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DECC

Assessing the Administrative Costs of the CRC Energy Efficiency Scheme

FINAL

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Context

DECC engaged KPMG to carry out this assessment of the administrative costs of the CRC Energy Efficiency Scheme (CRC). The project aim was to gather data directly from CRC participants to help provide a revised, more detailed and granular estimate of CRC compliance costs for Phase 1 to replace estimates that were first established in 2006 (NERA/Enviros) and updated in the 2010 CRC Impact Assessment. The updated evidence base would:

- enable DECC to consolidate policy options and prioritise areas for simplification of the scheme; and
- provide DECC with key data for the calculation of the administrative costs reduction brought by the CRC simplification.

Objectives

The main objective of this study is to provide a transparent, up-to date and detailed database of administrative costs of participants for activities that participants have already undertaken and to:

- control the data for participants' incentive to overstate the costs of CRC in the context of simplification;
- distinguish one-off costs and set up costs; and
- identify whether the administrative costs would have been incurred, fully or in part, in the absence of CRC.

Approach

Working closely with the DECC CRC team, KPMG developed and dispatched an electronic survey sent out to all 2,779 CRC participants. This asked them to provide detailed information on what time they expended against various CRC activities. They were given five weeks to complete this survey with several reminders sent from KPMG and DECC. A sample of responses were followed up with telephone interviews to understand the data further and investigate unusual data indicated by analytical testing.

Response rate to the survey

Response rates significantly exceeded our expectations of 200-300 completed questionnaires, as did the quality of the information received back from participants. We sought to address any gaps during the collection process by monitoring for any potentially underrepresented population segments (strata). We received 740 responses (27% coverage of total participants) with a good spread against the various strata considered for the analysis. This provided a representative sample of the overall population of CRC participants.

Key limitations to our methodology

Whilst we have performed several quality checks on the data to identify and resolve human error and potential management bias, we would highlight the following major limitations in our methodology:

- Almost all of the data provided by participants is based on their estimates of the time incurred as few captured specific data within timesheets, particularly in relation to the split of administration time by CRC activity.
- Beyond simple sense checking of the data and approach to completing the survey taken by participants, we have conducted no testing to source information and are largely reliant on the integrity of those completing the survey. Where data testing appeared significantly incorrect, as indicated by data analysis of interviews with survey respondents, that data was excluded from the analysis.
- We have asked about the administrative costs incurred by participants in the scheme. Capturing the financial benefits of the CRC was outside of the scope of this exercise, including energy and cost savings realised through better energy management and billing control. Some participants have commented that they have been able to realise some level of savings from the scheme. Further work is required to quantify this.
- We present the costs throughout this report as the mean average cost per participant. There are substantial variations in the size, complexity and approach of CRC participants, even within similar strata. All costs should therefore be treated as an indicative average within a diverse population.

Key messages

- Our analysis estimates the administrative costs of the CRC to be:
 - An average of £30k to £36k per participant to date. This includes the incurred by participants costs to date such as understanding the scheme, establishing governance systems, registering and the first footprint and annual reports.
 - A projected average cost per year of £7.6k to £9.2k per participant for years two, three and four based on participant's estimated costs to date and their predicted future costs.
- Analysis of the representativeness of our data indicates that extrapolation to the total population of CRC participants is best carried out based on the SIC population data. This gives:
 - **A mean average cost of £35k for each participant to date.**
 - **A projected mean average cost of £62k for all of the first phase (4 years), or £15k per year on average.**
- Our analysis also shows that:
 - Annual reporting costs dominate the costs for phase 1. However, one off, footprinting and registration costs still make up a significant proportion of the costs for phase 1. This implies that the CRC as it stands has taken a significant investment of participant time to understand and establish the necessary systems for participation in the CRC scheme.
 - The size of the one off activities stands out as this implies that much of the learning may now have been completed and future compliance, assuming the scheme doesn't change significantly, will be less of a cost burden to administer, particularly considering many of the external costs are unlikely to be repeated in future (e.g. Software tools, legal advice)
 - Results indicate that participants have now gone up a difficult learning curve to get registered and operating in the CRC but that ongoing compliance may be relatively simple compared to the processes involved in registering and gathering footprinting costs.
 - Results show that there is a definite trend towards using more senior staff for one off activities and establishing the governance systems and boundaries required in the CRC. Once the work progresses to annual reporting and footprinting there is a move towards using more junior staff. Thus, in future years as CRC becomes established we will see costs decrease, as more junior staff /administrators take on more routinely based activities.
- Indications from our interviews are that there is strong support for measures to reduce the administrative costs of the CRC and that the simplification options proposed are well chosen to reduce the administrative costs of the scheme.

(Continued)

Key messages (continued)

- In our survey, opinions were very mixed as to the most important simplification measures:
 - The most popular simplification option was for a fixed price allowance sale. Conversations with participants indicate this is because it provides certainty to costs and budgeting.
 - However the next four options were all roughly equally popular with participants wanting a simpler qualification process, with fewer fuels and less overlap with other schemes (all linked to activities which happen once per phase). This is linked to the fact that needing to report on fewer fuels, and the ability to disaggregate for participation, potentially reduce annual costs.
 - Participants also wanted to have to retain less data, which may result from the other three simplifications mentioned here. This is the only simplification option that is largely linked to annual administrative costs.
- Our survey also indicated that the introduction of the CRC was having an effect on participants focus on energy usage, with more than half stating that they were paying more attention to energy/carbon management as a result of the scheme.

Extrapolated average costs for the whole CRC population

Based on the 740 survey responses received, we have extrapolated the estimated costs to the whole population based on analysis using different strata that group theoretically similar participants. We present three costs of administration for the CRC:

- **“Year 1 (and before)”** – All of the costs of complying with the CRC up to the submission of the Year 1 footprint and annual report. This includes one-off costs (costs that are unlikely to occur again), understanding the scheme, registering, setting up governance systems and reporting.
- **“Total for Phase 1”** – Includes all of those costs for year 1 and before, as well as the estimated cost of three additional years of annual internal and external reporting.
- **“Years 2, 3, and 4”** – An estimate of the annual costs of the scheme going forward.

The graphs on this page show the range of average costs per participants presented using these extrapolation on different strata.

Cost per tonne of CO2

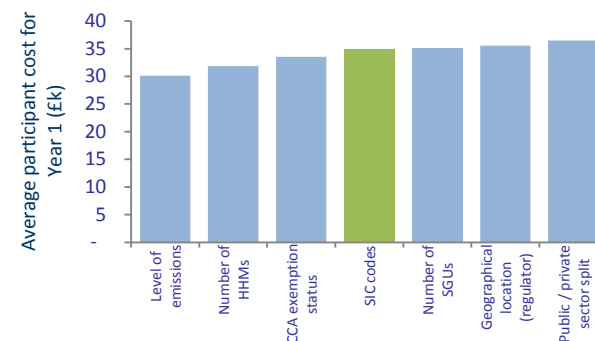
Information provided to us by DECC on the 2010/2011 annual report submissions from CRC participants shows that the 2,779 CRC participants have 60.9 million tonnes of CO2 covered by their annual reporting at present. (This is subject to further audit and review by the EA). This averages at around 21,900 tonnes per participant per year (although the situation is complicated by the inclusion of around 800 organisations with CCA exemptions that report few emissions but still incur costs).

From calculations performed with the data provided to us by the Environment Agency and our survey responses, we estimate the average cost per tonne of carbon to be:

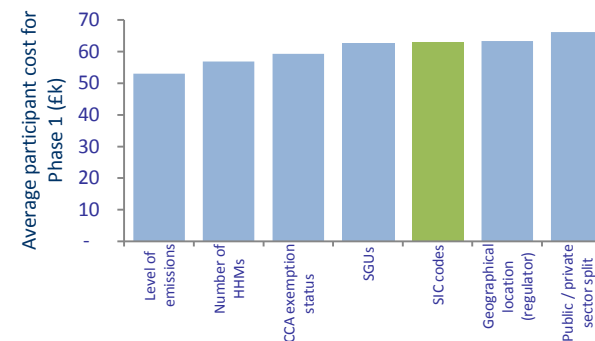
- A median price of £1.36 per tonne of carbon for the first year of the scheme
- A median price of £0.59 per tonne of carbon over phase 1 (assuming no emissions changes).
- A median price of £0.32 per tonne of carbon just considering the annual costs in years 2, 3 and 4

Considering the announced carbon price of £12 per tonne only the first year represents a significant price of administration compared to the carbon price. The ongoing price of administration in the scheme is relatively negligible.

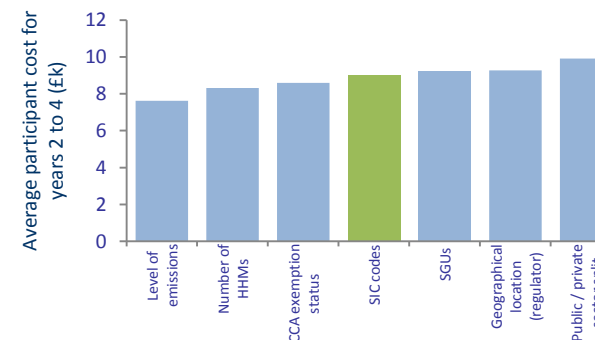
Estimates for the average cost of the CRC incurred by participants to date



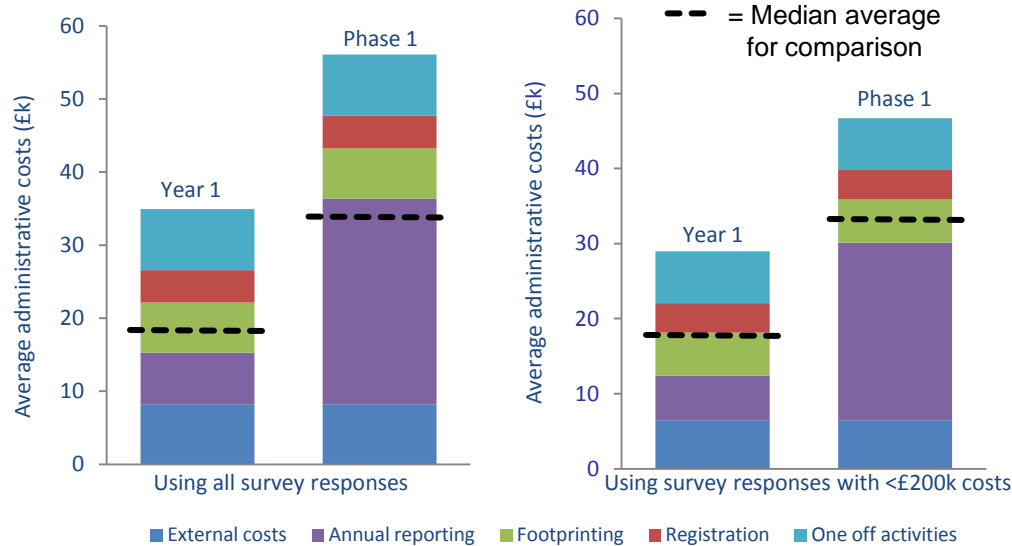
Estimates for the average cost of the CRC for Phase 1



Estimates for the average annual cost of the CRC for years 2, 3 and 4



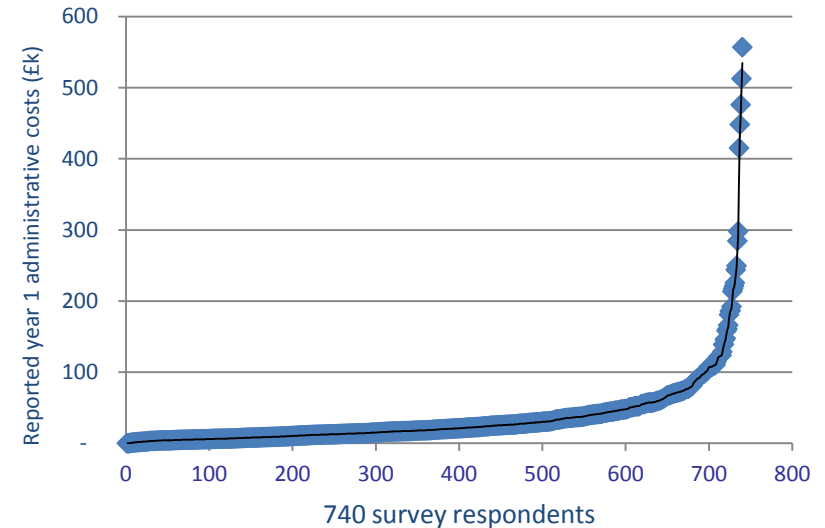
Our estimates of the mean average cost of the CRC to participants



We show the mean average costs of compliance in the graphs above using the data from 740 responses received. We have also indicated the median for comparison.

- As expected, annual reporting costs dominate the costs for phase 1. However, one off, footprinting and registration costs still make up a significant proportion of the costs for phase 1. This implies the CRC as it stands has taken a significant investment of participant time to understand and establish the necessary systems to participate.
- The size of the one off activities stands out as this implies that much of the learning may now have been completed and future compliance, assuming the scheme doesn't change significantly, will be less of a cost burden to administer, particularly considering many of the external costs are unlikely to be repeated in future (e.g. outsourced activities, software tools, legal advice).
- As the graph on the right shows, the range of costs incurred is considerable and the left hand graph shows the estimate of the 'average' organisation. We have

Reported costs of the CRC incurred to date (year 1 and before)

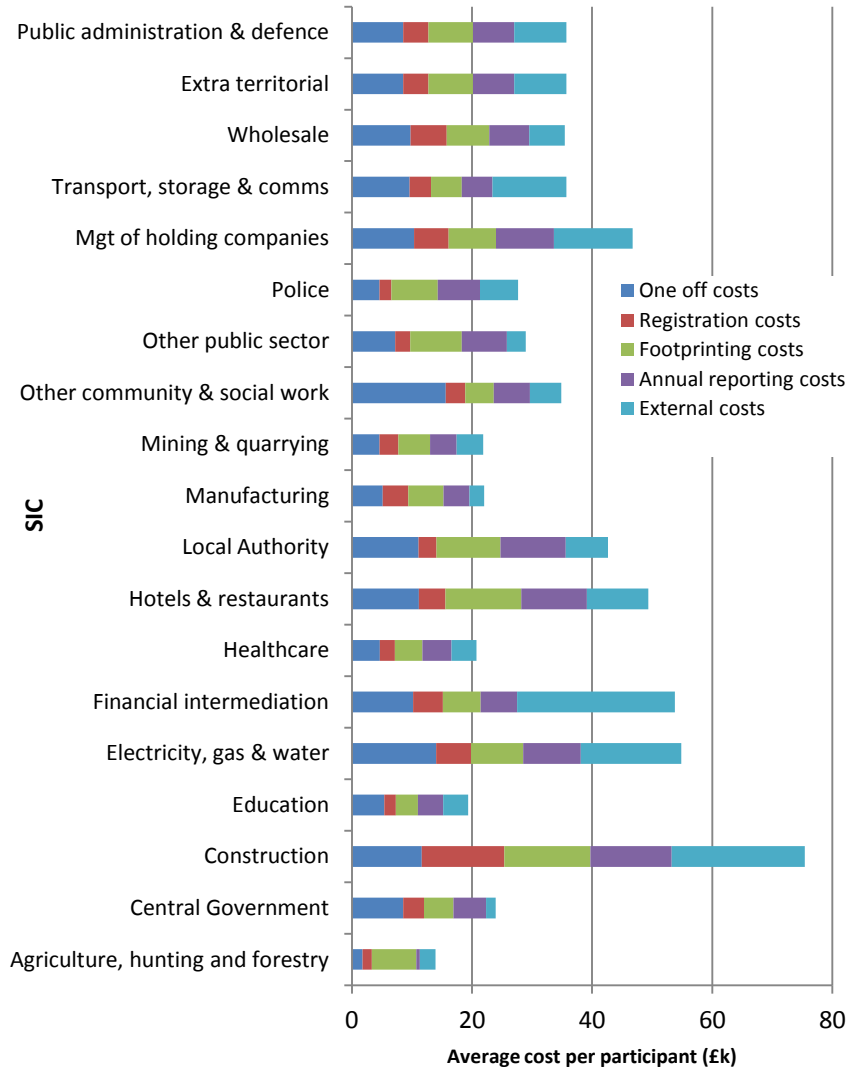


therefore also calculated the average cost excluding those respondents with an average year 1 cost of more £200k (13 from 740 (<2%)). This is shown in the centre graph and there is clearly a considerable change when these outliers are excluded as the mean averages are £29k and £47k respectively.

The graph above indicates the costs incurred to date by all survey respondents.

- It shows the expected distribution for a scheme of this type. It is surprising that the lowest reported costs of compliance with the scheme are less than £1000 showing that some simple organisations can indeed participate easily. These are typically very small manufacturing or retail organisations with simple, centralised structures.
- There are a few outliers who incurred costs of upwards of £200k. We have investigated these and most are due to one-off costs such as investment in new software tools, considerable legal advice on corporate structures and outsourced CRC compliance services for very complex organisations (e.g. Utilities companies).

Average CRC costs for survey respondents by sector



This graph indicates that the costs of the CRC differ quite significantly by sector. These are perhaps the most revealing of how the CRC has affected different types of organisation.

- The construction, utilities, financial sector, hotels/restaurants, local authorities sectors as well as holding companies have also borne considerably more costs than other sectors. This is understandable as these businesses tend to be much more complex, multi-site and multi-business entities.
- Many other sectors saw much lower average costs of between £20k and £26k. These sectors represent around 36% of the total CRC population and include organisations such as manufacturing, mining and quarrying organisations and manufacturers.
- We believe that education (e.g. Universities), healthcare (e.g. NHS Trusts) and agricultural sectors on average have lower costs because they are often simpler organisations operating from a small number of sites. The same is also true of many mining organisations and manufacturing where there are a small number of energy intensive sites within a participant.

Also of note is the differing weightings within a sector between the costs of the various stages of CRC compliance.

- Financial businesses and, to a lesser extent, holding companies have clearly shown a preference to seek external support and incurred significant external costs. This may be due to the complexity of many of these organisations (e.g. Banks and private equity) or a sectoral preference.
- Public sector bodies such as central government, education, healthcare, police etc appear to have chosen to minimise external costs, spending more time on one-off and footprinting costs. This appears to be a conscious choice to try to develop their own systems and minimise incurred external costs.

Note: Unless specifically noted, all averages referred to in this report are mean averages.

Understanding the increase in the estimate of administrative costs of CRC

Despite the significant differences in approaches, our work indicates that the average cost of the CRC to participants is broadly in line with the top end of the original estimates conducted by NERA/Enviros (2006)* which stated that the costs of the scheme would vary from £7k to £56k depending on participant size.

Our work indicates that admin costs of the CRC are higher than predicted in the 2010 Impact Assessment which was mainly based on the NERA/Enviros analysis. We have given some consideration to the reasons behind this:

- Annual costs broadly are in line with previous estimates, which may indicate that the higher than anticipated costs of the CRC may be largely due the effort required to establish CRC governance systems in the first year.
- It is debateable whether these higher costs would repeat in any future phases of the scheme now that participants have been through the initial learning curve. Our opinion is that this supports the agenda for simplification of any future organisational boundary and source rules but also the simplification of annual reporting which could represent the main ongoing cost of compliance.
- The number of CRC participants has dropped from the original (2006) estimate of 5,000 to 2,779 whilst the coverage of carbon emissions has remained relatively stable. The original analysis may not have taken account of the fact that many participants that were thought to be independent during that analysis were actually part of larger groups. DECC have told us that the CRC participants are generally larger than anticipated.
- Our experience of working with more than 80 CRC participants tells us that several areas of the CRC have proven to be more complex to implement than originally intended, particularly around organisational boundaries where the CRC has created a new set of rules for organisational grouping.
- Various changes to the design of the CRC over the last few years have meant an ongoing process of re-education has been required. More than a quarter of participants we interviewed brought this up.
- More than half the participants we interviewed, and our own experience of working in the CRC, indicated that the quality of the data received from energy suppliers has not met with expectations and this has meant they have had to perform significant, unanticipated work.

- Around half of the participants who responded to our survey said the CRC had helped them get a better understanding of energy usage, implying (perhaps) that they were not giving it due focus beforehand.

Recommendations for future work

The results of this work will be fed into the CRC simplification and consultation processes, most immediately into the Impact Assessment (IA). DECC may wish to consider further work to aid them in the consultation over the coming months:

1. We have not looked at the cost savings to individual participants and DECC may wish to consider a similar survey to understand where participants have been saving money from the scheme to date and how they anticipate they save money in the future.
2. Annual reporting costs are likely to represent the majority of any future administrative costs of the CRC. An inherent limitation of our survey, given it was conducted retrospectively and in a year where footprinting and annual reporting activities are going on simultaneously, is that participants may have found it challenging to segregate the costs of the two activities. We recommend that the cost estimates for annual reporting be updated at the end of the second year of the CRC.



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Methodology and Limitations

Some stakeholders have fed back to Government and DECC that the CRC is too complex and is costly for participants to administer. In response to this, Government committed to simplify the CRC scheme and thereby reduce the administrative costs associated with it. Based on feedback, a number of simplification options are being developed by DECC with a view to holding a formal consultation on CRC simplification in early 2012.

DECC commissioned KPMG to gather data directly from CRC participants to help provide a revised, more detailed and granular estimate of CRC compliance costs for Phase 1 to replace estimates that were first established in 2006 (NERA/Enviros) and updated in 2009.

As per the original project specification published by DECC (TRN 201/06/2011), the primary objectives of this study are:

1. To provide a transparent, up-to date and detailed database of administrative costs of participants for activities that participants have already undertaken
2. To develop and carry out a specific methodology to:
 - control the data for participants' incentive to overstate the costs of CRC in the context of simplification;
 - distinguish one-off costs and set up costs; and
 - identify whether the administrative costs would have been incurred, fully or in part, in the absence of CRC.

The secondary objective of the study is to update existing estimates on costs of activities that participants have not yet incurred, or that represent minor categories of cost.

These costs need be broken down in such a way that it allows the impacts of the simplification options to be estimated using the Standard Cost Model (See Appendix for details). DECC were keen to enhance the accuracy of the data received and asked us to build in actions that reduced the risk of any potential management bias. We set out our approach and how the risk of bias has been addressed in the next section of this report.

What is the CRC Energy Efficiency Scheme (CRC)?

The CRC is a mandatory scheme aimed at improving energy efficiency and cutting carbon emissions in large business and public sector organisations. Large organisations with at least one half hourly meter (HHM) settled on the half hourly market and who use more than 6,000MWh/annum of half hourly metered electricity qualify as participants for the scheme. There are currently 2,779 organisations who qualify for participation and who have incurred an additional administrative requirement to comply with the scheme.

The CRC began on 1 April 2010 and the first compliance year ended on 31 March 2011. The first annual and footprint reports had to be submitted by 29 July 2011 and participants' performance will be published in a league table in Autumn 2011 to create a reputational incentive to improve energy efficiency. Further annual reports are required every July but footprint reports are only required once per phase. The first phase is scheduled to last for four years from April 2010 to March 2014.

For more information about the CRC scheme see:

CRC policy simplification pages:

http://www.decc.gov.uk/en/content/cms/emissions/crc_efficiency/simplification/simplification.aspx

Environment Agency's CRC pages:

<http://www.environment-agency.gov.uk/business/topics/pollution/127831.aspx>

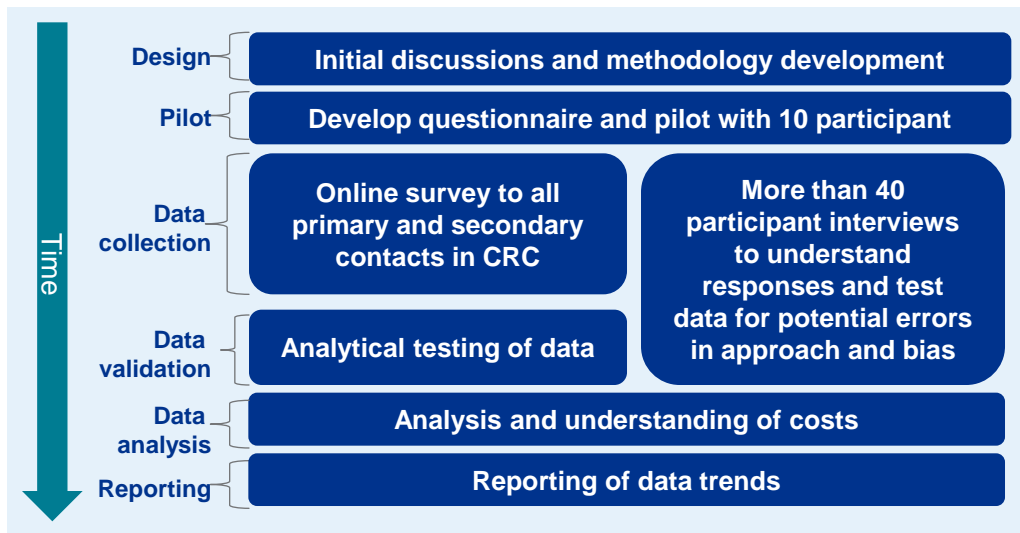
Impact Assessment for the 2009 Consultation (CRC IA, 2009):

<http://webarchive.nationalarchives.gov.uk/20110508074721/http://www.decc.gov.uk/en/content/cms/consultations/crc/crc.aspx>

CRC policy background:

http://www.decc.gov.uk/en/content/cms/emissions/crc_efficiency/policy/policy.aspx

Overview of our Approach



In this section we cover how we approached the task as well the risks and challenges involved and how we addressed them. It covers the costing model, securing a high response rate, addressing potential bias and validating the survey results. The diagram opposite outlines our approach and we discuss each section in more detail below. We worked in close contact with DECC throughout the whole process to ensure it was delivering on the requirements set out in the tender specification.

Step 1: Design

The key objectives of the survey were to balance:

- maximising response rates by keeping completion of the survey as simple and quick as possible, and working with our networks to promote completion of the survey;
- ensuring we captured the granularity of information needed to allow a detailed analysis of the administrative costs incurred by participants in the CRC and to enable DECC to estimate the potential impacts of the simplification options; and
- challenging the data received to provide comfort to DECC that the responses are not unduly influenced by bias or misunderstanding.

It was clear from the objectives that a large scale web-based survey of CRC participants would be the most effective course to estimating the administrative cost to these organisations within the time and resources available. This would be backed by a series of control interviews to understand the participant responses and challenge unusual data.

