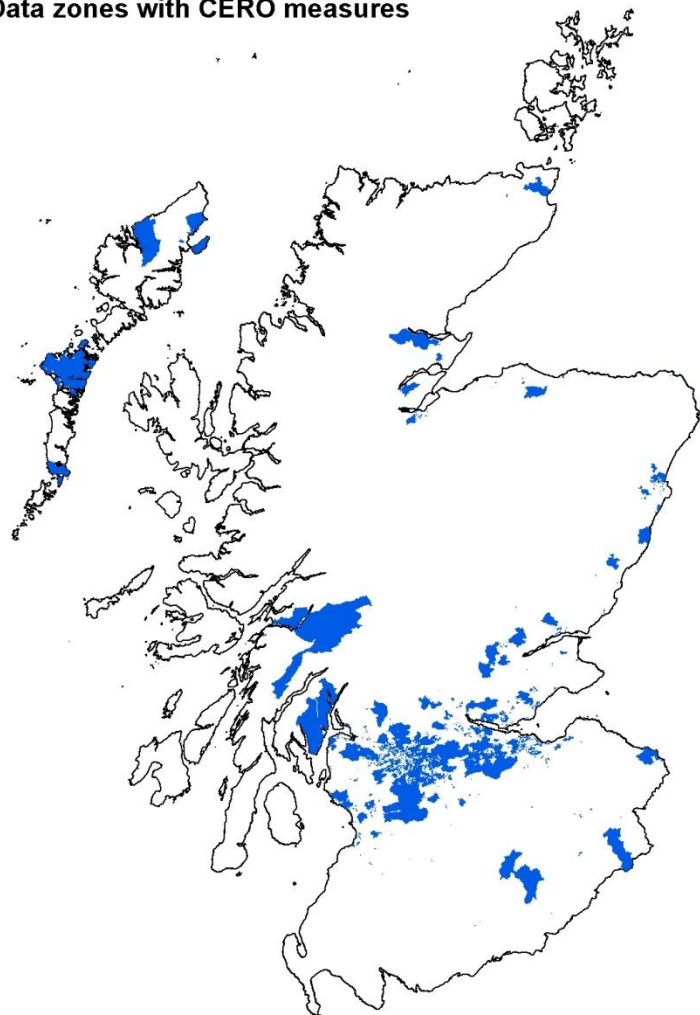


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Figure A9.6: LSOAs with above average HHCRO properties

Data zones with CERO measures

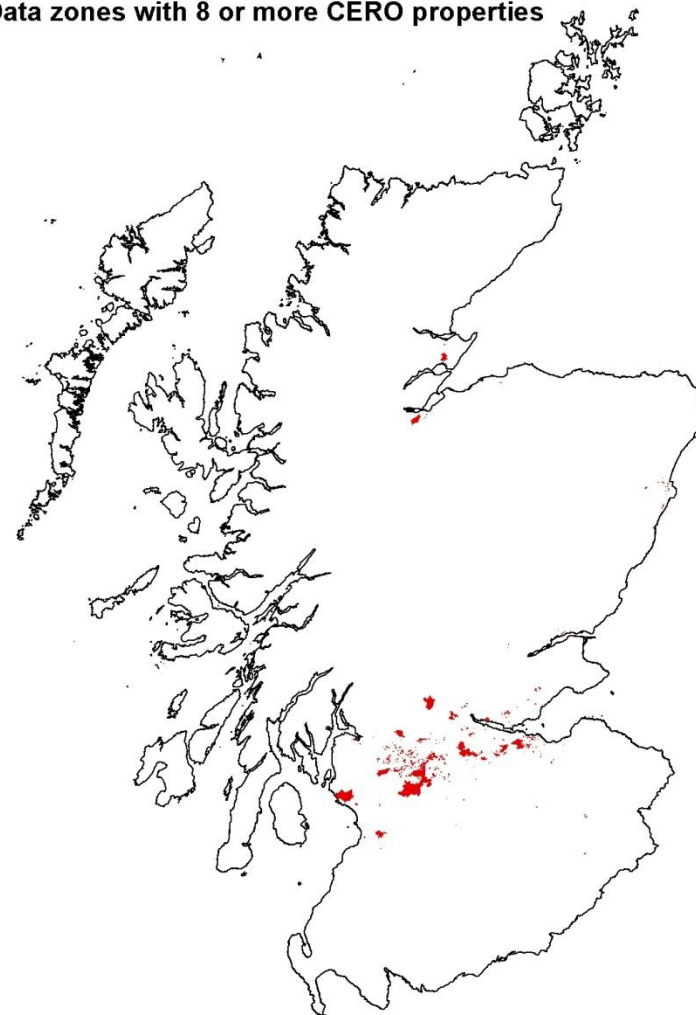


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Figure A9.7: Data zones with CERO measures