Step 2: Pilot

We worked with a small but diverse group of CRC participants to pilot several versions of a questionnaire that sought to balance the three objectives above. Feedback from these pilots was included in a revised online questionnaire for distribution to participants.

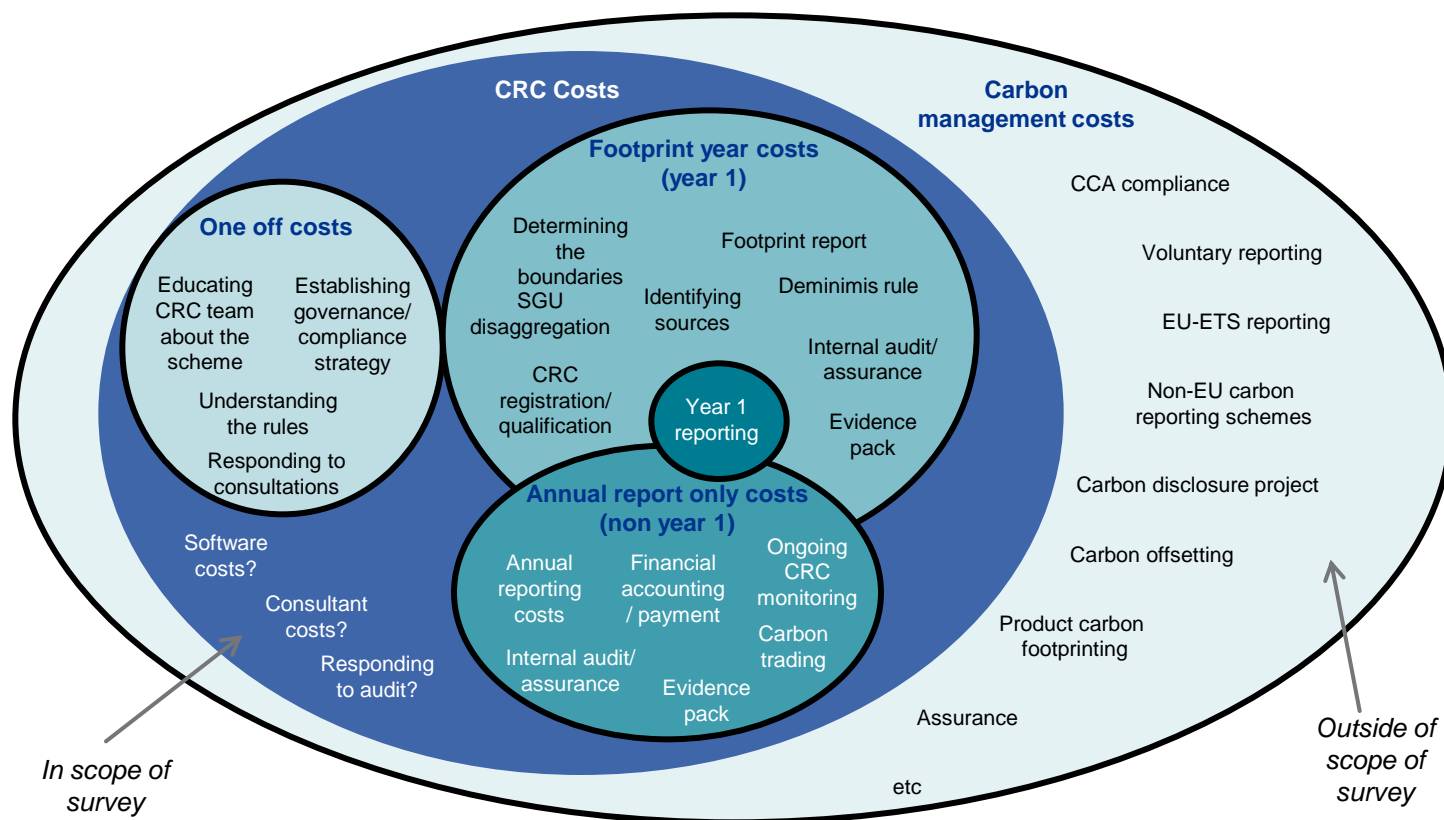
Boundaries and data segregation

Whilst designing the survey, we recognised that obtaining suitably granular and accurate information relating to the time/cost of CRC compliance was critical to this project's success. Splitting the time and cost incurred between the various activities required for CRC compliance would allow the impacts of individual simplification measures to be estimated with greater accuracy.

It is important to avoid exaggeration of CRC costs by participants but it is also as vital to ensure we recognise the difference between general carbon management costs and those that are 'additional' as a result of the introduction of the CRC. These costs not only need to be segregated by activity but also by frequency, as a small cost incurred on an annual basis may quickly outweigh a single cost incurred once per phase. In the diagram below, we have outlined how these costs might be segregated and the pilot was used to test if these activities most participants incurred. Our final survey therefore aimed to identify the different elements of CRC costs separately from each other.

Breakdown of CRC activities

1. Understanding the rules
2. Qualification
3. Registration
4. Data collection and analysis of energy data
5. Developing a compliance strategy
6. Footprint report
7. Annual report
8. Keeping evidence packs
9. Other activities



Step 3: Online survey

The pilot exercise allowed us to develop a questionnaire that we believe met the three objectives for the survey for as wide a population of CRC respondents as possible. Using this, we finalised a secure, online questionnaire that was sent to the Environment Agency's list of CRC primary and secondary contacts requesting that they complete it within three weeks. Several reminders were sent during this period to those who had not yet completed the questionnaire and we operated an email helpdesk for those who had trouble accessing, completing or understanding the system/questions.

Steps were taken to ensure that multiple surveys were not completed for the same participant.

A full copy of this questionnaire is included in the appendices to this report. However, the key sections were:

Contents of the online CRC admin costs questionnaire

Section	Details
Intro	Organisational details including contact details, names and types of organisation
Question 1	Internal one off costs: Time incurred directly from the introduction of the CRC
Question 2	Internal registration costs: Time spent on registering for the CRC
Question 3	Internal footprinting costs: Time spent on compiling your footprint report
Question 4	Internal annual reporting costs: Time incurred producing your annual report
Question 5	External costs incurred in complying with the CRC broken down into one off, footprinting and annual costs
Supplementary	Some more general information about the impact of the CRC on the participant in relation to wider carbon management
Simplification	Allows participants to provide their views on the proposed approaches for simplification by indicating the options that would save them the most administrative time.

Maximising the response rate

It was important to get a broad cross section of results from the survey that crossed multiple sectors, sized and approaches of participants. We aimed for and largely achieved a response rate of 25% in total and across each of the main strata. We took several steps to help improve response rates:

- As discussed earlier, the survey was piloted to try to make it as easy to understand and complete as possible given the granularity of data required.
- We used aligned partners to promote response rates such as the CBI, ETG and CO2 Sense.
- We extended the survey deadlines to allow participants up to five weeks to complete the survey.
- Both DECC and KPMG sent out regular reminders to participants who had not yet responded to the survey.
- Our survey was promoted on both the DECC & EA websites and on the CRC communication issued by the EA on Monday 1 August 2011.
- We offered to make a donation to charity for every completed survey.

When we closed the survey on 6th September 2011 we had received 740 responses (26.5%). This was above our ambitious target level of 25%. In fulfilment of our promise to those who completed the survey, we will be providing a donation of £740 to the East Africa Crisis Appeal to represent our agreed donation of £1 for every completed survey.

Step 4: Data validation

We recognise that there are risks to the integrity of the data arising from human error, estimation techniques, inappropriate representation and respondent bias (amongst others). This could lead to potential over/understatement if not monitored carefully. We have sought to reduce the risk of incorrect data going into the survey by:

- seeking to gather a representative sample;
- designing and piloting the questionnaire to reduce error by clear definitions and emphasis on real additional CRC costs;
- reminding participants of our focus and commitment to data quality; and
- operating an email helpline to support participants.

We also reviewed the completed responses on an ongoing basis to try to identify and investigate unusual data that may distort the later analysis.

Ensuring responses represented population of participants

It was important to DECC and the accuracy of our analysis that the population of responses we received was representative of the population as a whole. Each week we monitored the spread of responses by the strata that we had agreed with DECC would be most suitable for the analysis to identify if there were any of the subgroups that were not responding to the survey. This enabled us to target CRC participants in those areas more closely to try to encourage responses. Only one SIC code proved challenging and we were able to increase the response rates by utilising DECC's contacts.

As shown in the Tier 1 analysis later in this document, we were able to get a suitably representative range of participants responding to the survey, in part because we had such a high response rate. We therefore believe that the survey responses we have are reflective of the overall population of CRC participants.

Identifying data outliers

Our work included the identification of outliers that needed to be investigated. We defined outliers to be those that were at either end of the distribution of responses and/or the responses that were unexpected given our experience CRC participants we have worked with.

To identify these outliers, we conducted simple statistical analysis of the population of responses as a whole and split along strata that allows us to group responses by theoretically similar participants. These strata were:

- Industry type (SIC code)
- Number of Half Hourly meters (HHMs)
- Carbon emissions
- Public/private sector
- Presence of CCAs and exemptions
- Numbers of Significant Group Undertakings (SGUs)

We used telephone interviews or emails to challenge the accuracy and appropriateness of participants' responses. More than half of the interviews were selected to investigate the most significant outliers or unusual data.

In addition, we also examined the time listed under 'other' administrative activities where participants were allowed to provide information on time they had expended on CRC compliance that did not fit with the categories we had provided. We reallocated this time to the main categories of activity where the descriptions appeared suitably similar to those sections. Telephone interviews sought to understand the significant costs that could not be reallocated. In a few cases, these were removed (where agreed with the respondent) as they were related to non-CRC related carbon management activities.

Where there was no evidence that outliers were incorrect, particularly where we had identified through participant interviews that the numbers were reasonable, we have not removed the outliers from the population and we have included them in our extrapolations to the costs of the CRC within the whole population.

* See <http://www.berr.gov.uk/files/file47192.pdf> and <http://www.carbontrust.co.uk/Publications/pages/publicationdetail.aspx?id=CTC713>

Error correction

Both KPMG and DECC recognised that there is a risk of data being misstated in the survey due to a range of factors including:

- misunderstanding the questions and data required;
- double counting of data between sections of the questionnaire;
- challenge segregating the costs of the CRC from other costs of carbon and energy management;
- difficulty remembering the time incurred over the last three years; and
- conscious and unconscious bias.

Where errors were obviously typos, we corrected these within the survey data. Further telephone interviews (see next section) allowed us to correct errors or, in a few rare cases, remove entire responses that were very significantly incorrect due to the approach taken by the participant to estimate the data and participants did not have time to repeat the survey.

We only removed or corrected responses or individual data points that were clearly incorrect as small errors were not readily identifiable given the lack of accurate data on time expenditure from the participants. This is one of the inherent limitations of the data and approach as few participants recorded actual time spend on CRC compliance whilst conducting it.

Overall, based on our interviews, we do not believe the risk of material management bias or data error is high. We found some evidence of small potential overstatement where people used time incurred in the last six months of the CRC year to extrapolate back but in a roughly equal number of instances, we found that respondents had under-recorded time where they were unable to adequately substantiate it. This is likely to be immaterial in the overall population but does indicate that there is not a general trend towards over or understatement.

Step 5: Interviews with a sample of participants

As well as analytical testing of the data to identify and investigate unusual and potentially incorrect responses, we conducted more than 40 interviews with a number of CRC participants who completed the survey responses. The purpose of the interviews was to:

- understand how participants had estimated the time incurred as a result of the CRC and whether any time might be overstated or missing;
- understand any identified outlier data, particularly where respondents to the survey had given significant amounts of time classified as 'other';
- understand any unusual trends identified in the data which did not match with our expectations; and
- gather qualitative feedback from participants about the administrative time incurred and understand the impacts on potential simplification options.

Roughly half of the interviews were arranged because they had unusual data that we wished to investigate. The remaining interviews were selected to give us a wider sample across the stratified classifications of survey respondents (see later for more details on strata).

The interviews increased our comfort that the majority of respondents had completed the questionnaire to a reasonable degree of accuracy (given the challenges of remembering time incurred over a three year period) and that they had understood the objectives. A small number of responses were corrected or removed as a result of our discovery of a material error.

Step 6: Calculation of costs

Once we had a suitably accurate set of time estimates, we utilised the Standard Cost Model (SCM*) commonly used by Government departments in the estimation of costs incurred as a result of the expenditure of employee time (e.g. During the impact assessment of legislation). This approach is consistent with the previous estimates of the cost of the CRC and we consider that the SCM will provide a reasonable estimate of costs for each CRC compliance activity.

To simplify completion of the survey, we reduced the number of possible staff grades and their descriptions from those presented in the SCM to better reflect job descriptions involved in CRC compliance within organisations. This is based on our experience of working with more than 80 CRC participants. We therefore used the following SCM codes and descriptions:

Staff category per survey	SCM code and description
Directors and Department Heads	1112 – Directors and Chief Executives of major organisations (£61.04/hr)
Senior Management	111 – Corporate Managers and Senior Officials (£44.7/hr)
Middle Management	113 – Functional Managers (£26.05/hr)
Administrators	41 – Administrative Occupations (£10.49/hr)

We have also assumed a seven hour day when converting days per the survey to hours for purposes of the SCM.

Throughout the report we have largely worked with the responses of the 740 participants to calculate the average administration costs **for the population of responses we received**. As discussed earlier, this population is representative of the overall population of CRC participants and therefore this approach is reasonable.

Further details of the SCM are available in the appendices to this report and online.

* Cabinet Office Better Regulation Executive 'Measuring Administrative Costs: UK SCM Manual 2005

Calculating average costs within strata and for the overall population

Throughout this report we have worked with estimates of the average administrative costs to participants. For clarity we explain our approach below:

- For the 740 respondents in our survey, we calculated the mean average cost of participation in the CRC for the subgroups within a strata by totalling the individual costs for all responses within that **substrata** and dividing by the number of responses in that substrata.
- We also calculated the mean average cost of participation in the CRC for the responses we have received by totalling the individual costs for all responses within that **strata** and dividing by the total number of responses.
- We then extrapolated to the mean average cost when considering all 2,779 participants: we multiplied the average cost per participant within each substrata (as described in the first bullet above) by the total participants in that substrata within the entire CRC population. We then summed the totals for each substrata and divided by 2,799. We considered this extrapolation approach reasonable given that the respondents are representative of the population and given the limitations of input data estimated by participants as discussed previously. In presenting the results of these extrapolations we have rounded the averages where doing so aids clarity.

Step 7: Reporting

This document sets out our findings following collation of the survey results. We agreed with DECC to present our findings from the exercise in a two-tier approach:

- **Tier 1** – Analysis of the number of responses in relation to the total population of CRC participants and across the strata required by DECC. This demonstrates that the population of responses is adequately representative.
- **Tier 2** - We have analysed the average costs of compliance with CRC within the strata requested by DECC. We have also used this analysis to extrapolate costs to the overall population of CRC participants and calculate an average cost per participant as described above.

As discussed in the Executive Summary and Glossary, we present the costs in this report as those incurred in Year 1 and before, and those estimated for the whole of Phase 1 (4 years).

Limitations of our approach

We have developed an approach to estimating the costs of complying with the CRC incurred by participants that balances project objectives, the additional costs placed on participants as a result of the questionnaire and the challenges inherent in gathering historic, often unrecorded data of this nature. A number of these challenges have been outlined in the methodology section however we want to draw DECC's attention to the specific limitations in our approach, the steps we took to mitigate them and the potential impact on DECC's future analysis.

Limitations	Mitigating controls and/or impact
Risk of under/overstatement the administrative costs due to bias, human error or an inappropriate approach to completing the questionnaire	<p>There is a risk that participants' incentive to overstate costs in the context of simplification may lead to a skewing of the data submitted to the survey. There is also a risk of misunderstanding of the survey and human error. These are risks in all surveys, particularly around controversial topics. We sought to design specific questions for inclusion in the survey which would mitigate the risk of misstatement. By breaking down the data into granular details, we were able to identify and understand the responses in more detail. Furthermore, we piloted the survey with a range of participants to seek to improve the clarity of our instructions and the breakdown of the data.</p> <p>As outlined earlier, we performed testing on the data to seek to identify and investigate outliers which were followed up with telephone interviews to try to resolve any potential inaccuracies. This resulted in small number of responses being removed or corrected where data was clearly inaccurate. We also sought to understand the approaches respondents had been taking to estimate the time incurred and whether they would provide suitably reasonable data. This provided us with further confidence that the data is as robust as can be expected given the inherent challenges in remembering how time was spent over the last three years.</p> <p>Furthermore, we believe that the number of responses we have received provides a sufficiently large population to minimize the potential distorting effect or any residual, unidentified reporting errors or individual bias should a few of the responses be biased.</p>
Risk of costs not being correctly split between activities, particularly impacting one-off vs. repeated costs	<p>A number of the participants in the pilot reported that it was challenging to separate the time spent on CRC compliance into the various activities, particularly between the footprinting and annual reporting costs. This has a particular impact on estimating the costs of a phase if one off, registration or (in particular) footprinting costs (e.g. measuring the residual fuels ruled out under the deminimis rule) are mistakenly classified as annual reporting costs as this could result in costs that actually only occur once in a phase being multiplied by four to calculate the cost for the phase.</p> <p>In response to this, we sought to clarify the descriptions within the survey and simplify the list of activities to more clearly distinguish between the various tasks. In our telephone interviews, we also sought to understand how participants went about segregating the costs. In general, these appeared reasonable although many participants reported that there was a significant amount of estimation involved in the approach.</p> <p>Should DECC wish to have clearer, more consistent data on ongoing CRC compliance costs (i.e. the costs associated with annual reporting) we would recommend that a more limited updating of the annual administrative costs of the CRC could be conducted after the end of the second compliance year. Participants would likely have a clearer idea of the annual reporting costs at this point.</p>

Ctd.

Limitations (ctd)	Mitigating controls and/or impact
<p>CRC costs may be mixed up with the costs of other carbon management activities</p>	<p>Many CRC participants may already have been measuring, managing and reporting data on energy/carbon footprints and it would be inappropriate to include the costs of those activities in an assessment of the administrative costs imposed by the CRC. Similarly, the costs of carbon management incurred by participants as a result of CRC compliance may have been inevitable in the next few years as participants responded to other stakeholder or legislative pressure to gather and report data on energy/carbon usage. Our approach sought to encourage participants to only report the additional costs arising from the CRC and not those from other carbon management costs.</p> <p>Interestingly, as shown in the Tier 2 analysis section of this report, around two thirds of participants said that the CRC represented less than 40% of their total time spent on carbon management and almost three quarters said it represented less than 60% of their carbon management time. This, combined with our interviews, shows that respondents did seek to segregate out costs of CRC from other carbon management costs.</p> <p>However, we have been unable to identify those costs that arose as a result of the CRC but would have been incurred from other emerging pressures in the next few years (e.g. mandatory carbon reporting rules). This is a limitation but is largely unavoidable.</p>
<p>Only costs are captured, not savings (e.g. savings made from more accurate billing as a result of AMR installation (see next page) or as a result of estates portfolio compared to billing</p>	<p>The CRC was ultimately designed to encourage UK organizations to save energy and the original impact assessment forecast the scheme to be cost positive to participants. Around half of respondents to our survey thought that the CRC would lead to them reducing their carbon footprint, which matches with a number of conversations we have had with participants who report that better energy management and data has already led to savings being identified from incorrect billing, inefficient energy usage and changes in user behavior. Others have also reported that the CRC has encouraged them to identify further funds for investment in energy efficiency (although we must acknowledge some comments that CRC has actually discouraged this as well).</p> <p>Therefore we highlight that this project only set out to capture the administrative costs of the scheme. Further work would be required to quantify any savings resulting from the scheme.</p>
<p>Reliance on respondents to provide data</p>	<p>Whilst we have endeavored to identify any significant errors within the data sets through a series of tests and controls, we are still largely reliant on the honesty and accuracy of the estimates provided by participants. Whilst we have 'sense checked' a sample of responses against our experience, particularly where we may already have worked with the survey respondent on the CRC, we have not sought to test data back to source data such as timesheets or audited the data in any significant sense. This would pose too much of a burden on participants and be very difficult to demonstrate. The costs in this survey are therefore very clearly estimates based on respondents best available information (with a few notable exceptions where timesheet data was available, although even there the respondents have had to estimate how the time was split between tasks).</p>

Ctd.

Limitations (ctd)	Mitigating controls and/or impact
<p>There is a significant variance in participant's approach to recognizing the capital/revenue installation costs of AMR systems and whether they are a direct result of the CRC or not.</p> <p>Our approach has also not captured the savings most AMR generate, therefore we have chosen to remove AMR costs from the estimates to avoid biasing the results.</p>	<p>A number of participants included the external costs for the installation of AMRs (smart meters) as a wholly incurred cost of CRC participation. Our survey did ask for this data as we wanted to make sure those costs were separately identified. AMR can be used to make gathering data for the CRC more efficient and some types will improve league table position in the first three years. However they are also a very common tool of good energy management.</p> <p>In consultation with DECC, we have separated these costs (totalling £7.9m) from the calculations of the average costs of complying with the CRC and considered them instead as investment costs driven or accelerated by the CRC. Several reasons underlay this decision:</p> <ul style="list-style-type: none"> • They are not a direct or wholly necessary cost of compliance with the CRC and may have been installed for a wider range of reasons. We accept that in some cases spurred on by the CRC. • A wider mandatory requirement for HHM is being rolled out across the UK by 2014 and includes most CRC participants. Therefore participants may have had to pay for these costs as a result of other Government mandates even if the CRC had not been introduced. • A relatively small number of participants reported costs associated with AMR installation, implying many others who had still paid for AMR classified it as a non-CRC related investment. Installation of AMRs is however voluntary and this is not an essential pre-requisite for compliance with the CRC. • In many cases, AMR has been demonstrated to have a relatively short payback period* and is often one of the first investments in energy efficiency made by organisations looking to improve their energy management. As our survey did not capture the savings achieved as a result of the CRC, it did not seem appropriate to capture a potentially capital cost that resulted in a payback within the CRC phase. <p>We did speak to two of those who had reported the AMR costs as arising from the CRC to confirm that the costs were solely related to the implementation of the CRC and they did state that they would not have made the investment if it wasn't for the introduction of the CRC. However, it could be said that many CRC participants wouldn't be investing in other capital linked to energy savings, such as insulation or building management systems (BMS) if the CRC had not drawn attention to the energy saving opportunities.</p>
<p>Some strata within the total population of CRC participants only have a few members.</p>	<p>By their nature, some strata have significantly fewer participants in them than others, both in the total population of CRC participants and within the responses to our survey. As with any analysis of small samples of small populations of data, there is therefore a greater risk of the averages being further from the actual. However, we believe the risk of misstatement to the overall average costs of the CRC are minor because the strata with the largest populations within them represent a significantly larger proportion of the costs as well.</p>

*For example see "Advanced Metering for SMEs – Carbon and Cost Savings" by the Carbon Trust (2007) – www.carbontrust.co.uk

Limitations (ctd)	Mitigating controls and/or impact
<p>Sectoral strata is based on SIC codes</p>	<p>We have attempted to analyse the responses by sectoral activity using the SIC codes provided by participants during CRC registration as the indicator of sector. Where a participant operates in multiple sectors or specific subsectors, we have only been able to classify the participant into the single sector indicated by the SIC code it has provided. This proved particularly challenging for the “Real Estate, Renting and Business Activity” sector which had a lot of responses. 70% of the costs for respondents in this sector actually related to those entities that have the subcategory of “management of holding companies” and a further 13% related to “other business activities”. Very little actually related to real estate activities. We have therefore relabelled this SIC substrata as “Mgt of holding companies” for clarity within this report.</p> <p>The challenge remains that those holding companies contain businesses working in a wide range of other sectors that are actually covered by other SIC codes including finance, retail and energy. Without manually reclassifying the responses, this is an inherent limitation we must accept. It is not possible to manually reclassify these responses into other sectors because some holding companies may have businesses which operate in multiple subsectors and it would leave our survey data incompatible with that on the wider CRC population held by the Environment Agency (and therefore limit our ability to extrapolate the costs to the total population). Indications are that these challenges do not materially distort the numbers.</p>
<p>Respondents’ allocation of time for the administration of non-core/residual sources between footprinting and annual reporting tasks <i>may</i> have been arbitrary, resulting in a small overstatement of phase 1 costs</p>	<p>Respondents allocated a significant portion of time to calculating non-core/residual usage for both the annual and footprint report. We expect that most organisations will spend little time preparing information on non-core/residual sources for their annual reports because they would have ruled out those sources using the de minimis rule. In theory, only those participants whose total non-core/residual was in excess of 10% of their total footprint or those who voluntarily chose to report more than the minimum mandatory numbers (few organisations have told us they do this) should incur material admin time in the annual report for non-core/residual sources.</p> <p>More than half of respondents spent more than five times as much time gathering data on residual sources for their footprint report compared to the time they spent gathering the data for residual sources in their annual reports. This is broadly in line with our expectations as it shows many of the respondents exempted a large proportion of their residual sources following the footprint report. This was reinforced through several of our interviews.</p> <p>However, around one in ten respondents reported that they spent at least the same amount of time gathering data on residual sources for their annual report as they did on the footprint report. Whilst our follow up interviews did not identify any significant errors in this, we perceive a risk that participants may have apportioned time taken for non-core/residual data collection for the requirements of the footprint report incorrectly between the annual report and footprint report. This may result in a small overstatement of the total costs for Phase 1 when the higher annual reporting costs (which include non-core/residual admin time that was actually footprinting time) are multiplied out across all four years of the first phase.</p>



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Tier 1 Analysis of Population of Survey Respondee by Strata and Representation

Representation of survey respondents by strata – Public/private and emissions bandings

Tier 1 Analysis
Survey Response Rates

As requested, we sought to obtain a representative response across the strata DECC identified in the tender specification.

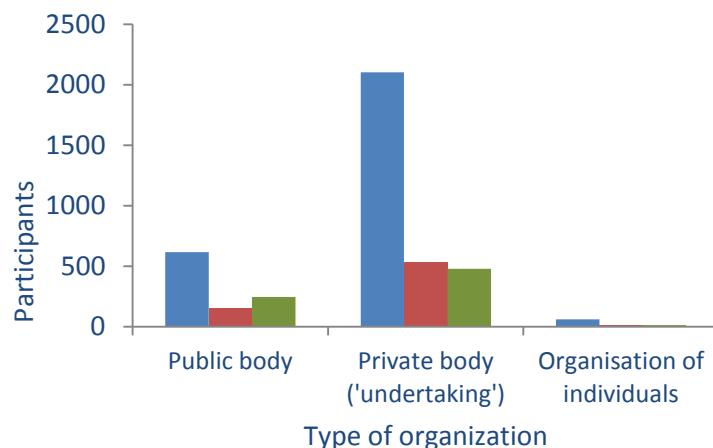
We aimed for a response rate of 25% for each strata:

- Public, private and third sector
- By number of SGUs
- Types of organisation e.g. By SIC code
- Emissions bandings
- Number of HHMs
- By regulatory authority
- By CCA exemption

For almost every strata we obtained a 25% response rate, in many cases more.

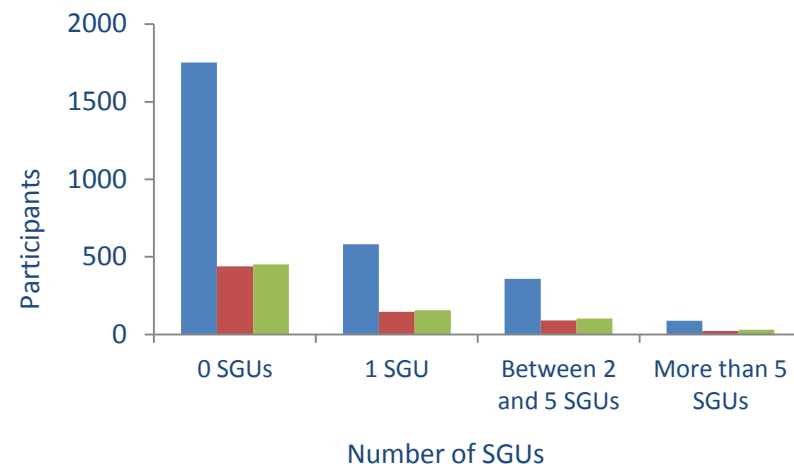
For detailed numbers of responses by strata in comparison to total population and 25% target level please see the appendices.

Summary of responses by public or private body



- As expected, the population of CRC participants is largely dominated by private sector organisations.
- We noted whilst we were receiving responses to the survey that there was, in general, a greater willingness amongst the public sector participants to respond to the survey.
- There could be many causes for this but we do not believe it will materially skew our analysis.

Summary of responses by number of SGUs



- The population of CRC participants is dominated by those organisations with no SGUs, followed by those with 1 SGU.
- This is entirely as expected because:
 - Almost all public sector participants have no SGUs; and
 - An organisation would have to be very large to contain several SGUs and many that are that large have chosen to disaggregate their SGUs to simplify management of CRC compliance and mirror the decentralised operations of those large conglomerates.
- We have a good coverage of all of these groups of participants.

Key

Total CRC participant population

Target response rate of 25%

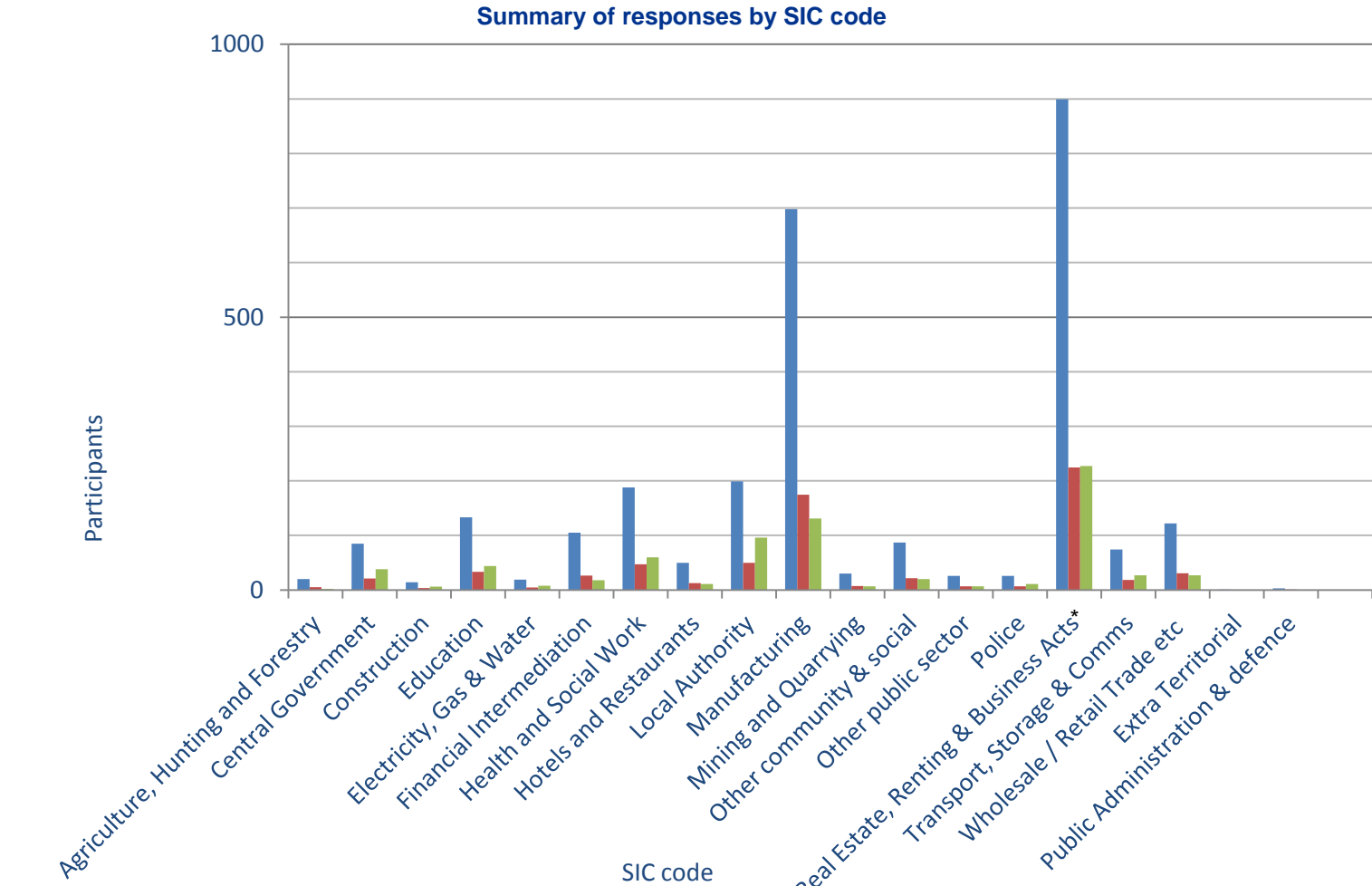
Responses received

Representation of survey respondents by strata – SIC codes

The population of CRC participants is largely made up of manufacturing and those businesses whose SIC code identifies them as real estate, renting and business. However more than 70% of the costs (and number) of respondents within our survey who fall within our this sub-sector describe the primary registrant as a holding company.

We have looked into this sector in more detail through several interviews and believe this is a limitation of the SIC code approach in that many businesses that have complex subsidiaries in various industries may have a parent that is registered under the generic SIC code representing holding companies.

However, we have a high level of response from both of these sectors which should indicate we have a strong, representative sample across these sectors.



Key

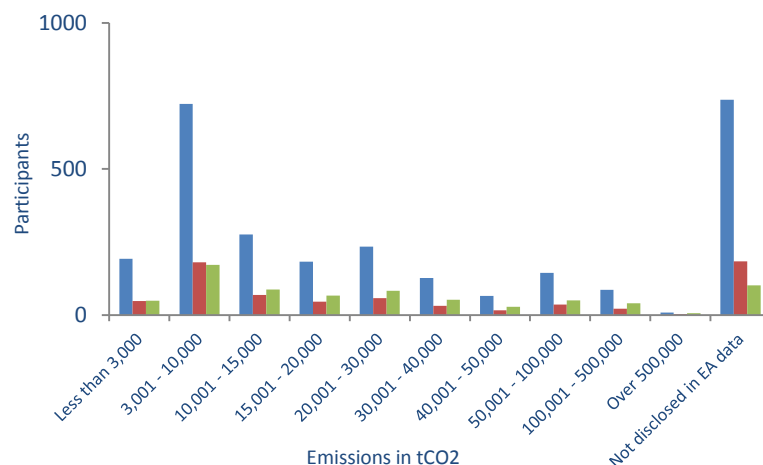
Total CRC participant population
Target response rate of 25%
Responses received

* Elsewhere in our report when referring to the responses we've had in this subsector, we have called this the "management of holding companies" sub-sector as more than 70% of the costs and number of respondents within our survey who fall within this sub-sector have this activity listed under their SIC description. We have kept the original SIC code descriptor here though for consistency with the Environment Agency data on the total population.

Representation of survey respondents by strata – Emissions bandings and numbers of HHMs

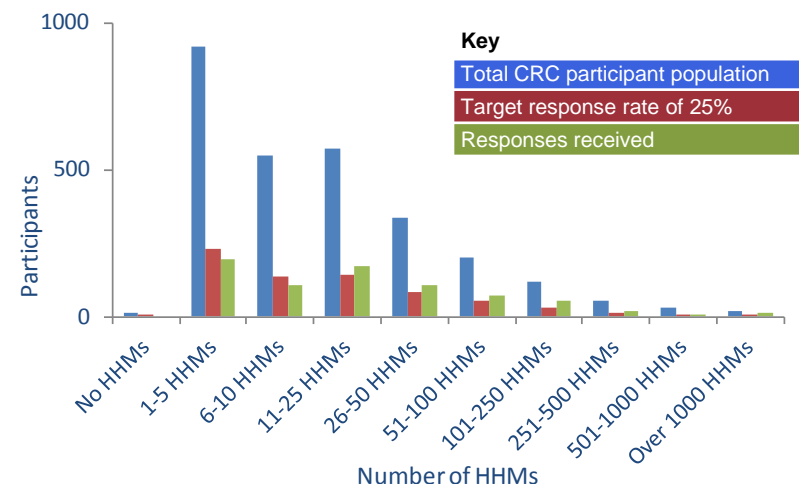
Looking beyond the split of organisations by type and structure, we also agreed with DECC to examine the population of survey responses by the size of the respondent in terms of their complexity of energy metering and carbon emissions.

Summary of responses by emissions as per annual reports



- This chart shows an expected distribution of emissions covered by the CRC with a skew towards emissions between 3,000 and 10,000 tonnes per year in the annual report.
- Many participants in the CRC have much higher total emissions than reported here but most of their emissions are covered by schemes such as the CCA or EUETS which would stop those emissions being reported in the annual reporting figures of the CRC. Those with full exemptions are shown as “not disclosed” because they have no need to submit data for annual reports.
- We point out that this is tonnes of CO2 and not MWh and therefore it is possible for many participants to emit less than 3000 tCO2 pa. These appear to be entities such as small Government departments, those who have just crossed the scheme and those with some residual emissions following CCA exemptions.

Summary of responses by number of HHMs



- This graph is perhaps the most interesting of the tier 1 analysis because it shows that the majority of CRC participants have relatively few HHMs but are still caught by the CRC. It may have been expected to see more of a normal distribution of meters.
- This distribution implies that either they are very large single site organisations (e.g. Hospitals, large factories, universities on their own ring mains) or organisations with a few mid-sized sites and then many other sites with voluntary AMR installed (e.g. retailers with a large head office or warehouse and then many smaller outlets).
- The majority of participants have a small number of HHMs which implies there *could* be a significant churn in the CRC population if the qualification rules are amended to consider just the usage though mandatory HHMs.
- We support DECC's analysis to determine the most appropriate new threshold for inclusion. It would seem preferable to maintain coverage of emissions whilst minimising the churn of participants as this could incur significant new one off costs for new participants entering the scheme.

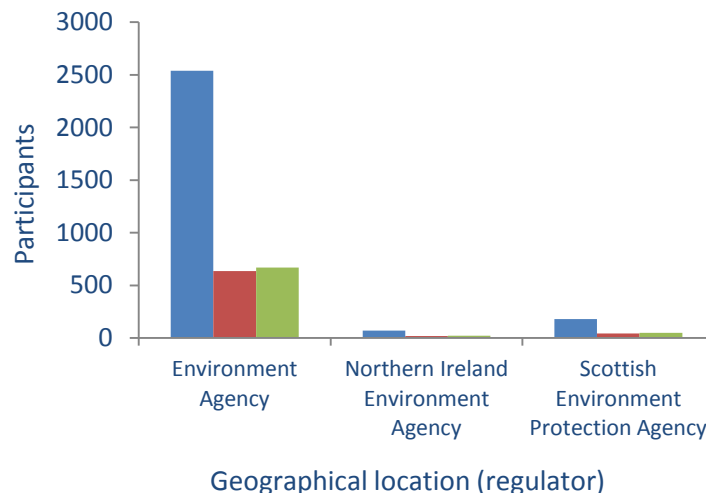
Representation of survey respondents by strata – Regional regulator and CCA exemption status

Tier 1 Analysis
Survey Response Rates

DECC also subsequently asked us to demonstrate the split of responses we received by the regulatory authority (EA, NIEA or SEPA) using the information on the total population using data provided by DECC (sourced from the Environment Agency).

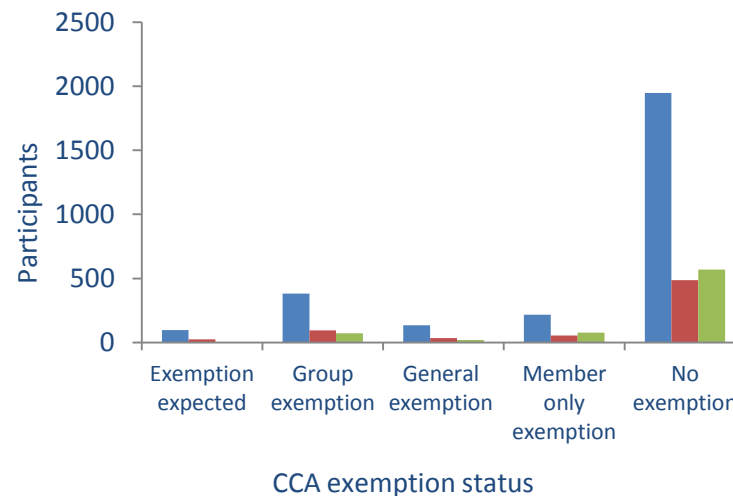
Additionally, we looked to make sure we had a good representative sample from organisations that are affected by the CRC but may not have to pay for allowances due to dull/partial exemption from the scheme as a result of holding a current Climate Change Agreement (CCA).

Summary of responses by geographical distribution



- We have a strong, balanced coverage across the various regulators which shows that there is an equal level of engagement with the CRC around the UK.
- This chart also highlights very clearly the level of resource required by the Environment Agency compared to the regional counterparts and justifies the centralisation of much of the CRC administration functions by the EA.

Summary of responses by CCA exemption



- Nearly 800 of the 2800 CRC participants have some form of part or full exemption from certain aspects of the CRC due to their participation in the CCA schemes.
- As expected, there is a slightly lower response rate from these participants than those who are fully caught and participating in the CRC, which reflects that they have their focus on other carbon legislation.
- Interestingly though, the response rate is slightly higher for member only exemptions, which have part of their business covered by a CCA. From conversations with these participants, the perceived complexity of 'juggling participation in two schemes' has led them to be more vocal on the development of the CRC.
- This may also explain why we still have a reasonably high level of return from those with some form of CCA exemption (as it might have been expected that they'd not be interested in responding at all now they've gotten through the first stages).

Key

Total CRC participant population

Target response rate of 25%

Responses received



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Tier 2 Analysis Results of the Survey

Total estimated cost of the CRC

Tier 2 Analysis Costs Incurred from the CRC

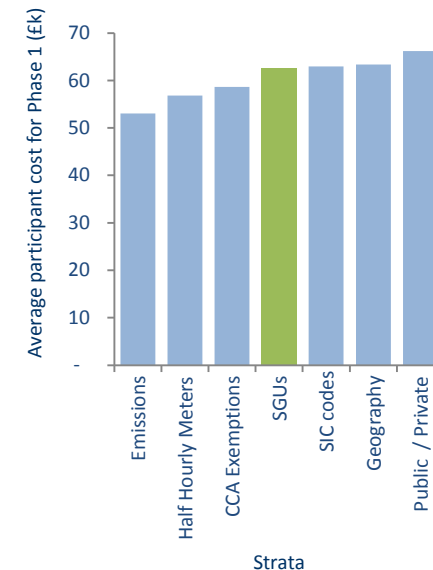
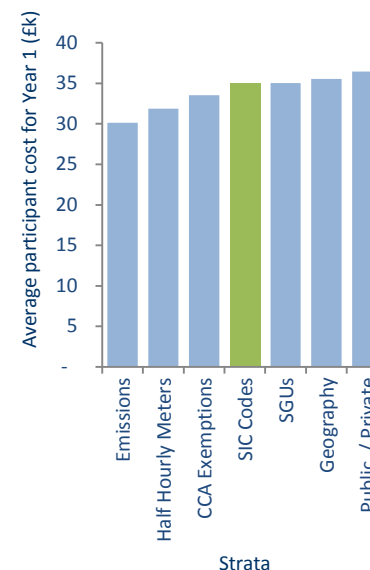
We used the results of the survey from 740 respondents to extrapolate to an estimated average administrative cost a participant in the CRC, both in terms of costs incurred to date and total estimated costs for the first phase of the scheme (i.e. years 1 to 4).

The estimated average cost for a participant for the first year ranged from **£30k to £36k**.

For the total estimated costs for phase 1, the average cost per participant ranged from **£53k to £66k**. This wider range may be reflective of the level of uncertainty in predicting future annual reporting costs.

Our initial findings indicate the following average estimated costs from our 740 survey respondents, and the subsequent prorating to derive mean average estimated costs for the CRC participant population as a whole:

Strata	Extrapolated average cost per respondent		See page
	Year 1 £	First phase £	
Half Hourly Meters	31,894	56,455	Page 37
SIC Codes	34,961	61,928	Page 40
SGUs	35,050	62,689	Page 44
Emissions	30,132	53,016	Page 48
Public / Private	36,460	66,208	Page 48
CCA Exemptions	33,524	59,314	Page 50
Geography	35,541	63,370	Page 52



- The average costs of the CRC per participant, as shown in the table above, vary from each other because we have used the averages of the survey responses for substrata to extrapolate up to the total costs for each substrata for the entire CRC population and then taken a mean average of the total administrative costs for all participants in the CRC combined. (see Methodology for more details). As our survey responses has a different balance of representativeness depending on the strata used, the averages do vary although the amount is not as much as could have been expected.
- We have used a 'chi squared' statistical test to derive the most robust estimate of CRC compliance costs as the SIC code strata has the most balanced and representative data split. We have therefore used those averages as the drivers of some of our conclusions in the executive summary. The appendices contain further details on this calculation.
- The following pages show detailed breakdowns of the time and costs incurred at each stage of the scheme, incorporating one off costs, registration costs, footprinting costs and annual reporting costs, as well as external costs at each stage of the scheme.

Analysis of time and costs – Internal one off costs

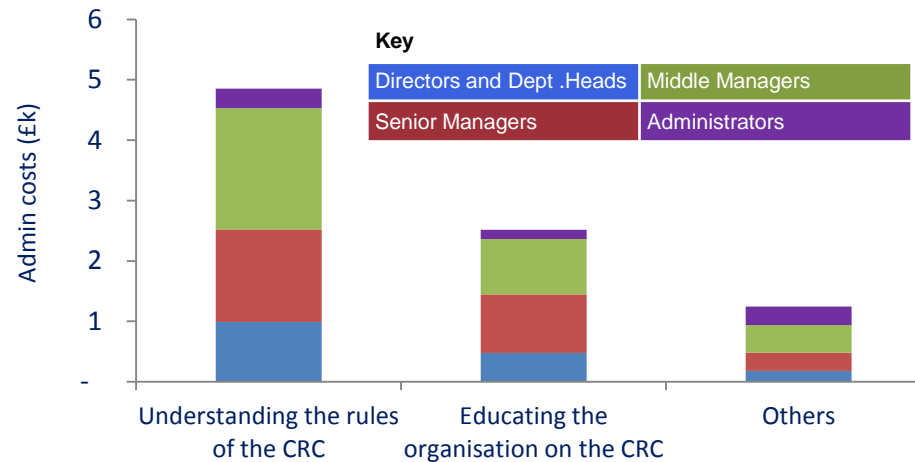
Tier 2 Analysis Costs Incurred from the CRC

The survey respondents provided data which indicates that they incurred the majority of their one-off time in understanding the rules of the CRC.

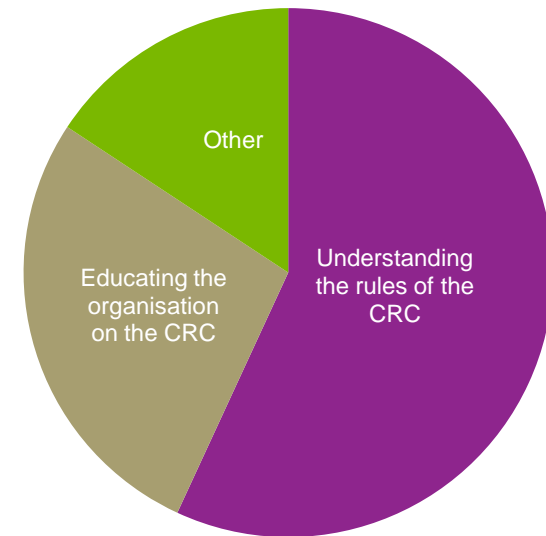
Respondents reported the average total time incurred in one-off activities as **38 days**, split as per the pie chart on the right of the page.

Applying the Standard Cost Model we derived the estimated average associated cost per respondent by category for internal one off activities as **£9,000**.

Analysis of the internal costs incurred in one off CRC activities



Split of time by sub activity



- Responses show that total one off costs incurred in CRC compliance for the first year of the scheme totalled £6.38 million. Of this total, around £3.6 million was spent on understanding the rules of the CRC.
- The majority of staff time was also spent on this area, accounting for 56% of total time spent by staff on one off activities.
- Middle managers have spent proportionally the greatest amount of time on one off activities, in comparison to other staff categories, accounting for 41% of total time spent by all staff. They also spent a greater proportion of time understanding the scheme, potentially because they were the ones trying to explain to junior and senior staff what the scheme meant.
- Examples of 'other' time and costs incurred from respondents include Director and Department Head time in making key decisions and chairing CRC steering group meetings. Senior management and middle management time on 'other' activities included preparing briefing papers and cabinet reports and liaising with schools. All time appeared reasonable.
- Administrators had little involvement with these activities, mainly relating to being trained in the scheme. Later charts show that directors and senior managers were particularly involved in these stages.

Analysis of time and costs - Internal registration costs

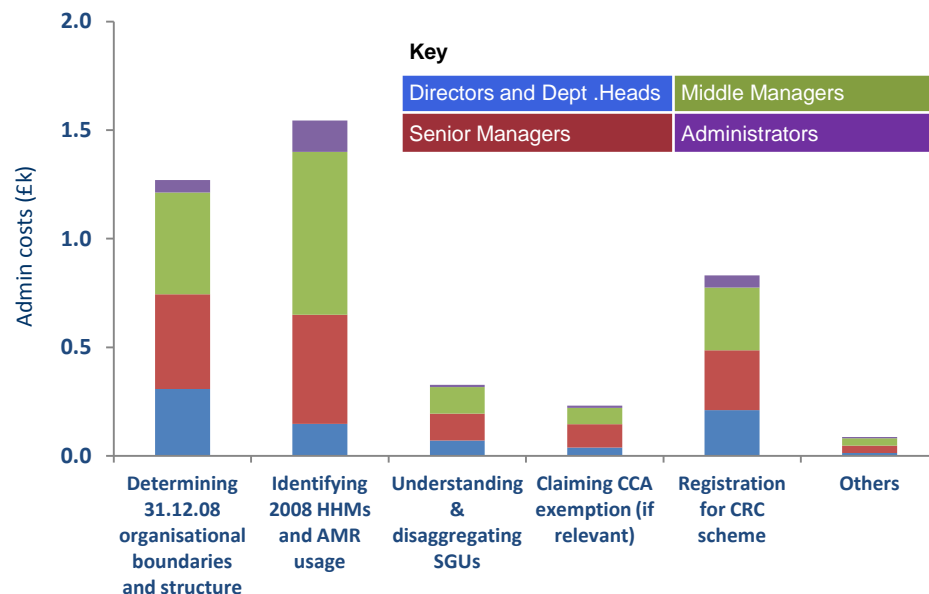
Tier 2 Analysis Costs Incurred from the CRC

The survey respondents provided data which indicates that they incurred the majority of time during the registration stage in identifying their 2008 HHMs and AMR usage.

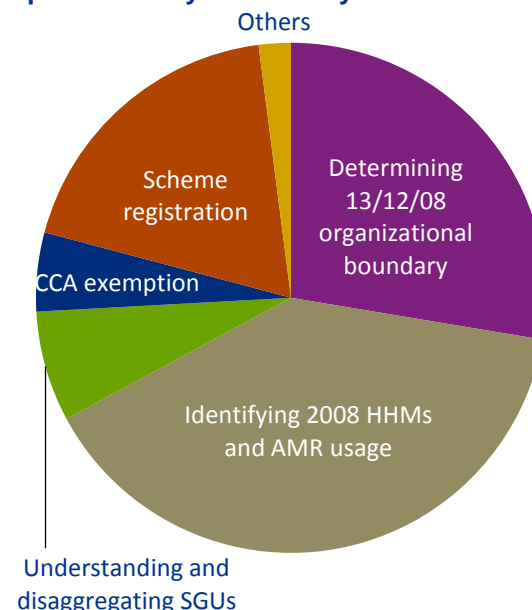
Respondents reported average total time incurred in CRC registration as **20 days**, split as per the pie chart on the right of the page.

Applying the Standard Cost Model we derived the estimated associated average cost by category for CRC registration as **£4,000**.

Analysis of the internal costs incurred in CRC registration



Split of time by sub activity



- Responses show that total CRC registration costs incurred in the first year of the scheme totalled £3.14 million. Of this total, around £1.1 million (35% of total registration costs) was spent on identifying 2008 HHMs and AMR usage.
- The majority of staff time was also spent on this area, accounting for 39% of total time spent by staff on CRC registration. A further prominent sub activity was reported as determining 31.12.2008 organisational boundaries.
- The distribution is very much in line with expectations. The key activities in registering for the scheme have taken the most time.
- Middle managers have spent proportionally the greatest amount of time on registration, in comparison to other staff categories, accounting for 40% of total time spent by all staff.
- Respondents did not provide any significant examples of 'other' costs for this activity.
- Please note there may be some uncertainty regarding overlaps between annual reporting costs and footprint costs.