Data zones with 8 or more CERO properties

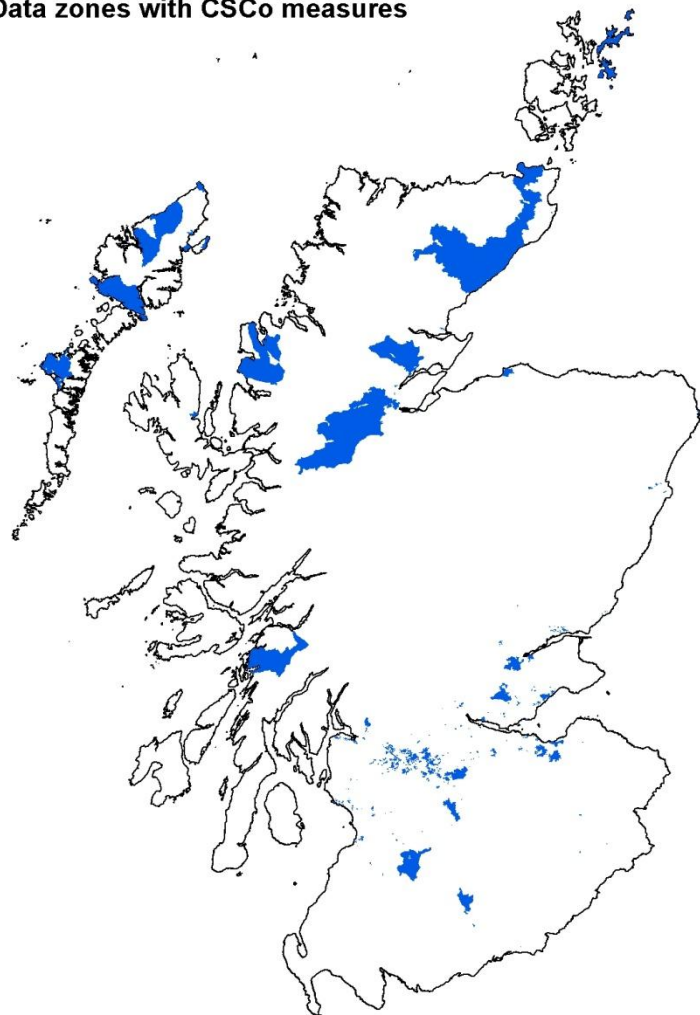


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Figure A9.8: Data zones with above average CERO measures

Data zones with CSCo measures



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Figure A9.9: Data zones with CSCo measures

Data zones with 5 or more CSCo properties



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Figure A9.10: Data zones with above average CSCo measures