Analysis of time and costs – Internal footprinting costs

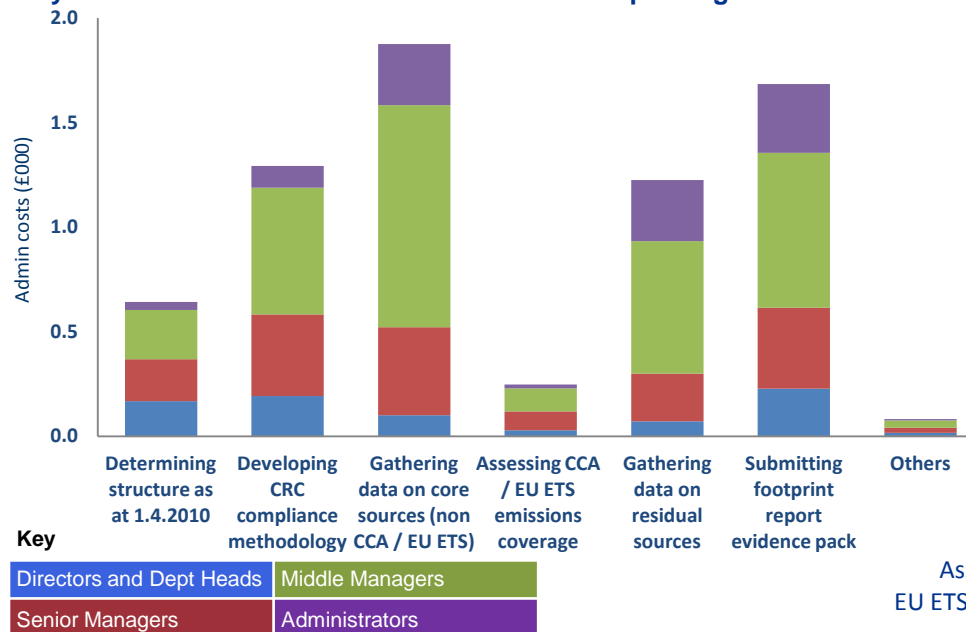
Tier 2 Analysis Costs Incurred from the CRC

The survey respondents provided data which indicates that they incurred the majority of time in the footprinting stage gathering and recording data on core sources. Surprisingly, they incurred a very large amount of time gathering data on residual sources which likely represent <10% of their footprint.

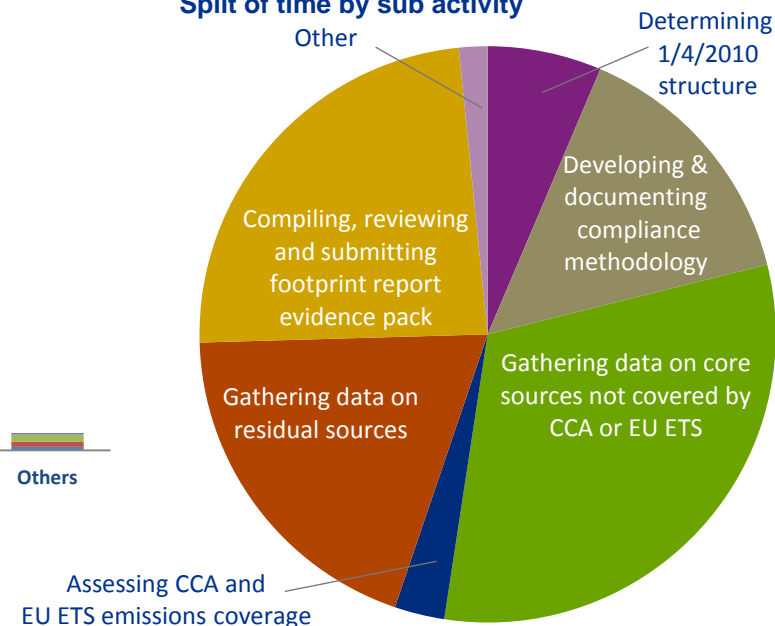
Respondents reported average total time incurred in CRC registration as **44 days**, split as per the pie chart on the right of the page.

Applying the Standard Cost Model we derived the estimated associated average cost by category for CRC registration as **£7,000**.

Analysis of the internal costs incurred in CRC footprinting



Split of time by sub activity



- Responses show that total CRC footprinting costs incurred in the first year of the scheme totalled £5.2 million. Of this total, around 10,000 days (31% of total footprinting time) was spent on gathering data on core sources not covered by CCA or EU ETS.
- The majority of costs were incurred (because of skillmix involved) in developing CRC compliance methodologies and compiling the footprint report evidence packs. This typically involved significant amounts of senior management time, with a low level of input from other staff categories.
- Perhaps of most importance on this graph is the amount of time incurred in gathering data on residual/non-core sources as these were expected to represent only a relatively small proportion of a participant's carbon footprint (<10% in most cases). This large cost associated with a small proportion of participant's carbon footprint supports the simplification option to remove many non-core sources from consideration in the CRC. Participants also highlighted this as one of their most preferred options for simplification.
- Directors and Department Heads spent less time (and incurred less costs) on this stage of compliance than in any other stage.
- Respondents reported that 'other' costs and time incurred related largely to understanding the CRC guidance and liaising with the Environment Agency to clarify queries.
- Please note there may be some uncertainty regarding overlaps between annual reporting costs and footprint costs.

Analysis of time and costs – Internal annual reporting costs

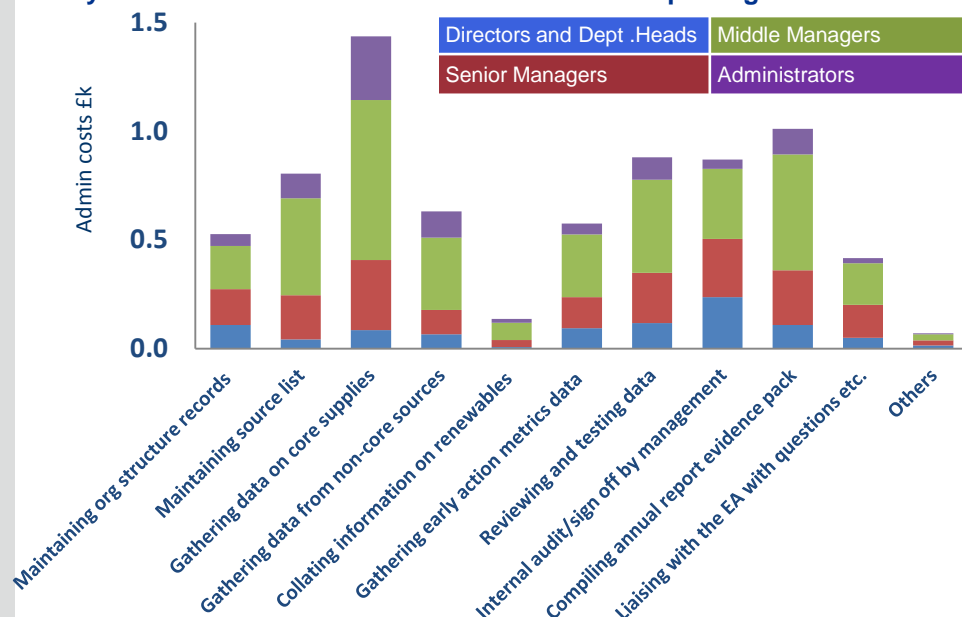
Tier 2 Analysis Costs Incurred from the CRC

The survey respondents provided data which indicates that they incurred the majority of time in the annual reporting stage in additionally gathering data on core sources, compiling the evidence packs and ensure data was robust.

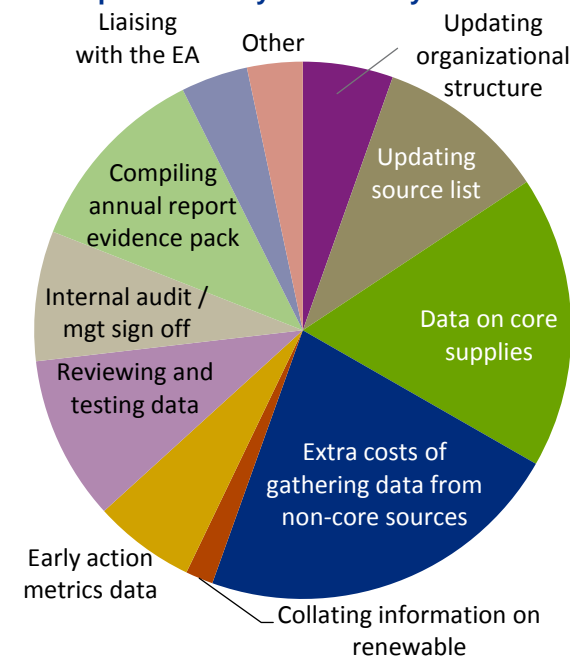
Respondents reported average total time incurred in CRC registration as **41 days**, split as per the pie chart on the right of the page.

Applying the Standard Cost Model we derived the estimated average associated cost by category for CRC registration as **£7,000**.

Analysis of the internal costs incurred in annual reporting



Split of time by sub activity



- Responses show that total CRC annual reporting costs incurred in the first year of the scheme totalled £5.4 million. The split across sub activities for this activity is relatively consistent, however maintaining source lists and gathering data on core supplies being the two largest categories, representing 30% of total annual reporting costs in year 1.
- The main activities are, as expected, related to gathering robust data on core sources and compiling evidence packs.
- However, participants spent about half the time gathering data on non-core sources compared to core sources. This is surprising as most participants should have ruled out most non-core sources that are administratively complex to gather and which, by definition, normally only represent a small proportion of their footprint. See our comments in the limitations of this project for explanations.
- It is also noteworthy that participants spent considerably more time gathering data on Early Action Metrics than might be expected.
- The majority of staff time was also spent on this area, accounting for around 50% of total time spent by staff on one off activities.
- Respondents reported that 'other' costs and time incurred related largely to collating and analysing data for group components within larger organisations (for example individual hotels within a hotel chain, and, similarly, schools data for local authorities).

Analysis of time and costs – Most time intensive activities

Tier 2 Analysis Costs Incurred from the CRC

The graphs on this page show how the survey respondents stated they have spend their time so far in the CRC.

Extrapolating out to the whole phase gives us some idea of which activities will involve the most staff time and cost within a phase. This may provide an indication of which activities would give the most benefit from simplification. Within a phase our estimates show the **most time consuming activities** to be:

1. Gathering data on core supplies;
2. Understanding the rules of the CRC;
3. Maintaining source lists;
4. Reviewing and testing data for annual reporting; and
5. Gathering data from non core sources (residual fuels included in annual reports)

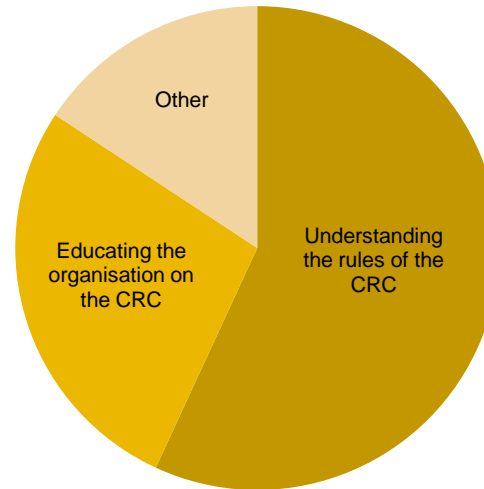
When the cost of the staff grades is taken into account, our estimates show the **most expensive activities** within the phase to be:

1. Gathering data on core supplies;
2. Understanding the rules of the CRC;
3. Compiling and submitting the footprint report evidence pack;
4. Reviewing and testing data for annual reporting; and
5. Internal Audit or management sign off of the annual reporting requirements.

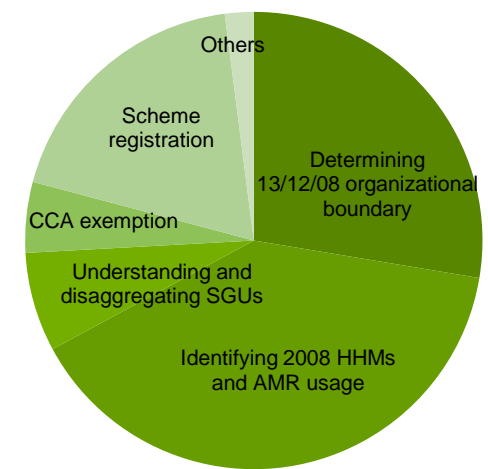
The differences between the two analysis reflect the seniority of staff involved in activities such as the internal audit and compiling the first footprint report. The analysis shown in a few pages' time (Staff time per stage of CRC compliance for Phase 1) indicates that the activities of establishing the governance and boundaries of the scheme (generally incurred as one off and registration costs) take up a greater proportion of senior management time than the more process related tasks of compiling the annual and footprint reports.

This supports the common understanding that senior management time is usually incurred in establishing and monitoring compliance processes whilst junior time is used to carry them out. This helps explain why such a significant proportion of the costs of phase 1 were incurred in the first year – ongoing activities are largely carried out by less expensive junior staff.

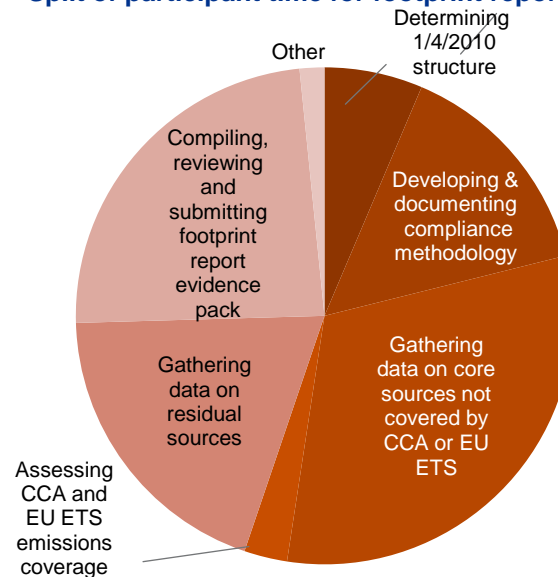
Split of participant time for 'one off' activities



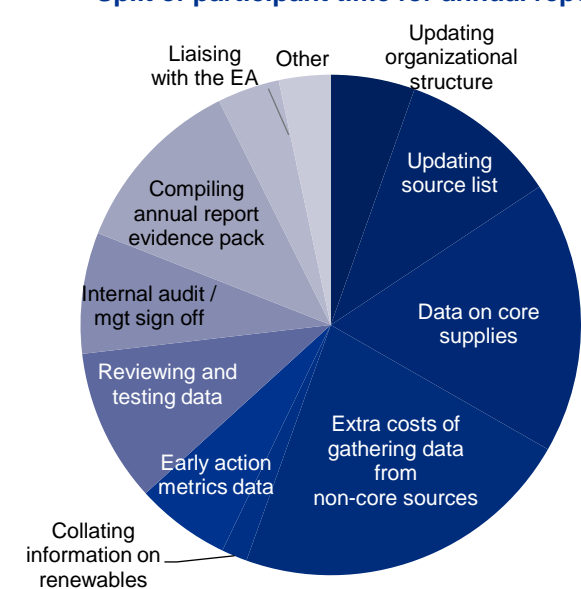
Split of participant time incurred to register



Split of participant time for footprint reporting



Split of participant time for annual reporting



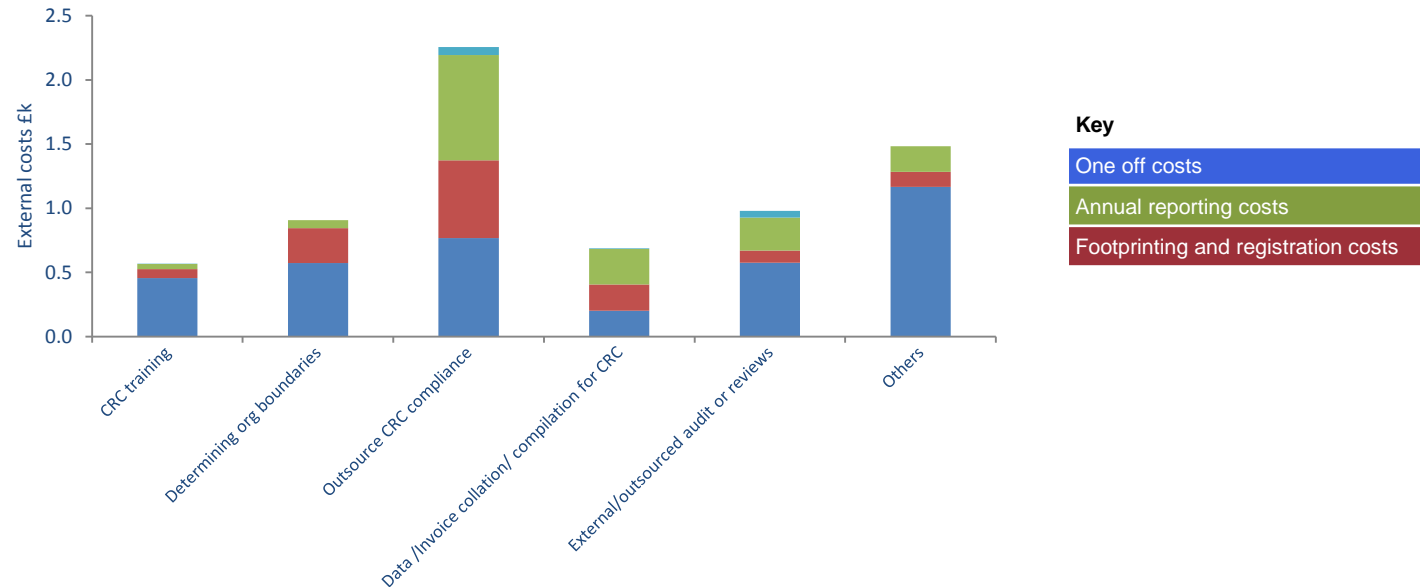
Analysis of time and costs – External costs incurred

Tier 2 Analysis Costs Incurred from the CRC

Excluding the costs of installing and repairing AMRs, average external costs were reported as **£7,000**.

Recognising the potential sensitivity of reporting data on external costs, a number of respondents declined to provide detailed costs incurred. This accounted for approximately 75 from 740 of the respondents and we have taken these non-responses into account in our extrapolations by assuming a smaller sample size for external cost data.

Analysis of the external costs incurred in respect of the CRC (all stages)



- We asked respondents to provide indications of external costs (e.g. consultancy costs) for each activity. Responses show that the majority of external costs were incurred on one off activities.
- Respondents reported that 'other' external costs included commissioning the development of software designed to capture CRC information (or modifying existing software to capture the correct parameters). Another key external cost related to obtaining Carbon Trust Standard accreditation solely for the purpose of CRC league table position.
- A number of participants included the external costs of installation of Automatic Meter Readers (AMRs) as a wholly incurred cost of CRC participation (our survey did ask for this data as we wanted to make sure those costs were separately identified). AMR are used to make gathering data for the CRC more efficient and some types will improve league table position in the first three years. However they are also a very common tool of good energy management. Following discussions with DECC, we have removed these costs (totalling £7.9m, although one participant alone accounted for £1m of costs) from the calculations of the average costs of complying with the CRC and counted them as an investment cost driven or accelerated by the introduction of the CRC.
- The main external cost incurred by participants, aside from the installation of AMRs was outsourcing CRC compliance to external companies.

Analysis of time and costs – AMR costs reported and reclassified

Tier 2 Analysis Costs Incurred from the CRC

146 respondents reported incurring costs in installing and maintaining AMRs.

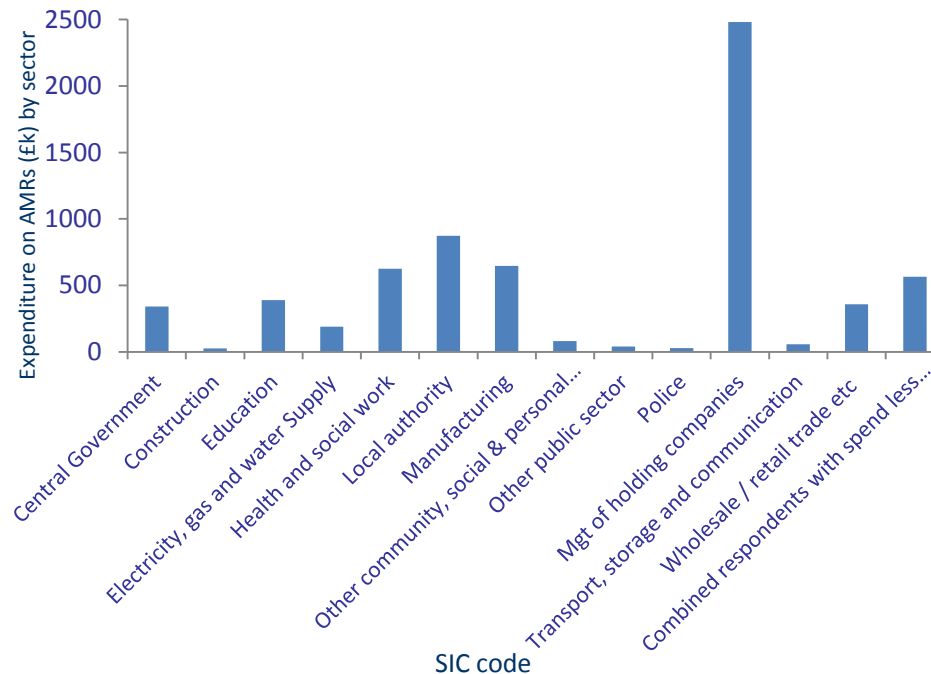
The total cost reported was £7.9 million.

Following discussions with DECC we removed these costs from the average costs of complying with the CRC and count these as an investment cost in energy efficiency.

59 of the respondents reported that they incurred in excess of £20k on AMRs, which together account for £6.2 million of the total £7.9m.

- We separated out a total of £7.9 million of costs associated with the installation of AMRs from our calculations of average costs of complying with the CRC, and counted them as an investment cost rather than an administrative cost. The Methodology and Limitations sector explains this in detail however the primary reasons for the decision were:
 - AMRs installation is voluntary for CRC participants
 - that AMR costs can be seen as a capital investment to improve energy management and save energy with a relatively low payback period;
 - that mandatory AMR installation within large energy users is also driven by other legislation; and
 - Only 146 respondents reported that they incurred these costs whereas indications in the market are that a much larger proportion of CRC participants have also made this capital investment.
- Of the 146 respondents reporting AMR costs, 87 reported that they had each incurred under £20k of cost. Total costs associated with these 87 respondents amounted to £0.5m.
- The remaining 59 respondents accounted for £7.4 million expenditure between them, ranging between £20k and £1m.
- The graph below sets out the distribution of these respondents by SIC codes.

Breakdown of AMR costs reported by respondents



- Respondents reported incurring costs on installing and maintaining AMRs in the following areas:
 - One off costs of £7m
 - Footprinting and registration costs of £0.1m
 - Annual reporting costs of £0.7m.
- The highest costs incurred in installing AMRs were in respect of participants who gave their activities as holding companies who incurred almost £2.5m in total. This implies complex organisations, often with multiple subsidiaries, may be choosing to invest in automatic means of gathering data from across the organisation.
- For more detailed analysis on a per participant basis, these total spends would need to be divided by the number of participants claiming expenditure in this area. This is an area for future work.

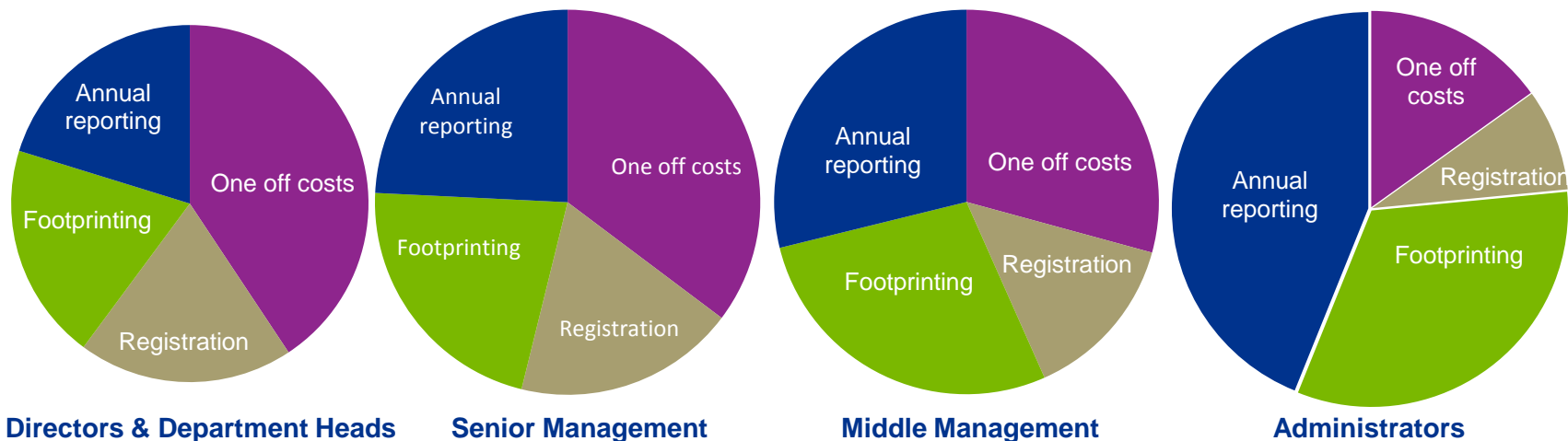
Staff time per stage of CRC compliance for Phase 1

Tier 2 Analysis Costs Incurred from the CRC

We analysed the staff time by grade for each stage of CRC compliance, using days reported by respondents.

This shows that Directors and Department Heads incur most time in one-off activities, whereas senior management spend the majority of their time on the CRC in the footprinting stage.

In addition, middle management time is relatively evenly split, whereas administrators concentrate primarily on annual reporting and footprinting.



- Responses of time split by staff category and across each CRC related activity show that Directors and Department Heads incur the majority of their CRC related time on one off activities.
- Middle management time is relatively evenly split however annual reporting and one off costs are marginally more significant for this category of staff than registration and footprinting costs.
- Administrator time has also been relatively evenly split between annual reporting and footprinting costs, with less time spent on one off activities and registration.
- The splits above show that there is a definitely trend towards using more senior staff for one off activities and establishing the governance systems and boundaries required in the CRC. Once the work progresses to annual reporting and footprinting there is a move towards using more junior staff. This is in line with expectations as once process and procedures are established by more senior individuals, the work can be conducted by junior staff/administrators.
- What is perhaps surprising is the high proportion of time spent by directors/senior management on annual reporting however this may be simply because the scheme is new and senior management chose to spend more time working closely with the data. Three of the forty participants we interviewed commented that senior management did most of the work on CRC compliance because there was currently no one junior who could do the role.
- In future years as CRC becomes established we may see costs decrease as more junior staff /administrators take on more routinely based activities.

Extrapolation of costs to whole population – HHMs

Tier 2 Analysis Costs Incurred from the CRC

We extrapolated the results of our costs per strata to derive an estimate of the total administrative costs for participants of responding to the CRC.

This analysis shows our extrapolation of costs on the basis of participants' numbers of HHMs.

Average costs incurred in the first year of the scheme, applying the HHM cluster strata were approximately £32k for the first year only. This is significantly different compared to the average of the 740 respondents to the survey, indicating the sample may not be very representative when split on these lines.

Phase 1 costs are indicated to be £57k and again are significantly different..

HHM cluster	No. survey respondents	Average cost per participant year 1 (£)	Average cost per participant Phase 1 (£)	Total CRC population	Survey coverage of strata
0 HHMs ¹	3	5,618	6,203	11	27%
1-5 HHMs	194	16,393	30,619	907	22%
6-10 HHMs	106	27,860	47,797	547	19%
11-25 HHMs	166	29,259	56,691	566	29%
26-50 HHMs	109	42,660	69,315	332	33%
51-100 HHMs	73	50,269	81,140	202	36%
101-250 HHMs	52	56,872	110,328	116	45%
251-500 HHMs	18	151,345	255,468	51	35%
501-1000 HHMs	9	35,291	83,403	27	33%
Over 1000 HHMs	10	108,104	151,839	20	50%
Average of survey	740	36,365	71,399		
Extrapolated average	2,779	31,894	56,455		

¹ We identified 11 participants in the EA annual report data which asserted they had no HHMs. Each of these organisation is a mandated participant, and the majority are public bodies. These represent the mandated participants who are Government departments without HHM.

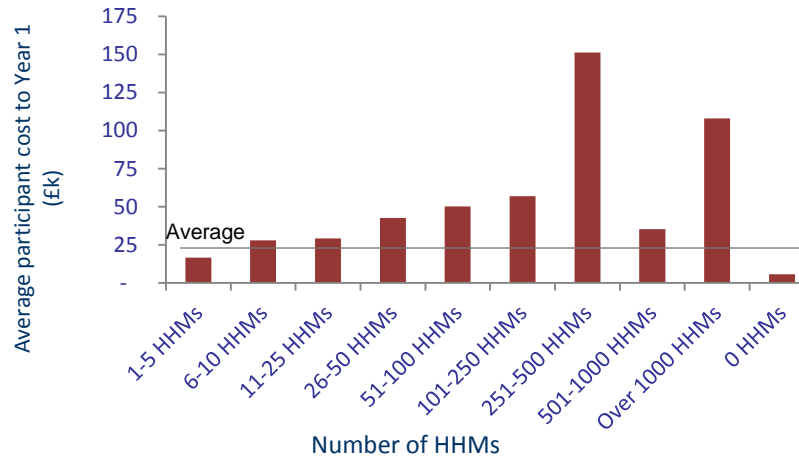
Extrapolation of costs to whole population – HHMs

Tier 2 Analysis Costs Incurred from the CRC

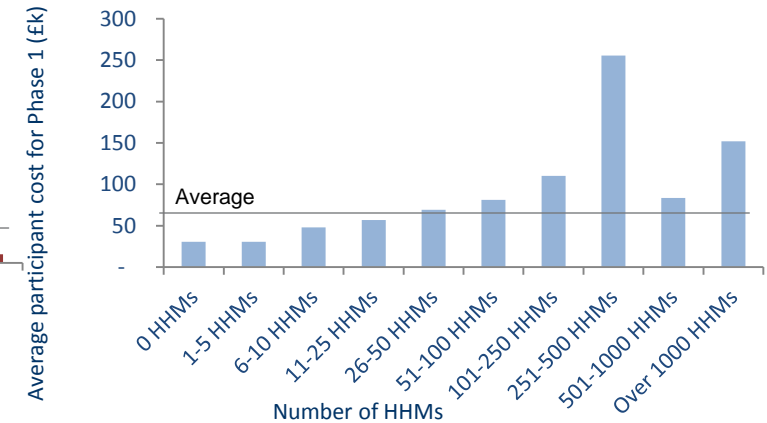
When looking at this analysis, two clear unusual trends stand out:

- Participants with 251-500 HHMs appear to incur considerably more costs than their peers.
- Those with 501-1000 HHMs appear to incur far fewer administrative costs than anticipated

Average costs across strata – Year 1 and before



Average costs across strata – First phase



- We have investigated the organisations at 251-500HHM bracket to understand why the costs are so high. Several of the participants who responded to this survey and fall within this substrata have high costs across all five of the activities (as shown in the table on the following page).
- We also found this substrata contained a number of organisations such as water and other utility companies and local authorities which have a complex and diverse estate to manage/understand.
- However, two organisations (both in the holding companies) in particular incurred particularly high costs. We interviewed them on the phone and believe their approach to estimating costs was appropriate. Both are very large and very complex businesses, with multiple SGUs and a very large number of sites. Both incurred significant legal fees and one in particular spend a lot of time trying to determine its boundaries. Several other organisations of this size also seemed to incur significant costs related to boundary and legal issues.
- For those organisations with between 251 and 500HHMs, we are surprised to see such a high average cost. It appears this results primarily from three participants having very significant costs in defining their boundaries and seeking external support. They were in the petrochemical, banking and facilities management sectors which are known to have significant boundary challenges.
- We also spoke to organisations in the next category up (501-1000HHMs) and this appears lower than expected but found nothing unusual in their approach, although they did state that they didn't have significant boundary issues, just a lot of AMR.
- So whilst the data above appears unusual, we can see no errors within the data itself and this may be simply due to particular sectors or organisation types following a particular pattern of meter distribution.

Breakdown of extrapolated sub activity average costs by strata – HHMs

Tier 2 Analysis
Costs Incurred from the CRC

We calculated the average cost of each macro activity across HHM bandings.

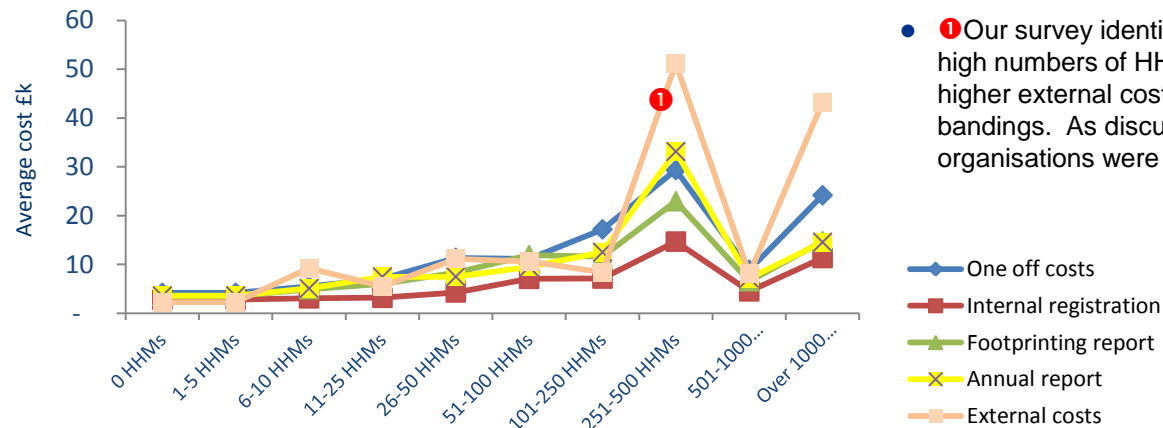
We identified a trend that costs were relatively uniform across HHM bandings for each macro activity.

One area where we identified a significantly higher cost for the higher bandings was in respect of external costs.

We identified that this was caused by similar types of organisation with complex organisational boundaries and estates where external help was sought (e.g. Legal fees). These occurred in organisations such as electricity, gas and water suppliers.

HHM cluster	One off costs £	Internal registration £	Footprinting report £	Annual report £	External costs £	Total average costs Year 1 £	Total average participant costs Phase 1 £
0 HHMs	4,581	647	195	195	0	5,618	6,203
1-5 HHMs	4,190	2,792	3,541	3,585	2,285	16,393	30,619
6-10 HHMs	5,501	3,073	4,944	5,090	9,253	27,860	47,797
11-25 HHMs	7,071	3,187	6,026	7,458	5,518	29,259	56,691
26-50 HHMs	11,367	4,291	8,331	7,505	11,166	42,660	69,315
51-100 HHMs	11,175	7,073	11,935	9,494	10,592	50,269	81,140
101-250 HHMs	17,202	7,131	11,607	12,514	8,419	56,872	110,328
251-500 HHMs	29,343	14,688	22,965	33,140	51,210	151,345	255,468
501-1000 HHMs	8,923	4,509	6,575	7,216	8,068	35,291	83,403
Over 1000 HHMs	24,181	11,341	14,767	14,578	43,238	108,104	151,839

Average macro activity costs - HHMs



Extrapolation of costs to whole population – SIC codes

Tier 2 Analysis Costs Incurred from the CRC

This analysis shows our extrapolation of costs on the basis of participants' SIC codes.

We obtained SIC codes using registration information provided by the EA.

The highest average cost per respondent was identified to be construction organisations, at almost £75k per organisation. This matches with our interviews with participants from that sector as the transitory nature of their estates makes CRC governance challenging. Many other sectors saw much lower average costs of between £20k and £26k. These sectors accounted for around 36% of the CRC population.

Our analysis showed this to be the most representative population of survey responses (see appendices).

SIC code / industry	No. survey respondents	Average cost per participant Year 1 (£)	Average cost per participant Phase 1 (£)	Total population	Survey coverage of strata
Agriculture, Hunting and Forestry	2	13,952	21,549	20	10%
Central Government / NDPB	38	23,961	41,806	85	45%
Construction	6	75,406	116,669	14	43%
Education	44	19,366	34,557	133	33%
Electricity, Gas & Water Supply	8	54,847	96,317	19	42%
Financial Intermediation	18	53,761	82,634	105	17%
Healthcare including NHS	60	20,721	38,794	188	32%
Hotels and Restaurants	11	49,378	84,511	50	22%
Local Authority	96	42,627	80,488	199	48%
Manufacturing	131	22,036	36,389	698	19%
Mining and Quarrying	7	21,865	47,800	30	23%
Other Community, & Social	20	34,869	54,644	87	23%
Other public sector	7	28,946	55,044	26	27%
Police	11	27,647	54,199	26	42%
Management of holding companies(*)	227	46,745	86,692	899	25%
Transport, Storage & Comms	27	35,720	52,035	74	36%
Wholesale and Retail Trade etc	27	35,448	60,471	122	22%
Extra territorial (**)	0	35,723	62,105	1	0%
Public administration & defence (**)	0	35,723	62,105	3	0%
Average of survey respondents	740	36,365	71,399		
Extrapolated average for total pop.	2,779	34,961	61,928		

(*) This sector includes many conglomerates (e.g. Private Equity or large conglomerates) cover more sectors at SGU level. They have often disaggregated because of the difficulty to manage CRC compliance for a diverse business that is managed at arm's length. Despite the complexity of their businesses, the average cost is in line with other sectors.

(**) There were no survey respondents in the Extra Territorial and Public Admin & Defence SIC codes. We have therefore estimated costs using an average of the costs of the other SIC codes.

Extrapolation of costs to whole population - SIC codes

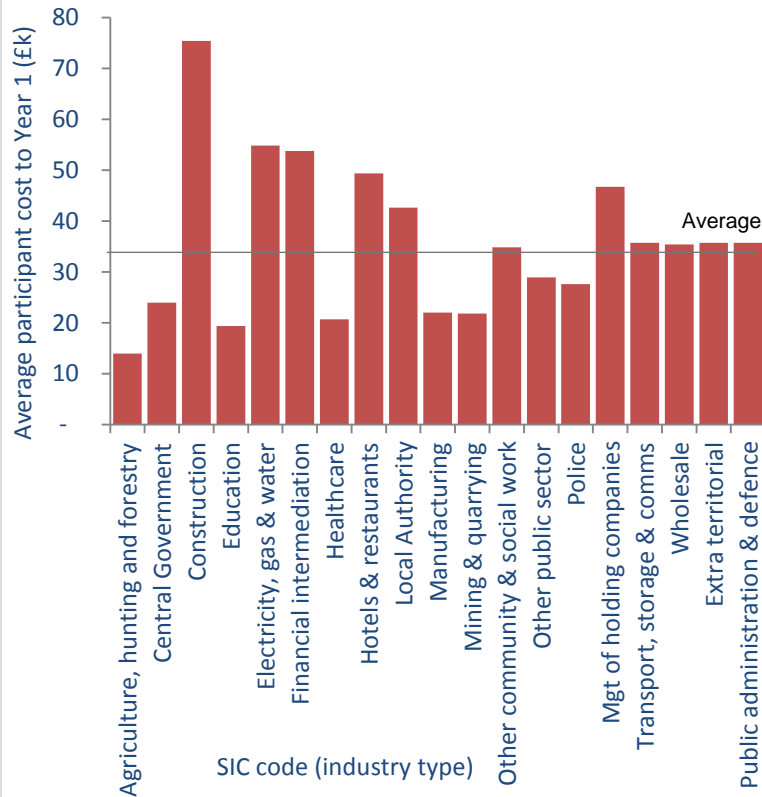
Tier 2 Analysis Costs Incurred from the CRC

Average costs incurred in the first year of the scheme, applying the SIC code strata were approximately £35k for the first year only.

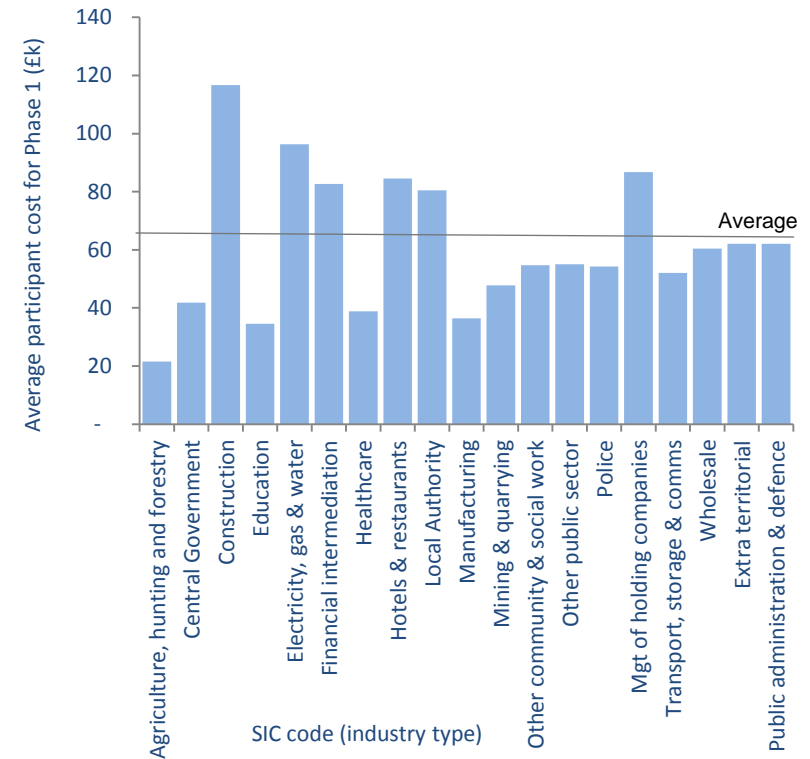
Recognising that annual reporting will be required in each of years 1 to 4 of the first phase, this brings the average participant cost for the four years of the scheme to approximately £62k.

But many sectors are significantly different to this as shown by the graphs here. The primary drivers appear to be complexity and a preference/need to seek external support on issues such as boundaries. Private sector organisations tend to incur the highest costs of compliance, although complex local authorities are also above average costs.

Average costs across strata – Year 1 and before



Total costs across strata – Phase 1



- The construction, utilities, financial sector, hotels/restaurants, local authorities and those entities acting as holding companies have also borne considerably more costs than other sectors. This is understandable as these businesses tend to be much more complex, multi-site and multi-business entities.
- We believe that education (e.g. Universities), healthcare (e.g. NHS Trusts) and agricultural sectors on average have lower costs because they are often simpler organisations operating from a small number of sites. The same is also true of many mining organisations and manufacturing where there are a small number of energy intensive sites within a participant.
- A limitation of this approach, using the Environment Agency's SIC data, is that those participants who have registered their holding companies as the TopCo have operating companies within them that operate across many of the other sectors identified.

Breakdown of extrapolated sub activity average costs by strata – SIC codes

Tier 2 Analysis
Costs Incurred from the CRC

We calculated the average cost of each macro activity by industry type (SIC code).

This page and the graphical representation on the following page show that the agriculture, hunting and forestry sector has incurred in overall terms the lowest total average participant cost for year 1, across each macroactivity.

Generally there was a proportional trend across each sector as to the prominence of each macroactivity.

However we identified that external costs were significantly higher for construction and financial intermediation participants than for other SIC codes. This is due to the complexity of banks and the construction industry, and choices made by those sectors to seek external support.

SIC cluster	One off costs £	Internal registration £	Footprint report £	Annual report £	External costs £	Total average participant costs Year 1 £	Total average participant costs Phase 1 £
Agriculture, hunting and forestry	1,780	1,555	7,382	610	2,625	13,952	21,549
Central Government	8,533	3,486	4,912	5,437	1,592	23,961	41,806
Construction	11,620	13,734	14,358	13,554	22,140	75,406	116,669
Education	5,384	1,934	3,697	4,200	4,150	19,366	34,557
Electricity, gas & water	14,010	5,815	8,699	9,609	16,714	54,847	96,317
Financial intermediation	10,215	4,911	6,300	6,097	26,239	53,761	82,634
Healthcare	4,662	2,492	4,600	4,832	4,134	20,721	38,794
Hotels & restaurants	11,153	4,438	12,617	10,938	10,232	49,378	84,511
Local Authority	11,098	2,991	10,657	10,836	7,044	42,627	80,488
Manufacturing	5,116	4,296	5,832	4,345	2,447	22,036	36,389
Mining & quarrying	4,619	3,129	5,284	4,395	4,438	21,865	47,800
Other community & social work	15,621	3,282	4,716	6,021	5,230	34,869	54,644
Other public sector	7,211	2,511	8,573	7,533	3,118	28,946	55,044
Police	4,584	1,991	7,704	7,033	6,335	27,647	54,199
Mgt of holding companies	10,359	5,735	7,926	9,594	13,132	46,745	86,692
Transport, storage & comms	9,594	3,574	5,138	5,117	12,297	35,720	52,035
Wholesale	9,762	6,010	7,104	6,655	5,917	35,448	60,471
Extra territorial	8,548	4,229	7,382	6,871	8,693	35,723	62,105
Public administration & defence	8,548	4,229	7,382	6,871	8,693	35,723	62,105

- Financial businesses, construction organisations and, to a lesser extent, those companies that management holding companies and transport sectors, have clearly shown a preference to seek external support and incurred significant external costs. This may be due to the complexity of many of these organisations (e.g. Banks and private equity) or perhaps alternatively an absence of expertise on energy issues in these sectors.
- Public sector bodies such as central government, education, healthcare, police etc appear to have chosen to minimise external costs, spending more time on one-off and footprinting costs. This appears to be a conscious choice to try to develop their own systems and minimise incurred external costs

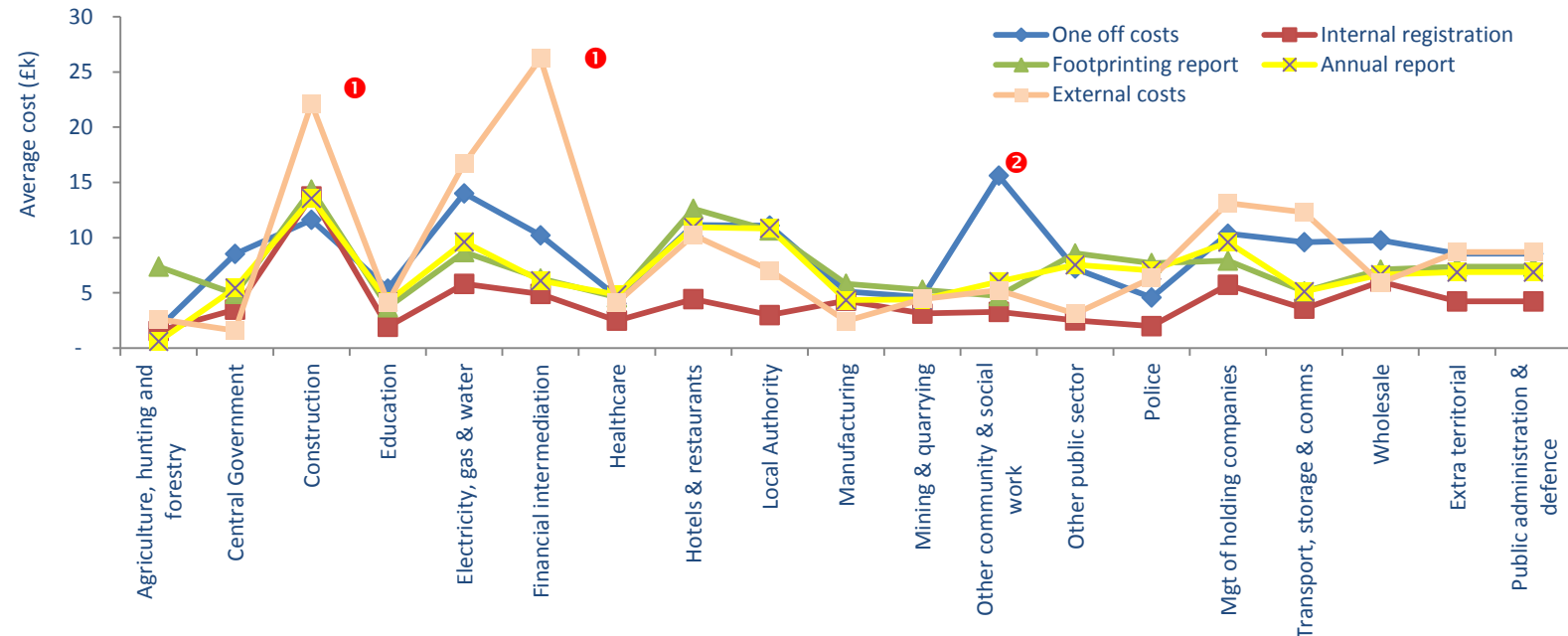
Breakdown of extrapolated sub activity average costs by strata – SIC codes

Tier 2 Analysis
Costs Incurred from the CRC

We identified a trend that costs were generally of the same proportion across SIC code for each macro activity.

We explain the bullets below the reasons we have found for the spikes in the data as indicated.

Average macro activity costs for year 1 and before - SIC codes



- ① Our survey identified a relatively small number of participants who incurred significantly higher external costs than the average for other SIC codes – these were found to be within the financial intermediation and construction sectors as discussed earlier.
- Other similar spikes were seen in the 'management of holding companies' and transport/communications sectors which also have very complicated legal structures/estates that may require external support.
- ② This spike is largely due to two organisations who spent a comparatively long time understanding the scheme and educating the organisation on it. They are varying in size but both are Government departments with a diverse estate of small sites.
- Also of note are the higher one off costs incurred by utility companies and financial institutions, which is to be expected given their complexities, for example identifying organisational boundaries and the decentralised structures inherent in these types of organisation.

Extrapolation of costs to whole population SGUs

Tier 2 Analysis
Costs Incurred from the CRC

This analysis shows our extrapolation of costs on the basis of participants' numbers of SGUs.

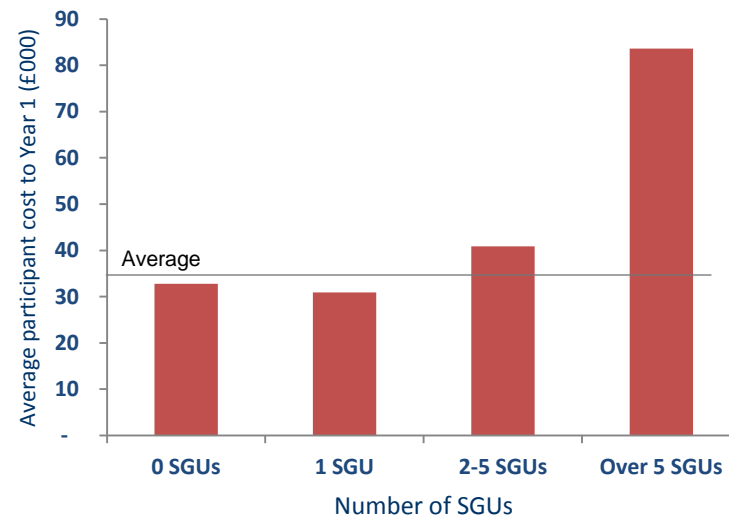
Average costs incurred in the first year of the scheme, applying the SGU cluster strata were approximately £35k, for the first year only.

Recognising that annual reporting will be required in each of years 1 to 4 of the first phase, this brings the average participant cost for the four years of the scheme to approximately £63k.

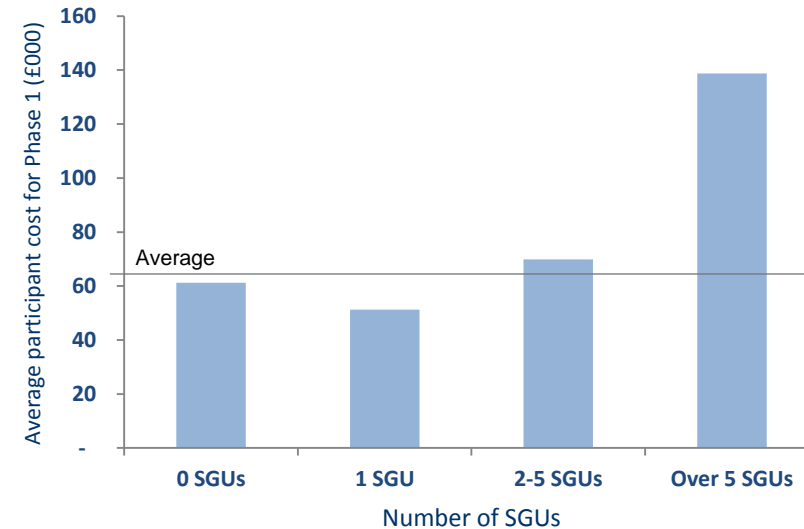
Very clearly costs increase once an organisation reaches a certain complexity, usually at least 2 SGUs but very significantly for those few organisations with more than 5 SGUs.