Data zones with HHCRO measures

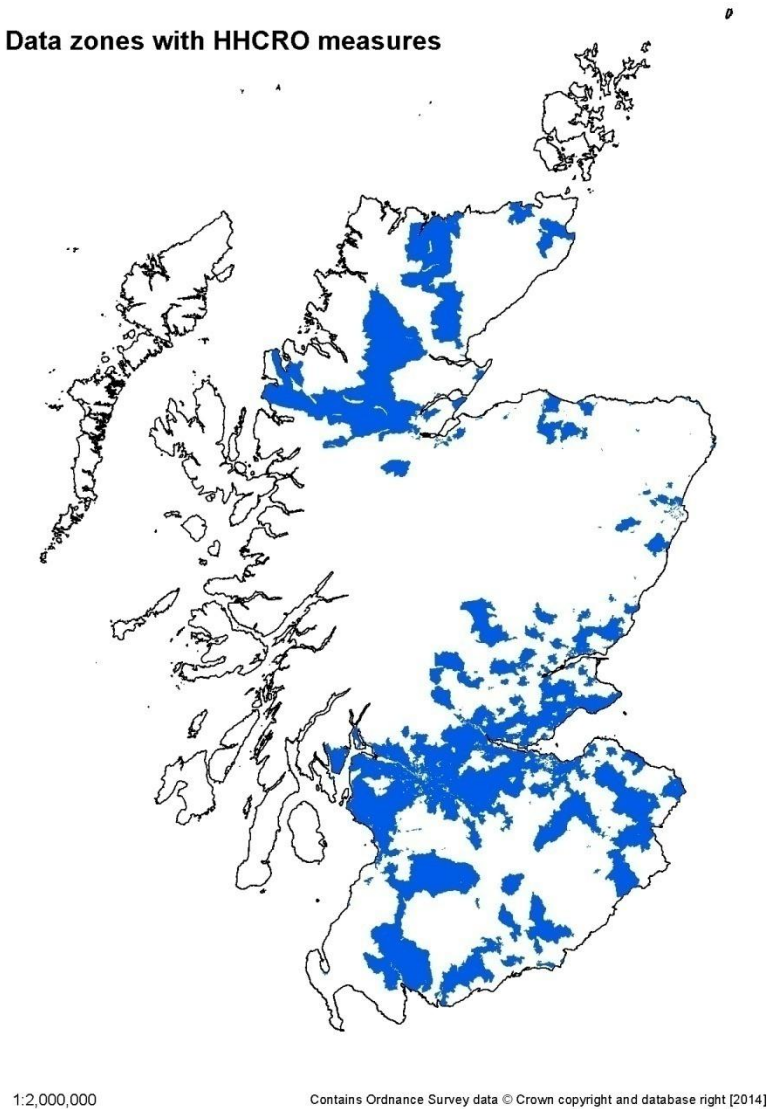


Figure A9.11: Data zones with HHCRO measures

Data zones with 5 or more HHCRO properties

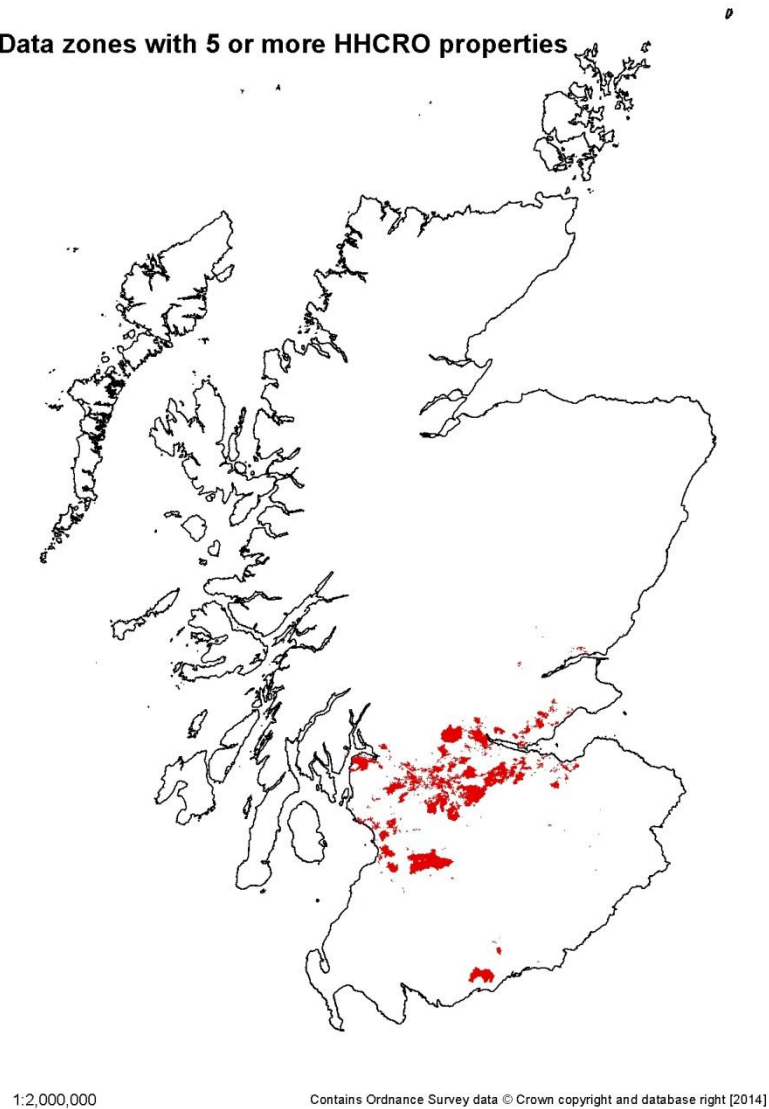


Figure A9.12: Data zones with above average HHCRO measures