SGU cluster	No. survey respondents	Average cost per participant Year 1 £	Average cost per participant Phase 1 £	Total population	Survey coverage of strata
No SGUs	450	32,800	61,184	1,752	26%
1 SGU	156	30,890	51,243	580	26%
2 to 5 SGUs	103	40,857	69,877	359	29%
More than 5 SGUs	31	83,577	138,761	88	35%
Average of survey respondents	740	36,365	71,399		
Extrapolated average for total population	2,779	35,050	62,689		

Total costs across strata – First year only



Total costs across strata – First phase



Breakdown of extrapolated sub activity average costs by strata – SGUs

Tier 2 Analysis
Costs Incurred from the CRC

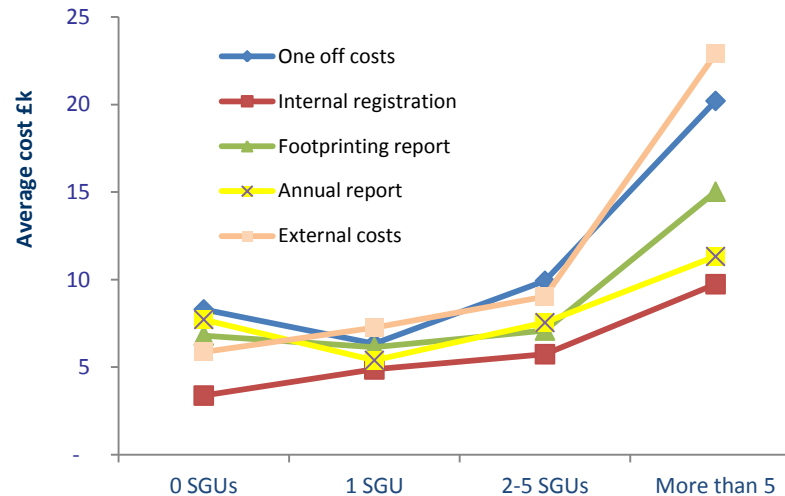
There is a consistent trend within the strata of SGUs that participants with more than 5 SGUs have costs that are higher in this banding for each macro activity.

External costs were significantly higher for the over 5 SGU band, which is consistent with our expectations.

Interestingly, despite the increasing costs as complexity increases, few respondents to the survey prioritised the simplification measures that allowed greater disaggregation of these complex entities which, theoretically, would aid reducing compliance costs.

SGU cluster	One off costs £	Internal registration £	Footprinting report £	Annual report £	External costs £	Total average participant costs Year 1 £	Total average participant costs Phase 1 £
No SGUs	8,298	3,376	6,802	7,719	6,604	32,800	61,184
1 SGU	6,348	4,869	6,141	5,394	8,139	30,890	51,243
2-5 SGUs	9,931	5,739	7,090	7,542	10,555	40,857	69,877
Over 5 SGUs	20,205	9,737	15,021	11,321	27,293	83,577	138,761

Average macro activity costs - SGUs



- Our survey identified that participants across each SGU banding incurred a higher average external cost in comparison to costs for other macro activities.
- It seems peculiar that those with 1 SGU would incur lower one-off, footprinting and annual reporting costs than those with no SGU. This may be simply because the larger have some more experience/specialist resource of energy/carbon management than many of the smaller, simpler participants with no SGUs.
- It is not surprising that participants with one SGU or more took longer to register for the scheme as more information was normally required.
- Participants with more than 5 SGUs incurred the highest average cost at each macro activity stage. Review of the survey results indicates that the majority of these respondents are listed as holding companies as expected and seen elsewhere in our analysis.
- We have seen complex private sector businesses report a spike in external costs when they have to access specialist external help, such as legal advice.
- As you might expect, footprinting activities for participants with >5 SGU is disproportionately higher.

Extrapolation of costs to whole population – Emissions in annual report

Tier 2 Analysis Costs Incurred from the CRC

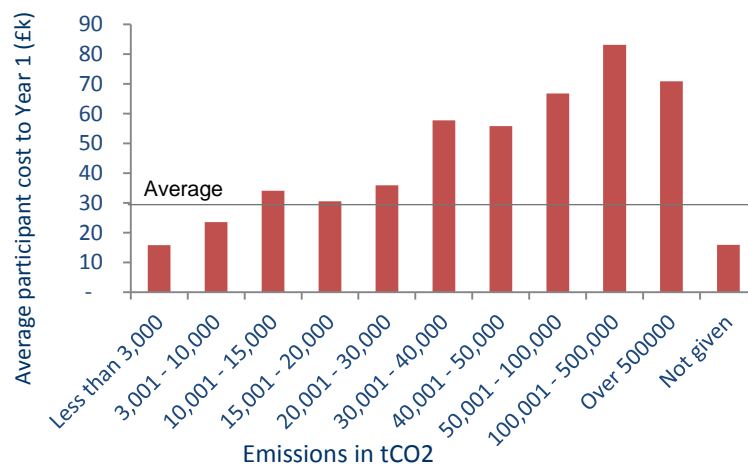
This analysis shows our extrapolation of costs on the basis of participants' emissions as reported in the 2010/11 annual report (what they will be ranked in the league table on, and have to pay for, in future years).

We used data from the EA, supplied via DECC, to split the survey responses.

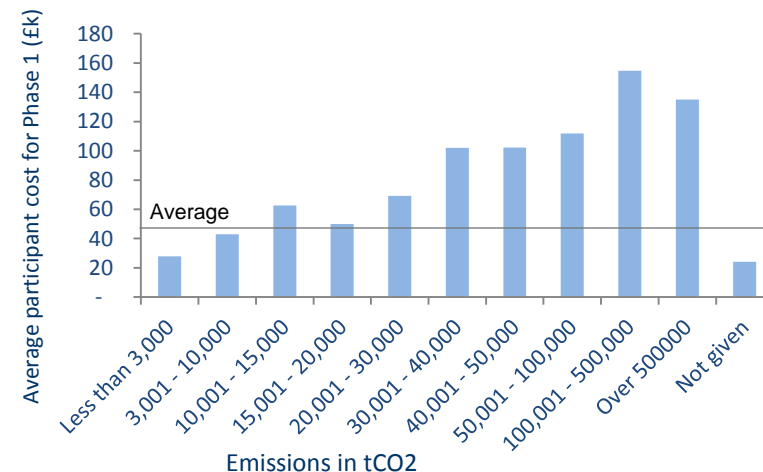
Average costs incurred in the first year of the scheme, applying the emissions bandings strata were approximately £30k for the first year only and are estimated to be £53k for the first phase. The variance between the average for the responses and the extrapolated population is largely due to the number of CCA exempted organisations.

Annual report emissions (tCO2)	No. survey respondents	Average cost per participant Year 1 (£)	Average cost per participant Phase 1 (£)	Total population	Survey coverage of strata
Less than 3,000	49	15,753	27,868	193	25%
3,001 - 10,000	172	23,582	42,841	723	24%
10,001 - 15,000	88	34,057	62,662	276	32%
15,001 - 20,000	67	30,571	49,978	183	37%
20,001 - 30,000	83	35,902	69,265	234	35%
30,001 - 40,000	53	57,729	101,935	127	42%
40,001 - 50,000	28	55,844	102,259	66	42%
50,001 - 100,000	50	66,808	111,945	144	35%
100,001 - 500,000	41	83,206	154,742	87	47%
Over 500,000	7	70,902	135,026	9	78%
'Not given' in EA list	102	15,926	24,203	737	14%
Average of survey respondents	740	36,365	71,399		
Extrapolated average for total population	2,779	30,132	53,016		

Total costs across strata – Year 1 and before



Total costs across strata – First phase



Breakdown of extrapolated sub activity average costs by strata – Emissions in annual report

Tier 2 Analysis
Costs Incurred from the CRC

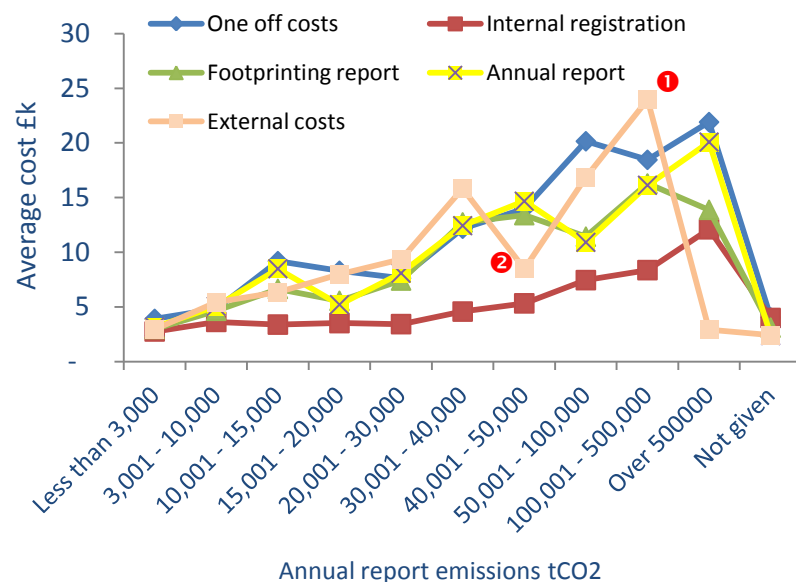
Across the emissions strata we identified relatively consistent internal costs across each banding and that they increase relatively steadily as emissions go up.

We expected to see more of a 'levelling out' of costs as emissions increased as organisations got larger they would get more efficient at data gathering and/or emissions would be concentrated at fewer, more energy intensive sites.

However, this does not appear to happen. This may be because the CRC population excludes organisations with very energy intensive sites as these would have CCAs and therefore they would be reporting no data in annual reports due to CCA exemptions.

Emissions cluster (tCO2)	One off costs £	Internal registration £	Footprinting report £	Annual report £	External costs £	Total participant costs Year 1 £	Total average participant costs Phase 1 £
Less than 3,000	3,903	2,753	2,981	3,157	2,960	15,753	27,868
3,001 - 10,000	4,819	3,628	4,646	5,051	5,438	23,582	42,841
10,001 - 15,000	9,184	3,384	6,646	8,490	6,352	34,057	62,662
15,001 - 20,000	8,305	3,521	5,559	5,208	7,978	30,571	49,978
20,001 - 30,000	7,622	3,424	7,414	8,086	9,356	35,902	69,265
30,001 - 40,000	12,156	4,574	12,731	12,432	15,835	57,729	101,935
40,001 - 50,000	13,976	5,326	13,399	14,672	8,472	55,844	102,259
50,001 - 100,000	20,152	7,449	11,427	10,913	16,867	66,808	111,945
100,001 - 500,000	18,455	8,365	16,289	16,134	23,964	83,206	154,742
Over 500,000	21,908	12,102	13,880	20,082	2,929	70,902	135,026
'Not given' by EA	4,034	3,987	3,111	2,379	2,416	15,926	24,203

Average macro activity costs - Emissions



- Our survey identified that participants across each emissions banding incurred a higher average external cost in comparison to costs for other macro activities.
- All costs increase almost linearly with emissions increased apart from external costs which fluctuate more significantly. Our investigation shows that this seems to be a result of the types of organisation falling within the emissions bands as particular types appear to be predisposed to a certain total emissions banding.
- 1** The 100,001-500,000 tCo2 banding largely comprises utility companies (which is consistent with findings across other strata) which incurred a lot of external costs of compliance due to complex structures.
- 2** The drop for the emissions banding 30,001 to 40,000 tCo2 appears to be because there is a high number of local authorities and NHS trusts in this band, all of whom are likely to be very sensitive to external costs incurred and seek to limit them in the current Government spending cuts.

Extrapolation of costs to whole population - Public / private

Tier 2 Analysis
Costs Incurred from the CRC

This analysis shows our extrapolation of costs on the basis of participants' ownership.

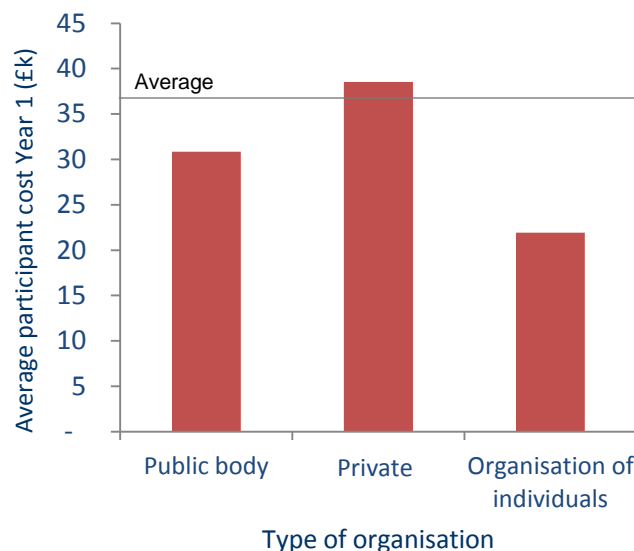
Average costs incurred in the first year of the scheme, applying the public / private organisation strata were approximately £36k, for the first year only.

Recognising that annual reporting will be required in each of years 1 to 4 of the first phase, this brings the average participant cost for the four years of the scheme to approximately £66k

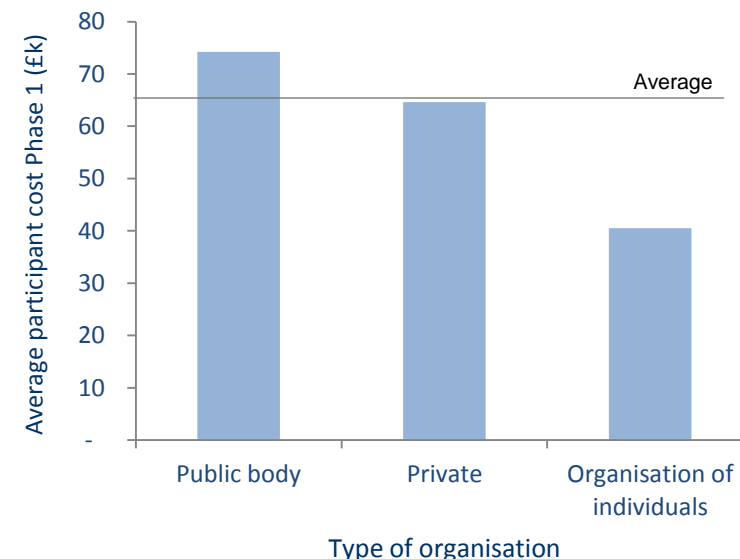
However, whilst public sector compliance costs are 25% less than their peers in the private sector, they anticipate the ongoing costs of the scheme to be >10% more. We believe this is because they generally have simpler boundary issues compared to the private sector but more challenges gathering data on an ongoing basis.

Public / private	No. survey respondents	Average cost per participant year 1 (£)	Average cost per participant phase 1 (£)	Total population	Survey coverage of strata
Public	247	30,855	74,230	616	40%
Private	479	38,525	64,604	2102	23%
Organisation of individuals	14	21,916	40,474	61	23%
Average of survey respondents	740	36,365	71,399		
Extrapolated average for total population	2,779	36,460	66,208		

Average costs across strata – Year 1 and before



Average costs across strata – First phase



Breakdown of extrapolated sub activity average costs by strata – Public / private

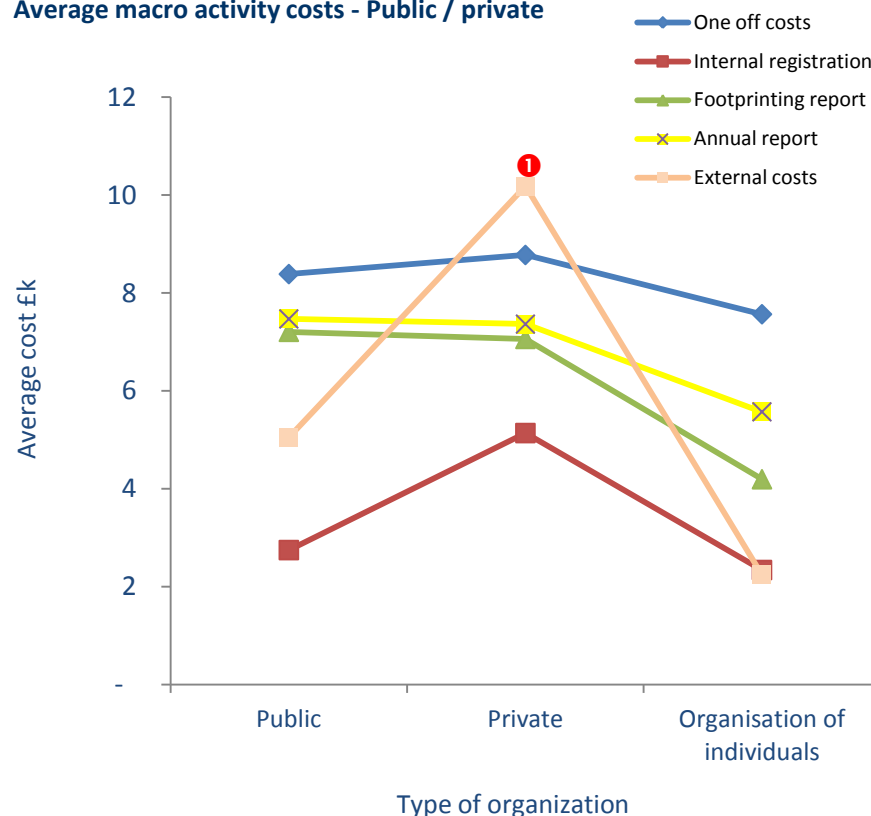
Tier 2 Analysis
Costs Incurred from the CRC

There is a trend across the public/private organisational strata which indicates average costs for organisations of individuals are the lowest for each macro activity. This includes partnerships and similar. They are commonly offices based, simple organisations any many may have a focus on CSR for reputational purposes.

Average costs for public and private bodies are relatively consistent across each macro activity, although private sector organisations incur typically higher external costs than their public sector counterparts.

Public / private	One off costs £	Internal registration £	Footprinting report £	Annual report £	External costs £	Total average participant costs Year 1 £	Total average participant costs Phase 1 £
Public	8,386	2,748	7,207	7,470	5,044	30,855	74,230
Private	8,777	5,138	7,062	7,365	10,183	38,525	64,604
Organisation of individuals	7,566	2,340	4,195	5,572	2,243	21,916	40,474

Average macro activity costs - Public / private



- The scale of costs between the ownership structures appears relatively consistent except in the external costs for private sector organisations. **1** As seen in other strata analysis, some private sector organisations appear to have shown a preference or need to seek support, particularly legal advice, new software and outsourced CRC compliance.
- The more cost sensitive and simpler (e.g. Single campus/site Universities and NHS Trusts) public sector organisations may have chosen to focus on internal compliance rather than seek external help.
- Organisations of individuals are also possibly simpler and required less external support, as well as generally lower other costs.
- One unusual number we have not found a direct explanation for is the lower internal registration costs incurred by public sector bodies. This may simply be because they have simpler organisational boundaries and they do not have to register SGUs.

Extrapolation of costs to whole population - CCA exemptions

Tier 2 Analysis
Costs Incurred from the CRC

This analysis shows our extrapolation of costs on the basis of participants' CCA exemption status

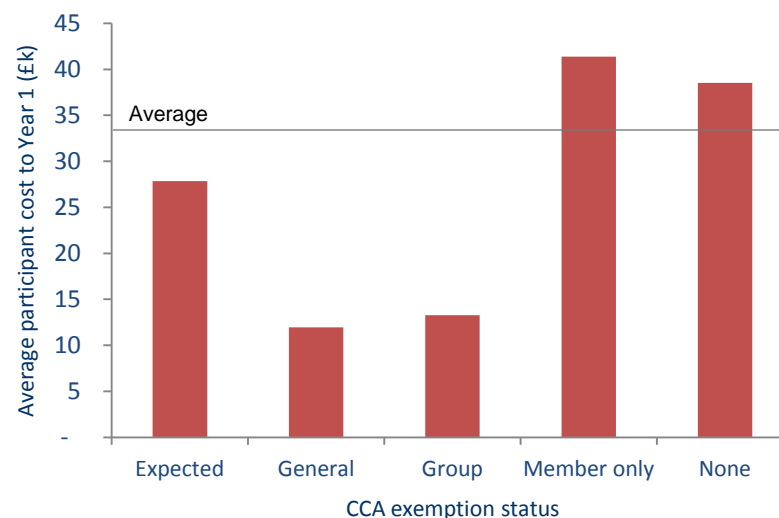
Average costs incurred in the first year of the scheme, which includes applying for CCA exemption status, were approximately £33k, for the first year only.

Recognising that annual reporting will be required in each of years 1 to 4 of the first phase, this brings the average participant cost for the four years of the scheme to approximately £59k.

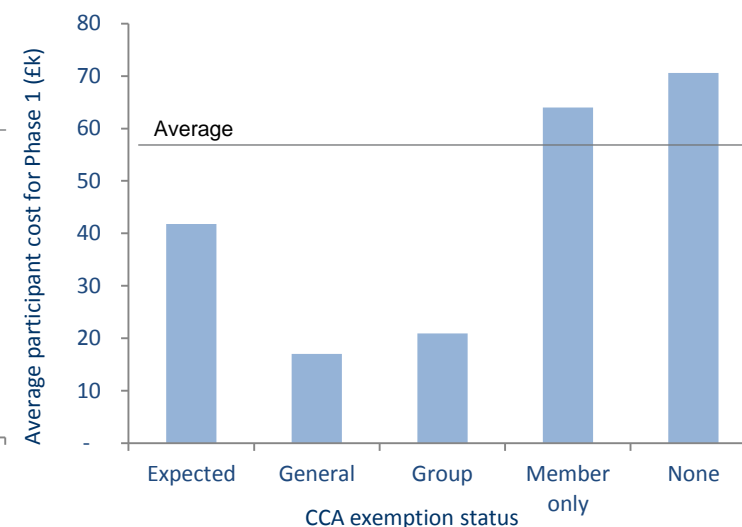
As expected, those with General or Group exemptions have significantly lower administrative costs arising from exclusions than those with only partial (member) or no exemptions. They do estimate some costs however in terms of maintaining records, liaising with the EA, confirming exemption and, in a few cases, may choose/believe they have to keep evidence packs.

CCA exemption status	No. survey respondents	Average cost per participant Year 1 (£)	Average cost per participant Phase 1 (£)	Total population	Survey coverage of strata
Expected	1	27,864	41,775	98	1%
General	20	11,954	17,010	381	5%
Group	71	13,284	20,945	134	53%
Member only	78	41,370	63,973	218	36%
None	570	38,541	70,588	1,948	29%
Average of survey respondents	740	36,365	71,399		
Extrapolated average for total population	2,779	33,524	59,314		

Average costs across strata – Year 1 and before



Average costs across strata – First phase



Breakdown of extrapolated sub activity average costs by strata - CCA exemptions

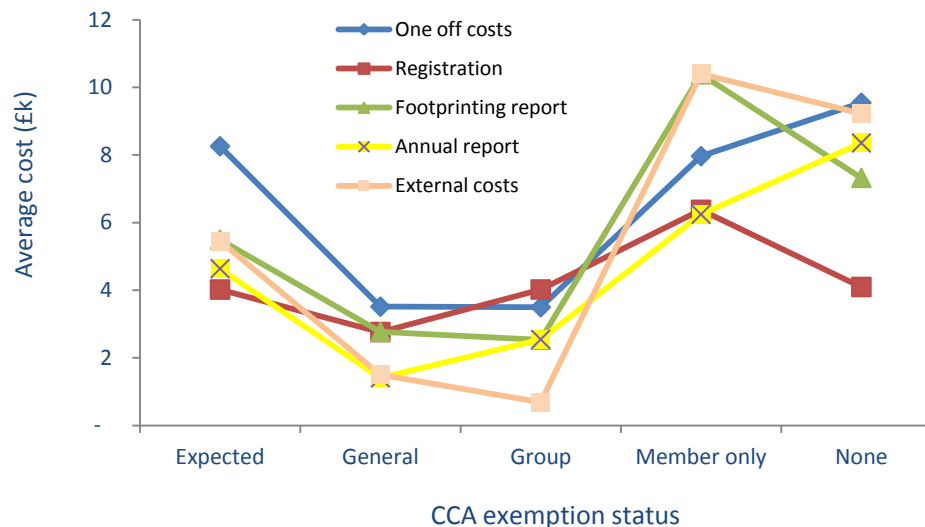
Tier 2 Analysis
Costs Incurred from the CRC

Those participants with member exemptions have incurred higher footprinting and registration costs compared to the rest of the population because it has generally been more complex to register for the scheme and determine organisational boundaries with partial CCA coverage.

This analysis shows one of the greatest variances between the average costs per strata. Whilst confirming the CCA exemption rule can save administrative time for those with Group and General exemptions, there is a surprising similarity of cost for those with Member exemptions compared to no exemption (although annual costs are lower for those with Member exemptions there is more cost incurred in determining the reporting boundaries as a result of the exemption rules.).

CCA exemption	One off costs £	Internal registration £	Footprinting report £	Annual report £	External costs £	Total average participant costs Year 1 £	Total average participant costs Phase 1 £
Expected	8,257	4,020	5,498	4,637	5,453	27,864	41,775
General	3,513	2,762	2,769	1,405	1,505	11,954	17,010
Group	3,497	4,020	2,535	2,546	686	13,284	20,945
Member	7,964	6,376	10,388	6,242	10,399	41,370	63,967
None	9,544	4,095	7,324	8,354	9,223	38,541	70,588

Average macro activity costs - CCA exemptions



- We have analysed the industries across which general exemptions primarily apply and have found that these largely cover manufacturing organisations, which can include large, decentralised and complex structures, and which resultantly have high numbers of HHMs. This is also consistent with the distribution of CCAs within industry.
- General exemptions, the simplest of all, clearly come with much smaller administrative costs which also reflects the way the scheme was designed.
- Theoretically there should be no annual reporting costs but some participants have indicated they intend to keep some CRC records and continue to note exemptions. Strictly speaking, this are options not mandated administrative costs but we have included it here for completeness and because the costs would not occur were they not in the CRC.
- It appears that member exemptions have generally required external support to obtain them

Extrapolation of costs to whole population - Geographical distribution

Tier 2 Analysis
Costs Incurred from the CRC

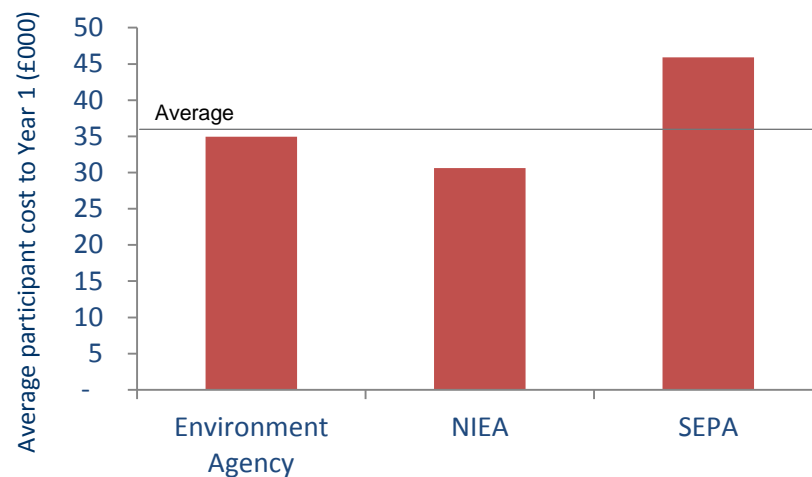
This analysis shows our extrapolation of costs on the basis of participants' geographical location.

Average costs incurred in the first year of the scheme, applying the geographical distribution status strata were approximately £36k, for the first year only which is very close to the average for the sample set.

However, there is a significant variance between the average for our survey responses and the extrapolation to the total population. This may be reflective of the surprising variance in costs between the regions. We would expect to see broadly similar average costs between the regions but Scotland (SEPA) incurred administrative costs nearly 50% higher than Northern Ireland. This is because there were three particularly large national participants headquartered there.

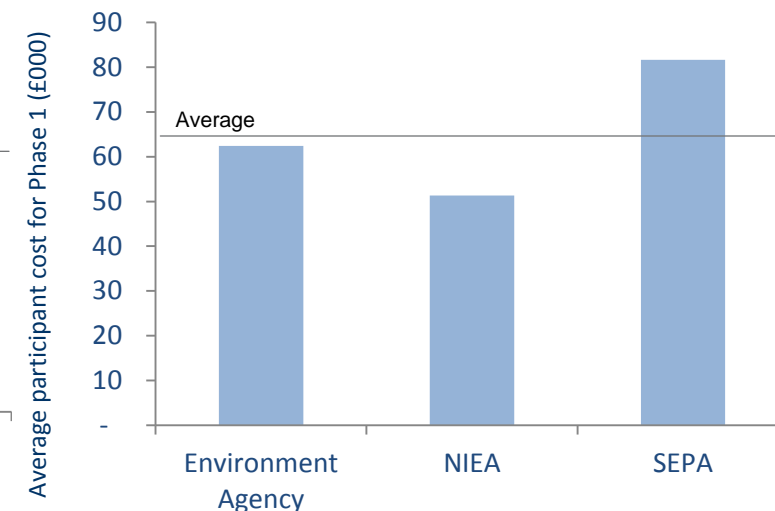
Location cluster	No. survey respondents	Average cost per participant Year 1 (£)	Average cost per participant Phase 1 (£)	Total population	Survey coverage of strata
Environment Agency	669	34,947	62,414	2,529	26%
Northern Ireland Environment Agency	21	30,610	51,356	71	30%
Scottish Environment Protection Agency	50	45,892	81,637	179	28%
Average of survey respondents	740	36,365	71,399		
Extrapolated average for total population	2,779	35,541	63,370		

Average costs across strata – Year 1 and before



Geographical location (regulatory body)

Average costs across strata – First phase



Geographical location (regulatory body)

Breakdown of extrapolated sub activity average costs by strata - Geographical distribution

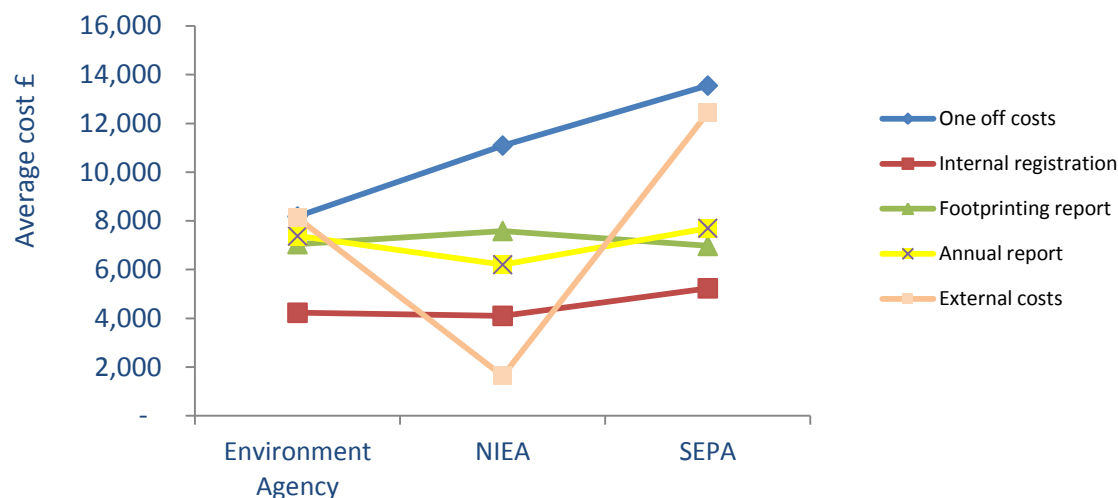
Tier 2 Analysis
Costs Incurred from the CRC

The significant difference in average costs between the regions appears to be clearly as a result of the variance in average external costs incurred, ranging from £1,600 in Northern Ireland (NIEA) to £12,400 in Scotland.

This may be reflective of the market environment, cultural preferences, industry distribution or because our sample size was much smaller in the Scottish and Northern Ireland regions, biasing the results.

Geographical location	One off costs £	Internal registration £	Footprinting report £	Annual report £	External costs £	Total average participant costs Year 1 £	Total average participant costs Phase 1 £
Environment Agency	8,179	4,227	7,046	7,378	8,118	34,947	62,414
NIEA	11,092	4,099	7,585	6,201	1,632	30,610	51,356
SEPA	13,552	5,230	6,972	7,697	12,441	45,892	81,637

Average macro activity costs - Geographical distribution



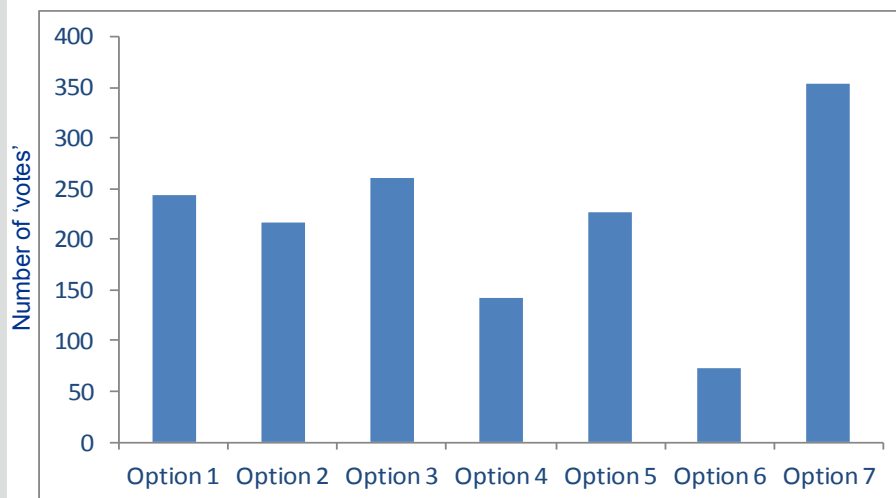
We asked respondents to select the two simplification options which would reduce their administrative costs the most.

Of the 740 respondents, 43 did not complete this voluntary section of the survey. Of the remainder, a number selected more than two options.

The results indicate that of those respondents who selected two options as requested, the majority opted to move to fixed price allowance sales, with the reason that this would aid budgetary control.

However the next four preferred options were surprisingly balanced but three clearly focussed on making qualification and registration simpler.

Preferred simplification options for the CRC



Option	Simplification approach
1	Reduce number of fuels in CRC
2	Simplify qualification process
3	Reduce data retention requirements
4	Improve quality of annual statements
5	Reduce overlap between climate change instruments
6	Allow more scope for disaggregation
7	Move to fixed price allowance sales

- The most popular simplification option selected by respondents was the move to fixed price allowance sales. This is surprising in many ways because a third of survey responses said that they estimated they would spend less than four days on carbon trading, far less than they did on other CRC compliance activities.
- This may be an indication of a desire for budgetary stability/certainty than a way of reducing administrative costs. We identified quotes from survey respondents such as “We would appreciate moving to fixed price sales for the foreseeable future, as opposed to auctions, as in these uncertain times for business an unforecastable cost could be very damaging”; and “the ability to budget effectively is very important and without fixed price allowance sales time would need to be taken in running sensitivity analysis on what the price might be. Additional expense might also be incurred through the need to seek expert advice on understanding the market to feed information into any sensitivity analysis.”
- However, we do know that two thirds of responses said that they estimated four days or more per year would be spent on carbon trading and we do not know how many more days this could be.
- Many participants also wanted simpler data retention requirements which could save administrative costs each and every year through a simpler approach to evidence packs. Surprisingly, the option for better annual statements, something that could make data retention easier was not very popular.
- Similarly, greater scope for disaggregation proved unpopular, although this generally only applies to the private sector and so many public sector participants may not have considered this, skewing the response rate slightly.

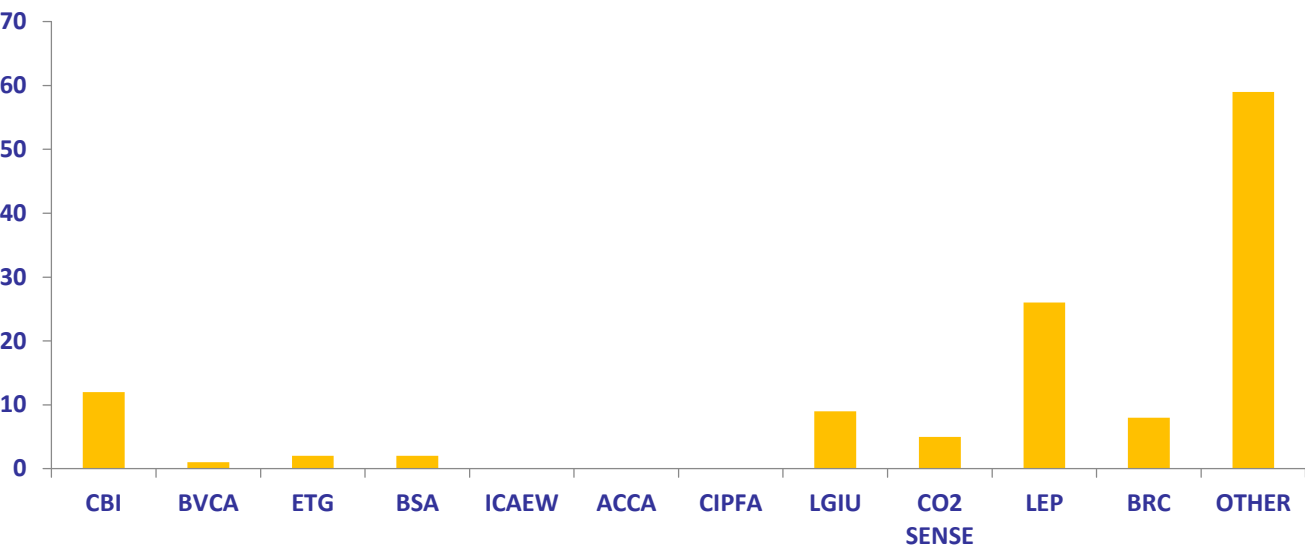
Did any organizations ask you to complete this survey?

DECC and KPMG contacted a number of relevant membership organisations to request them to encourage their members who were CRC participants to complete the survey.

Responses from the survey indicate that participants were encouraged by the organisations in only 124 cases.

Understandably, DECC and the Environment Agency were cited as the organisation who most significantly encouraged completion of the survey by respondents.

Number of survey respondents who were encouraged by membership organizations to complete the survey



'Other' organisations who encouraged participants to complete the survey included (most significantly):

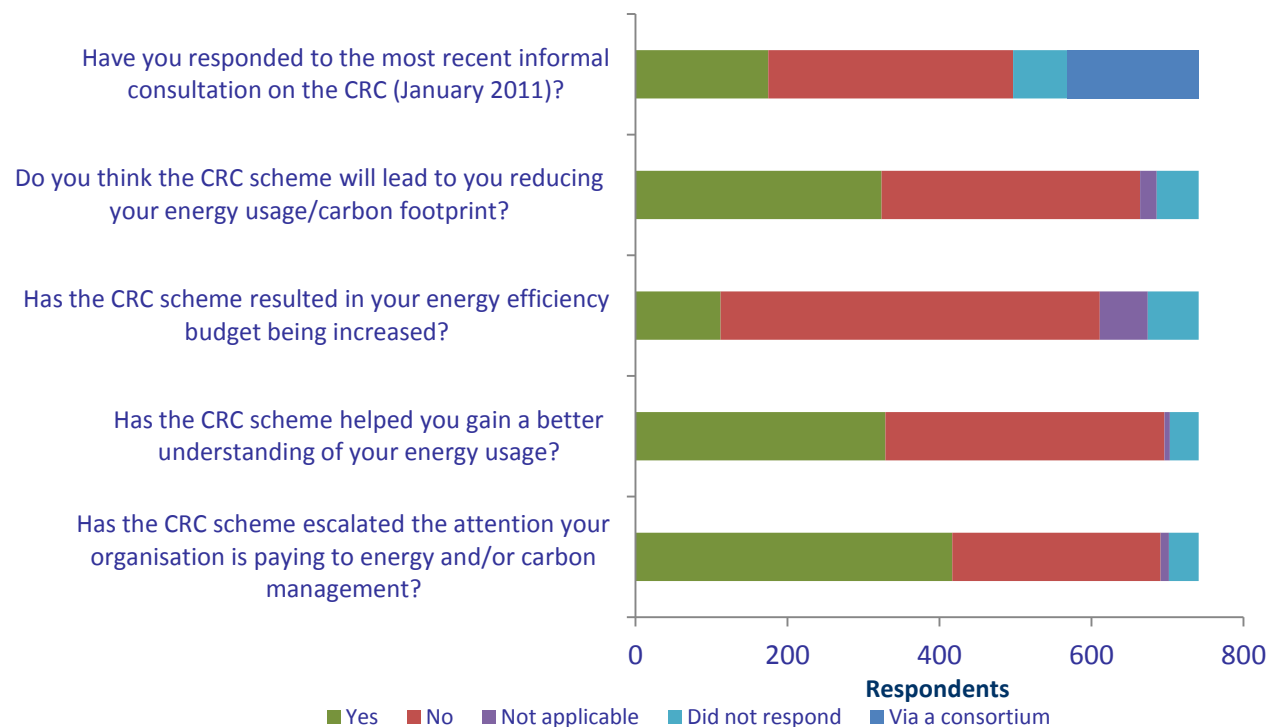
- DECC
- Environment Agency
- KPMG
- Landmark
- UPKIA
- Water UK

Within the 'voluntary' section of the survey we asked respondents to answer a number of qualitative questions around the CRC.

We set out the responses to five key questions in this graph.

Of key note on this page is that, despite the administrative time incurred as a result of the CRC, the policy has had a significant impact on participant's approach to energy management and around half report that they have increased the attention they have paid to it.

The implication is that the CRC has resulted in better energy management at around 1400, or half) of the UK's non-intensive high energy users.



- Almost 50% of respondents did not respond to the most recent consultation on the CRC. Of those respondents that did, half of the responses were given as part of a consortium.
- Approximately half of respondents believe that the CRC scheme will lead to reductions in energy usage and carbon footprint.
- Nearly 70% of respondents report that their energy budget has not been increased as a result of the CRC.
- Nearly half of the respondents confirmed that the CRC had helped them gain a better understanding of energy usage; and
- Over 50% of respondents agreed that the CRC scheme has escalated the attention their organisation is paying to energy and carbon management.

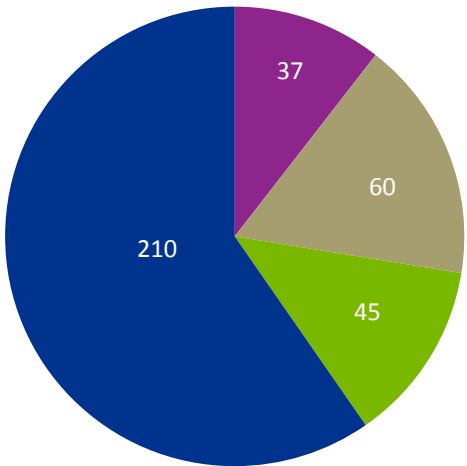
The majority of respondents did not consider the anticipated time spent on carbon trading, or did not respond.

However, of the respondents who did consider the time spent, almost 30% reported that they estimated they would spend over 4 days on carbon trading.

However, respondents largely reported that they spent less than 20% or 21-40% of total carbon management time exclusively on the CRC.

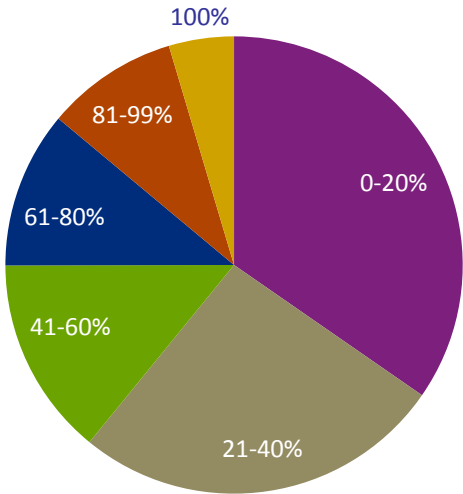
Only 34 of 740 respondents consider that they spend 100% of their carbon management time exclusively on the CRC implying they were doing no carbon/energy management before the scheme was introduced.

Respondents' estimates of anticipated time spent on carbon trading



■ 1 day ■ 2 days ■ 3 days ■ 4+ days

Respondents' proportions of total carbon management time spent exclusively on the CRC



- Out of the 740 respondents to our survey, 352 (47%) provided an estimate of time that they would spend on carbon trading. The majority (210 respondents) indicated that they anticipated spending four days or more on carbon trading.
- Using the SCM we have derived an estimated average cost of the time spent on carbon trading, based on middle managers undertaking this role at £26.05 per hour, and assuming a seven hour day. We estimate the average cost per day to be £182.35 per participant.
- Therefore, respondents who provided an estimate of time would incur between £182 (if they anticipated spending one day) and over £729 if they anticipated spending four days or more on carbon trading. This effectively shows that the time burden as a result of the trading activities in the CRC is negligible.
- When asked to estimate the proportion of total carbon management time that was spent exclusively on the CRC, the majority of respondents reported that it took below 40% of the total carbon management time.
- 37 respondents reported that all of their carbon management time was spent exclusively on the CRC, however these respondents were distributed across all SIC codes, with no bias identified towards one industry.



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Appendices

Appendix 1 – Extrapolating respondent costs to form a
'centralised' total

Appendix 2 – Detailed data on survey responses
received per strata

Appendix 3 – The Standard Cost Model

Appendix 4 – The Survey Questionnaire

Appendix 5 – Glossary

As part of our Tier 2 analysis we sought to use the CRC administrative costs as quantified from 740 survey responses, to derive an estimated total for the CRC participant population as a whole. To do this we applied a 'chi squared' calculation, which allowed us to evaluate which of the 'strata' across which we have analysed the survey responses, provided the most reliable estimate of the costs when extrapolated to the CRC participant population.

We used our understanding of the CRC to formulate an expectation as to which strata would best reflect the factors which influence admin costs. Such factors include the size of organisation, nature of activity (which influences emissions levels) and numbers of HHMs.

We concluded that extrapolating using the SIC code strata would provide the most reliable option. This is because we consider that the most influential factor in the level of an organisation's administrative cost is its structure, including the extent to which it operates on a centralised or decentralised basis. Our experience of working with a wide range of CRC participants indicates that organisations in the same SIC code share a very similar organisational structure.

From performing our 'Chi Squared' analysis as part of Tier 1, we are satisfied that in overall terms the categories are fairly represented. We now need to understand however that other factors within each SIC code are broadly equally distributed, for example, ensuring that SIC codes are not overly represented by either small or large organisations, because this would skew the data in the codes. We would expect that the majority of variation within the SIC codes would be most evident in the following 2 codes:

- **Manufacturing:** There is a very broad range of organisations within this SIC code, ranging from a local supplier with a relatively simple, centralised structure, which may however utilise over £1 million in energy each year, to organisations such as car manufacturers, operating nationally and globally on a decentralised basis.
- **Local authorities:** These range from large scale unitary authorities (comprising both county and metropolitan borough councils combined) to small district councils, each offering a different combination of public sector services. The main factor which can influence the administrative costs across this SIC code is whether or not the Council maintains schools and also owns housing stock.

Both these significant factors indicate that there is likely to be a vast range of administrative cost associated with different organisations.

We have reviewed the responses to the survey in comparison to the total population and can conclude that there is no evident bias towards size or other factor in these populations.

Therefore to derive a 'central' estimate of costs for our data we will apply the extrapolation based on SIC codes, recognising that, whilst manufacturing may be under-represented and local authorities over-represented, this does not bias the reliability of the extrapolation, because we are satisfied that within these SIC codes there is a generally even distribution of organisations within those codes in terms of size, emissions, HHMs etc.

We also recognise that there are a number of SIC codes where the respondent numbers are very small (under 5) and as such we have evaluated their overall impact on the extrapolated 'central' cost. This is to ensure we account for the possibility that each item is unrepresentative of the total.

Our calculation can be seen on the following page, and has been performed both to include all SIC codes (regardless of population and responses in smaller codes) and SIC codes with over 5 responses only. This is to demonstrate that the impact of excluding smaller SIC codes to provide a more robust extrapolation, does not materially distort the overall total.

The impact of excluding those SIC codes with less than 5 respondents has been calculated as being £0.3m, which constitutes 0.28% of the total value.

Extrapolating respondent costs to form a total

The table below shows the detail of the responses for the SIC strata which our chi-squared analysis indicated was the most representative strata within the survey responses and therefore the most appropriate to use for extrapolation to the total average costs of the scheme.

SIC code / industry	Survey responses	Average cost for Year 1	Average cost for Phase 1	Total population
Agriculture, Hunting and Forestry	2	£13,952	£21,549	20
Central Government / NDPB	38	£23,961	£41,806	85
Construction	6	£75,406	£116,669	14
Education	44	£19,366	£34,557	133
Electricity, Gas & Water Supply	8	£54,847	£96,317	19
Financial Intermediation	18	£53,761	£82,634	105
Healthcare including NHS	60	£20,721	£38,794	188
Hotels and Restaurants	11	£49,378	£84,511	50
Local Authority	96	£42,627	£80,488	199
Manufacturing	131	£22,036	£36,389	698
Mining and Quarrying	7	£21,865	£47,800	30
Other Community, & Social	20	£34,869	£54,644	87
Other public sector	7	£28,946	£55,044	26
Police	11	£27,647	£54,199	26
Mgt of holding companies	227	£46,745	£86,692	899
Transport, Storage & Comms	27	£35,720	£52,035	74
Wholesale and Retail Trade etc	27	£35,448	£60,471	122
Extra territorial (*)	0	£35,723	£62,105	1
Public admin & defence (*)	0	£35,723	£62,105	3
TOTAL	740			2,779

Detailed data on survey responses received per strata

Appendix 2

SIC Codes	Total population	25% target level	Responses received	Coverage of total
Agriculture, hunting and forestry	20	5	2	10%
Central Government / NDPB	85	21	38	45%
Construction	14	4	6	43%
Education	133	33	44	33%
Electricity, gas & water supply	19	5	8	42%
Financial intermediation	105	26	18	17%
Health & social work (inc NHS)	188	47	60	32%
Hotels and restaurants	50	13	11	22%
Local authority	199	50	96	48%
Manufacturing	698	175	131	19%
Mining and quarrying	30	8	7	23%
Other community& social	87	22	20	23%
Other public sector	26	7	7	27%
Police	26	7	11	42%
Mgt of holding companies	899	225	227	25%
Transport, storage & comms	74	19	27	36%
Wholesale and retail trade etc	122	31	27	22%
Extra territorial	1	0	0	0%
Public admin & defence	3	1	0	0%
TOTAL	2,779	695	740	

Detailed data on survey responses received per strata

We agreed with the DECC team that we would aim for a response level of 25% across each strata, to maximise the robustness of the data. We have set out below the total population for each strata, the 25% target level, and numbers of responses received. The results presented graphically within our Tier 1 analysis.

Half Hourly Meters (HHMs)	Total population	25% target level	Responses received	Response coverage of total population
0 HHMs	11*	3	0	0
1-5 HHMs	907	227	197	22%
6-10 HHMs	547	137	106	19%
11-25 HHMs	566	142	166	29%
26-50 HHMs	332	83	109	33%
51-100 HHMs	202	51	73	36%
101-250 HHMs	116	29	52	45%
251-500 HHMs	51	13	18	35%
501-1000 HHMs	27	7	9	33%
Over 1000 HHMs	20	5	10	50%
TOTAL	2,779	695	740	

Public or private	Total population	25% target level	Responses received	Response coverage of total population
Public	616	154	247	40%
Private	2,102	525	479	23%
Organisation of individuals	61	15	14	23%
TOTAL	2,779	695	740	

*expected to be Government departments that are mandatorily placed within the scheme even though they have no HHMs

Detailed data on survey responses received per strata

Appendix 2

Emissions	Total population	25% target level	Responses received	Response coverage of total population
Less than 3,000	193	48	49	25%
3,001 - 10,000	723	181	172	24%
10,001 - 15,000	276	69	88	32%
15,001 - 20,000	183	46	67	37%
20,001 - 30,000	234	59	83	35%
30,001 - 40,000	127	32	53	42%
40,001 - 50,000	66	17	28	42%
50,001 - 100,000	144	36	50	35%
100,001 - 500,000	87	22	41	47%
Over 500,001	9	2	7	78%
'Not given' in EA list	737	184	102	14%
TOTAL	2,779	695	740	

Detailed data on survey responses received per strata

Appendix 2

Number of SGUs	Total population	25% target level	Responses received	Response coverage of total population
No SGUs	1,752	438	451	26%
1 SGU	560	145	156	27%
2 to 5 SGUs	359	90	103	29%
More than 5 SGUs	88	22	31	35%
TOTAL	2,779	695	740	

Public or private	Total population	25% target level	Responses received	Response coverage of total population
Public body	616	154	247	40%
Company	2,102	525	479	23%
Org of individuals	61	15	14	23%
TOTAL	2,779	695	740	

*whilst this is a surprisingly low coverage compared to the overall population, we felt that more than 100 responses does represent an acceptable level of coverage within this strata

Detailed data on survey responses received per strata

Appendix 2

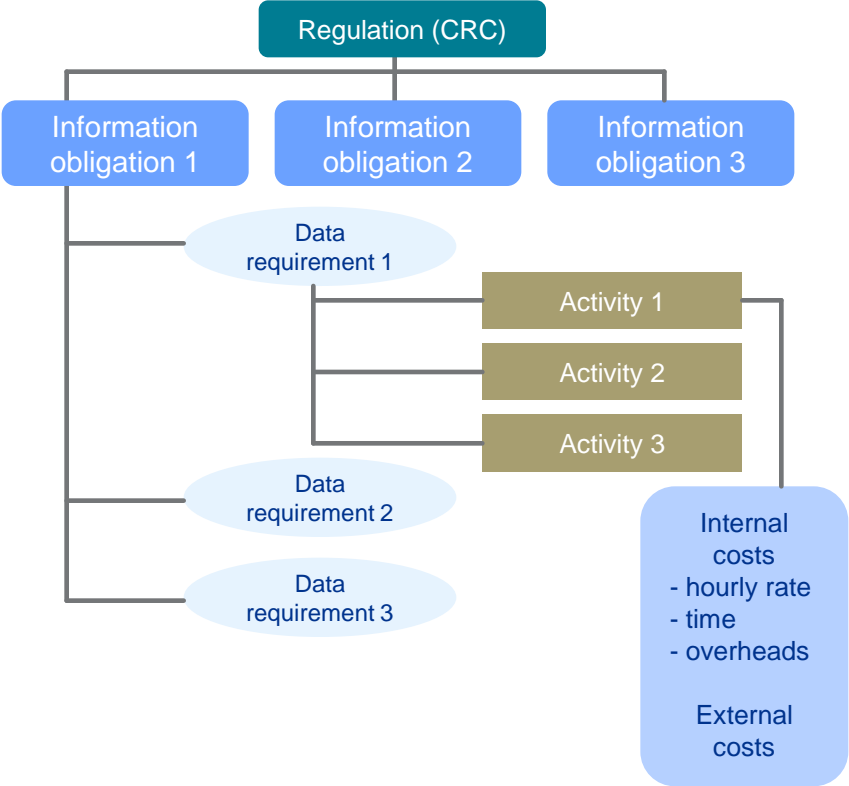
CCA exemptions	Total population	25% target level	Responses received	Response coverage of total population
Exemption expected	98	25	1	1%*
Group exemption	381	95	71	19%
General exemption	134	34	20	15%
Member only exemption	218	55	78	36%
No exemption	1948	487	570	29%
TOTAL	2,779	695	740	

Geographical distribution	Total population	25% target level	Responses received	Response coverage of total population
Environment Agency	2,529	632	669	26%
NIEA	71	18	21	30%
SEPA	179	45	20	28%
TOTAL	2,779	695	740	

*this is a disappointingly low coverage level but, given the low nature of this population and the likelihood that all of these participants will ultimately join one of the other four groups in this strata, it is not felt that this will skew the results significantly.

To assess the administrative burden on participants of complying with the CRC, we applied the Standard Cost Model (SCM). This widely accepted international model provides a simplified and consistent approach for estimating administrative burdens imposed on businesses by central government.

The structure of the SCM is set out below and illustrates how the different administrative costs are identified. The CRC requires that participants meet specific information obligations. To meet each information obligation, data is required to ensure compliance which in turn requires a range of administrative activities to be undertaken. The SCM estimates the costs of completing each of these activities.



To keep our survey as simple as possible for participants to complete, we asked respondents to provide estimates of days spent for four categories (grades) of staff. We also provided classification descriptions to help them classify employees accordingly. The staff categories were:

- Directors and Department Heads (these individuals include the Director or Department Head reviewing and signing the CRC submission)
- Senior Management (Departmental managers etc)
- Middle Management (Staff such as analysts and energy manager roles)
- Administrators (Secretarial and data entry staff etc).

We recognise that Annex 2 of the SCM however provides over 200 occupation groups, each with a separate hourly cost. In order to align the above staff categories with meaningful comparators from the SCM model we selected the following SCM occupation groups which are the most closely aligned to our four staff categories:

Survey staff category	Equivalent SCM occupation group	Hourly rate per SCM
Directors and Department Heads	1112 – Directors and Chief Executives of major organisations	£61.04
Senior Management	111 – Corporate Managers and Senior Officials	£44.71
Middle Management	113 – Functional Managers	£26.05
Administrators	41 - Administrative Occupations	£10.49

We then assumed a seven hour day when converting numbers of days stated by respondents, to hours.

The limitations of this approach should be recognised.

Source: Cabinet Office Better Regulation Executive 'Measuring Administrative Costs: UK SCM Manual 2005

Assessment of the administrative costs of the CRC

Thank you for taking the time to complete this questionnaire, which is being undertaken by KPMG LLP on behalf of the Department of Energy & Climate Change (DECC).

The purpose of this survey is to allow us to capture and quantify the administrative time and costs which have been incurred by CRC participants. By drawing directly on participants' experience, this survey will help to inform DECC's proposals to simplify the scheme. The proposals will then be subject to consultation in early 2012.

For this survey, it is particularly important that we get a clear understanding of the **additional costs arising as a result of the CRC** and differentiate those from existing carbon reporting / carbon management costs, or those arising from schemes such as CCA or EU ETS.

The survey should take 20-40 minutes to complete. As a gesture of thanks, KPMG LLP will make a donation to the East Africa Crisis Appeal for every completed response. We will also share the consolidated results with all respondents by sector. **All information you provide in your survey response will be treated as confidential.**

Our survey is structured in the following sections:

- Section 1: **Organisational details.** Here we ask you for basic details of your organisation to allow us to understand your business more readily.
- Section 2: We ask you to set out for us total **INTERNAL time** spent on the following aspects of the CRC, which we will then calculate costs from at a standard rate:
 - *Internal one off costs:* Time incurred directly from the introduction of the CRC.
 - *Internal registration costs:* Time spent on registering for the CRC.
 - *Internal footprinting costs:* Time spent on compiling your footprint report.
 - *Internal annual reporting costs:* Time incurred producing your annual report. (This is by far the longest section of the survey but also the most important. Please bear with us!)
- Section 3: **EXTERNAL costs** incurred in complying with the CRC.
- Section 4: Allows participants to provide their views on the **proposed approaches for simplification.**

We encourage you to be open and honest during the completion of this questionnaire, providing as much information as you are able to, but remembering the need to be fair in your reporting of CRC and carbon management costs.

We fully expect you will need to make some estimates and assumptions. We have been asked by DECC to conduct a sample of follow up interviews to understand the data better.

You will find it useful to have your CRC registration documents as well as your annual and footprint reports to hand. We would expect this survey to be completed by the primary or secondary contact.

Please provide the email address **your invitation was sent to** on the following page. This will create your unique log on.

We ask that you complete all questions but if you are short on time you may skip any questions marked (Voluntary).

This survey's answers can be saved during completion. When you 'save' your partially completed survey, you will receive a second email link. This will allow you to restore a partly completed survey at a later date and only the recipient of the email link will be able to access the partially completed survey. This is to ensure complete confidentiality of information.

Please use the buttons at the bottom of each page (Back and Next) to navigate your way through the survey. Using the browser navigation buttons may cause you to lose data.

Please note that any answers will not be submitted until you have clicked Submit button on the final page and the survey will time-out if it is unattended for 30 minutes and re-direct you to this introduction page.

SECTION 1: ORGANISATIONAL DETAILS (PAGE 1 OF 1)

What is your CRC participant number?

Your name:

Your telephone number:

What is your position in your organisation in relation to the CRC?

- ☐ Senior Officer
- ☐ Primary Contact
- ☐ Secondary Contact
- ☐ Consultant
- ☐ Other

Which term best describes your organisation?

- | | |
|-------------------------------|----------------------|
| • Chemicals/Industrial | • Private Equity |
| • Infrastructure/Construction | • Conglomerate |
| • Utilities | • Local Authority |
| • Manufacturing/Warehousing | • Central Government |
| • Commercial/Retail | • Higher Education |
| • Telecommunications/Media/IT | • Healthcare |
| • Travel/Leisure/Tourism | • Third Sector |
| • Service sector | • Other |

How many Climate Change Agreements (CCAs) do you have? (please enter 0 if there are no CCAs)

How many sites do you have in the EU ETS? (please enter 0 if there are no sites in the EU ETS)

How many Significant Group Undertakings (SGUs) have you registered? (please enter 0 if there are no SGUs)

How many of the SGUs have been disaggregated? (please enter 0 if there are no SGUs)

Approximately how many energy sources do you have on your source list (in the footprint report)?

Approximately how many of these sources were you able to rule out using the de minimis rule or '90%' rule (number, not percentage)?

Would you be happy for us to contact you to discuss this survey?

What would be your preferred method of contact?

SECTION 2: INTERNAL ONE OFF TIME INCURRED (PAGE 1 OF 4)

'One off' time incurred is that which is incurred as a result of the introduction of the CRC and that is unlikely to reoccur unless the scheme is significantly changed.

We ask for time in days incurred. This should be a standard working day for your organisation or assumed to be 7 hours.

(Mandatory) Please provide the total number of days spent on one-off activities by staff grade, then split that time into the sub-tasks indicated. Please enter 0 where you have incurred no time and remember this is for INTERNAL TIME ONLY. We will ask about external time in a later question. Estimating the split of time is acceptable. Please make sure the sum of the split equals the total. PLEASE NOTE THAT YOU MUST ENTER A RESPONSE INTO EACH FIELD, EVEN IF THAT RESPONSE IS ZERO, IN ORDER TO BE ABLE TO PROGRESS TO THE NEXT QUESTION.

	Directors' and department heads' days	Senior management days	Middle management days	Administrator days
TOTAL TIME FOR ONE OFF TASKS				
Understanding the rules of the CRC (including attending training courses etc)				
Educating the organisation on the CRC (not on energy management in general)				
Other (please describe below)				

If you have said other, please describe below:

GUIDANCE

Note: 'One off' time is DIFFERENT from 'footprint' and 'registration' time incurred, which occurs once per phase of the scheme. Footprint time includes tasks such as determining organisational boundaries and compiling the footprint report. Registration costs are those associated with qualifying for the scheme and disaggregating SGUs. We ask about these later in this question.

Classifying employees:

Please use the following classifications to categorise employees:

- Directors / Department Heads:** These individuals include the Director or Department Head reviewing and signing the CRC submission.
- Senior management:** This category encompasses departmental managers etc.
- Middle management:** This category includes staff such as analysts and energy manager roles.
- Administrators:** Administrators, secretaries, data entry clerks etc.

Classifying costs as one off / footprinting / annual reporting

- One off time incurred:** This time incurred as result of the introduction of the CRC but is unlikely to reoccur unless the scheme is significantly changed. Such time includes learning about the scheme, responding to consultations and identifying your organisational structure.
- Qualification time:** This is the time incurred to determine qualification and register for the scheme.
- Footprinting time:** This occurs once per CRC phase. Examples of tasks include determining your organisational boundaries, identifying energy sources and compiling the footprint report. This *should exclude* time incurred each year of the scheme such as monitoring core sources (as there is an overlap between annual and footprinting activities). This would lead to double counting.
- Annual reporting time:** This refers to time incurred every year of the scheme. Examples include gathering and reviewing data, auditing the data, compiling the evidence pack and integrating acquisitions / new sites.

SECTION 2: INTERNAL TIME INCURRED TO REGISTER FOR THE CRC (PAGE 2 OF 4)

Registering for the CRC occurs once per phase and this should have been completed prior to 30 September 2010.

(Mandatory) Please indicate the total number of days by staff grade you spent registering for the CRC, and then break that time down by the specific sub-tasks. Estimating this split as best as you can is acceptable. Please enter a 0 where you have spent no time. Please make sure the sum of the split time matches the total. PLEASE NOTE THAT YOU MUST ENTER A RESPONSE INTO EACH FIELD, EVEN IF THAT RESPONSE IS ZERO, IN ORDER TO BE ABLE TO PROGRESS TO THE NEXT QUESTION.

	Directors' and department heads' days incurred	Senior management days incurred	Middle management days incurred	Administrator days incurred
TOTAL TIME TO REGISTER				
Determining your organisational boundaries and structure as at 31/12/08				
Identifying your 2008 HHMs and AMR usage				
Understanding and disaggregating your SGUs (if relevant)				
Claiming CCA exemption (if relevant)				
Registering for the CRC scheme				
Other (please describe below)				

If you have expended time on other activities, please describe below:

GUIDANCE

Note: 'One off' time is DIFFERENT from 'footprint' and 'registration' time incurred, which occurs once per phase of the scheme. Footprint time includes tasks such as determining organisational boundaries and compiling the footprint report. Registration costs are those associated with qualifying for the scheme and disaggregating SGUs. We ask about these later in this question.

Classifying employees:

Please use the following classifications to categorise employees:

Directors / Department Heads: These individuals include the Director or Department Head reviewing and signing the CRC submission.

Senior management: This category encompasses departmental managers etc.

Middle management: This category includes staff such as analysts and energy manager roles.

Administrators: Administrators, secretaries, data entry clerks etc.

Classifying costs as one off / footprinting / annual reporting

One off time incurred: This time incurred as result of the introduction of the CRC but is unlikely to reoccur unless the scheme is significantly changed. Such time includes learning about the scheme, responding to consultations and identifying your organisational structure.

Qualification time: This is the time incurred to determine qualification and register for the scheme.

Footprinting time: This occurs once per CRC phase. Examples of tasks include determining your organisational boundaries, identifying energy sources and compiling the footprint report. This *should exclude* time incurred each year of the scheme such as monitoring core sources (as there is an overlap between annual and footprinting activities). This would lead to double counting.

Annual reporting time: This refers to time incurred every year of the scheme. Examples include gathering and reviewing data, auditing the data, compiling the evidence pack and integrating acquisitions / new sites.

SECTION 2: INTERNAL TIME INCURRED FOR FOOTPRINTING ACTIVITIES (PAGE 3 OF 4)

(Mandatory) Please indicate the total number of days you spent on footprinting activities and then break that down by sub-tasks. Estimating this split is acceptable, but please ensure the sum of the split equals the total. PLEASE NOTE THAT YOU MUST ENTER A RESPONSE INTO EACH FIELD, EVEN IF THAT RESPONSE IS ZERO, IN ORDER TO BE ABLE TO PROGRESS TO THE NEXT QUESTION.

	Directors' and department heads' days incurred	Senior management days incurred	Middle management days incurred	Administrator days incurred
TOTAL FOOTPRINTING TIME				
Determining your organisational structure as at 1/4/2010				
Developing and documenting your CRC compliance methodology				
Gathering data on your core sources not covered by CCA or EU ETS				
Assessing CCA and EU ETS emissions coverage				
Gathering data on your residual sources (or 'other fuels')				
Compiling, reviewing and submitting your footprint report evidence pack (this should largely be covered in the time spent on the annual report evidence pack)				
Other (Please describe below)				

If you have said you have incurred other time in footprinting activities, please describe below:

GUIDANCE

Note: 'One off' time is DIFFERENT from 'footprint' and 'registration' time incurred, which occurs once per phase of the scheme. Footprint time includes tasks such as determining organisational boundaries and compiling the footprint report. Registration costs are those associated with qualifying for the scheme and disaggregating SGUs. We ask about these later in this question.

Classifying employees:

Please use the following classifications to categorise employees:

Directors / Department Heads: These individuals include the Director or Department Head reviewing and signing the CRC submission.

Senior management: This category encompasses departmental managers etc.

Middle management: This category includes staff such as analysts and energy manager roles.

Administrators: Administrators, secretaries, data entry clerks etc.

Classifying costs as one off / footprinting / annual reporting

One off time incurred: This time incurred as result of the introduction of the CRC but is unlikely to reoccur unless the scheme is significantly changed. Such time includes learning about the scheme, responding to consultations and identifying your organisational structure.

Qualification time: This is the time incurred to determine qualification and register for the scheme.

Footprinting time: This occurs once per CRC phase. Examples of tasks include determining your organisational boundaries, identifying energy sources and compiling the footprint report. This *should exclude* time incurred each year of the scheme such as monitoring core sources (as there is an overlap between annual and footprinting activities). This would lead to double counting.

Annual reporting time: This refers to time incurred every year of the scheme. Examples include gathering and reviewing data, auditing the data, compiling the evidence pack and integrating acquisitions / new sites.

SECTION 2: INTERNAL TIME INCURRED ON AN ANNUAL BASIS (PAGE 4 OF 4)

This is the last big table and you are more than 2/3 of the way through the survey. Please bear with us!

(Mandatory) Please provide the total number of days you spent on annual reporting by staff grade, then break that total down by sub-tasks. Estimating this split is acceptable, but please ensure the sum of the split equals the total. Please note that we are only interested in the time incurred as a result of the CRC, therefore please don't include any time that would already have been incurred for other carbon reporting activities.* PLEASE NOTE THAT YOU MUST ENTER A RESPONSE INTO EACH FIELD, EVEN IF THAT RESPONSE IS ZERO, IN ORDER TO BE ABLE TO PROGRESS TO THE NEXT QUESTION.

	Directors' and department heads' days incurred	Senior management days incurred	Middle management days incurred	Administrator days incurred
TOTAL FOOTPRINTING TIME				
Determining your organisational structure as at 1/4/2010				
Developing and documenting your CRC compliance methodology				
Gathering data on your core sources not covered by CCA or EU ETS				
Assessing CCA and EU ETS emissions coverage				
Gathering data on your residual sources (or 'other fuels')				
Compiling, reviewing and submitting your footprint report evidence pack (this should largely be covered in the time spent on the annual report evidence pack)				
Other (Please describe below)				

If you have incurred time in other activities, please describe below:

GUIDANCE

Note: 'One off' time is DIFFERENT from 'footprint' and 'registration' time incurred, which occurs once per phase of the scheme. Footprint time includes tasks such as determining organisational boundaries and compiling the footprint report. Registration costs are those associated with qualifying for the scheme and disaggregating SGUs. We ask about these later in this question.

Classifying employees:

Please use the following classifications to categorise employees:

- **Directors / Department Heads:** These individuals include the Director or Department Head reviewing and signing the CRC submission.
- **Senior management:** This category encompasses departmental managers etc.
- **Middle management:** This category includes staff such as analysts and energy manager roles.
- **Administrators:** Administrators, secretaries, data entry clerks etc.

Classifying costs as one off / footprinting / annual reporting

One off time incurred: This time incurred as result of the introduction of the CRC but is unlikely to reoccur unless the scheme is significantly changed. Such time includes learning about the scheme, responding to consultations and identifying your organisational structure.

Qualification time: This is the time incurred to determine qualification and register for the scheme.

Footprinting time: This occurs once per CRC phase. Examples of tasks include determining your organisational boundaries, identifying energy sources and compiling the footprint report. This *should exclude* time incurred each year of the scheme such as monitoring core sources (as there is an overlap between annual and footprinting activities). This would lead to double counting.

Annual reporting time: This refers to time incurred every year of the scheme. Examples include gathering and reviewing data, auditing the data, compiling the evidence pack and integrating acquisitions / new sites.

* For example, if your energy manager spends 0.25 days gathering data for core sources each month, this should be reported as 3 days of time. However - we are interested in the additional time incurred as a result of the CRC, therefore if the energy manager would already be gathering the data for voluntary carbon reporting, please do not include this.

Thus, you may wish to include the time that the energy manager spends gathering data from non core sources that are included in your annual footprint report, but NOT include in your voluntary carbon reporting - such as the carbon footprint of a tenanted building.

** Please include here only the costs of gathering data on core supplies (electricity and gas) not covered by CCA or EU ETS, and those which were incurred in addition to submitting your footprint report.

SECTION 3: EXTERNAL COSTS INCURRED (PAGE 1 OF 1)

Many CRC participants have chosen to work with external organisations on one or more aspects of the CRC. We invite you to submit costs incurred so we can recognise external costs incurred within our analysis.

All information you provide in your survey response will be treated as confidential.

If you have incurred costs but are unable to share them then we would ask you to put a 'Y' in the last column.

(Voluntary) Please provide any external costs incurred specifically for compliance with the CRC. For example, if you had already purchased energy management software to manage your energy better, this is not a CRC cost. Please enter a 0 where no costs have been incurred.

	One off costs (£)	Footprinting and registration costs (£)	Annual reporting costs (£)	Y here if costs incurred but you are unable to share
TOTAL EXTERNAL COSTS				
INCURRED (excluding allowances and registration fees)				
CRC training				
Determining organisational boundaries e.g. lawyers fees				
CRC evidence pack software				
CRC or energy management/AMR software				
Outsourced CRC compliance				
Data/invoice collation/compilation specifically for the CRC				
Installation/repair of AMR meters as a result of the CRC				
External/outsourced internal audit or reviews (on systems or submissions)				
Other				

If you have incurred other costs, please describe below:

(Mandatory) Please confirm that the time you have reported above is, to the best of your knowledge, the additional time incurred as a result of the CRC and not your total carbon management costs: (tick box)

☐ Yes

(Mandatory) What proportion of the total time spent on carbon management do you spend on the CRC?

- ☐ 0-20%
- ☐ 21-40%
- ☐ 41-60%
- ☐ 61-80%
- ☐ 81-99%
- ☐ 100%

SECTION 4: OPTIONS FOR SIMPLIFICATION (PAGE 1 OF 1)

This section is voluntary but we would encourage you to respond as this provides an important opportunity to share your views with DECC.

(Voluntary) There are several key proposals for simplification of the CRC, some of which DECC are discussing as part of their formal simplification discussions and others we have been asked by the pilots of this survey. Which TWO of the following do you think would save you the most administrative time / cost? (Tick two of the boxes)

- ☐ Reduce the number of fuels covered by the scheme
- ☐ Make the qualification process simpler
- ☐ Reduce the data retention requirements of the evidence packs
- ☐ Improve the quality of the CRC annual statements
- ☐ Reduce the overlap between climate change instruments such as the CCAs, EUETS and CRC
- ☐ Allow more scope for disaggregation so that non-SGU sized entities can participate independently
- ☐ Move to fixed price allowance sales instead of the auction (no auction process for carbon allowances, although carbon trading is still possible)

(Voluntary) Briefly, why would your selections to the previous question reduce your administrative time the most?

(Voluntary) Has the CRC scheme escalated the attention your organisation is paying to energy and/or carbon management? Yes/No/NA

(Voluntary) Has the CRC scheme helped you gain a better understanding of your energy usage? Yes/No/NA

(Voluntary) Has the amount of time your organisations spends on energy efficiency programmes increased / stayed the same / reduced as a result of the CRC scheme?

(Voluntary) Has the CRC scheme resulted in you making more investments in energy efficiency? Yes/No/NA

(Voluntary) Has the CRC scheme resulted in your energy efficiency budget being increased? Increased/Stayed the same/Reduced/NA

(Voluntary) Do you think the CRC scheme will lead to you reducing your energy usage/carbon footprint? Yes/No/NA

(Voluntary) How many DAYS did you anticipate carbon trading would take you each year?

(Voluntary) Have you responded to the most recent informal consultation on the CRC (January 2011)? Yes/No/NA

(Voluntary) Did you have any further explanation you wanted to provide TO YOUR ANSWERS ABOVE? (2000 character limit)

(Voluntary) Did any organisations encourage you to complete this survey?

- ACCA
- BRC
- BSA
- BVCA
- CBI
- CIPFA
- CO2 Sense
- ETG
- ICAEW
- LEP
- LGIU
- None
- Other

If other, who? _____

(Voluntary) If you wish to add any comments below please feel free to do so. Otherwise, PLEASE PROCEED TO THE FOLLOWING PAGE TO 'SUBMIT' YOUR RESPONSES

Term	Explanation
AMR	Automatic Meter Reading systems – Includes most smart meters
CCA	Climate Change Agreement
CRC	Carbon Reduction Commitment Energy Efficiency Scheme
DECC	Department of Energy and Climate Change
EA	Environment Agency although this can refer to the scheme regulators including regional equivalents (SEPA and NIEA)
Geography	Where we use geography we refer to the region that the participant has registered in, which usually refers to their head office location, and therefore which of the regulators are responsible for ensuring their compliance (e.g. EA, SEPA, NIEA)
HHM	Half hourly meter – Refers to mandatory half hourly meters
IA	CRC Impact Assessment
NDPB	Non-departmental Public Body (Quango)
NHS	National Health Service
NIEA	Northern Ireland Environment Agency
Participant	An organisation who is a full participant within the CRC, including those with CCA exemptions. Total population is 2,779
Phase 1 costs	When we refer to the total costs of phase 1, this refers to all of those costs incurred in Year 1 and before as well as 3 additional years of annual reporting costs.
SCM	Standard Cost Model – See Appendix
SEPA	Scottish Environmental Protection Agency

Term	Explanation
SGU	Significant Group Undertaking – A major subsidiary of a CRC participant that is large enough to be in the CRC in its own right
SIC	Standard Industry Classification code to identify a participant industry
Strata	Refers to ways of splitting the respondents into potentially similar sub-populations such as their size, industry type, corporate structure etc.
Tier 1	Our analysis of the population who responded to the survey compared to the whole population of CRC participants
Tier 2	Our analysis of the survey responses
Tier 3	Our analysis of the survey responses in context of specific questions
Year 1 (and before)	When we refer to year 1 and before, we are referring to the time period in the CRC leading up to 29 July 2011 which includes all of the time to learn the scheme, understand organisational boundaries, register and prepare the annual and footprint reports for Year 1 (1 April 2010 – 31 March 2011).