

Monitoring the Uptake of GHG Measurement / Assessment Tools & Links Between Tools & Emission Reductions

Final Report

Environmental Resources Management (ERM)

A research report completed for the Department for Environment, Food
and Rural Affairs



Published by the Department for Environment, Food and Rural Affairs

Department for Environment, Food and Rural Affairs
Nobel House
17 Smith Square
London SW1P 3JR
Tel: 020 7238 6000
Website: www.defra.gov.uk

© Queen's Printer and Controller of HMSO 2007

This publication is value added. If you wish to re-use this material, please apply for a Click-Use Licence for value added material at:

<http://www.opsi.gov.uk/click-use/value-added-licence-information/index.htm>

Alternatively applications can be sent to Office of Public Sector Information, Information Policy Team, St Clements House, 2-16 Colegate, Norwich NR3 1BQ; Fax: +44 (0)1603 723000; email: hmsolicensing@cabinet-office.x.gsi.gov.uk

Information about this publication is available from:

SCP&W Evidence Base
Defra
Zone 5D, 5th Floor, Ergon House
c/o Nobel House, 17 Smith Square
London SW1P 3JR

Email: scpevidence@defra.gsi.gov.uk

Monitoring the Uptake of GHG Measurement Tools – 14715400

Final Report to the Department for Environment, Food and Rural Affairs

January 2010

ERM Reference: 0096729

This report has been prepared by Environmental Resources Management the trading name of Environmental Resources Management Limited, with all reasonable skill, care and diligence within the terms of the Contract with the client, incorporating our General Terms and Conditions of Business and taking account of the resources devoted to it by agreement with the client. We disclaim any responsibility to the client and others in respect of any matters outside the scope of the above. This report is confidential to the client and we accept no responsibility of whatsoever nature to third parties to whom this report, or any part thereof, is made known. Any such party relies on the report at their own risk.

Prepared by Holly Bryant (Senior Consultant)

For and on behalf of Environmental Resources Management
Approved by: Charles Allison

Signed:



Position: Partner

Date: January 2010

ERM, St Nicholas House, 31 – 34 High Street, Bristol, BS1 2AW



TABLE OF CONTENTS

Executive Summary

1	Introduction and objectives	1
2	Phase 1 – Identification & Evaluation of methods by which uptake of GHG assessment and reporting can be monitored.....	2
2.3	Initial stakeholder consultation.....	5
2.4	Categorisation of Approaches for Monitoring Uptake of GHG methodologies.....	6
2.5	Approaches Identified through Stakeholder Consultation	7
3	Phase 2 – Applying & analysing the effectiveness of the 17 identified approaches and ultimate links to emission reductions.....	9
3.1	Assessing the effectiveness of identified approaches for capturing measurement/assessment/reporting take up & the likely level of variation in data produced through different approaches	9
4	Stage 2 – Hypothesis, “Hypothetical Framework” and Case Study Companies.....	26
4.1	Development of a “Hypothetical Framework”	26
4.2	Selection of the Five Case Study C.ompanies	28
4.3	Assessment of case study companies against the “Hypothetical Framework”	31
4.4	Testing of the Hypothesis: Do GHG measurement/assessment tools deliver emission reductions in the absence of external drivers?	38
4.5	Appropriateness of the “Hypothetical Framework” & selected case study companies	42

Annex A: Interview Proforma

Annex B: Interview Notes

Annex C: Matrix of measurement approaches

Annex D: Summary of 17 Identified Approaches (sorted by approach category)

Annex E Hypothetical Framework - Drivers

Annex F Case Study Selection Matrix

Annex G Case Study Interview Proforma

Annex H Case Study Interview Summaries

TABLES AND FIGURES INDEX

Figure 3.1 Process of screening identified approaches to measuring uptake

Figure 3.2 Example of Analysis of GHG Reporting Uptake by the CDP, 2009

Figure 4.1 The “Hypothetical Framework”

Table 2.1 Summary of stakeholders and contacts

Table 2.2 Summary of approaches identified through Stakeholder Consultation

Table 3.1 Stage 1 screening against agreed parameters – summary matrix

Table 3.2 Evaluation of Preferred approaches

Table 3.3 Weighting of parameters

Table 3.4 Final GHG Monitoring Recommended Approaches

Table 3.5 Comparison of Information from Corporate Register and CDP

Table 4.1 Selected case study companies

Table 4.2 Summary of five case study companies

Table 4.3 GHG Measurement/assessment tools adopted by case study companies

Table 4.4 Case study identified drivers and barriers

Glossary

BAU	Business As Usual
CCA	Climate Change Agreement
CDP	Carbon Disclosure Project
CRC	Carbon Reduction Commitment
CSR	Corporate Social Responsibility
CT	Carbon Trust
CT CLC	Carbon Trust Carbon Label Company
Defra	Department for Environment, Food and Rural Affairs
EA	Environment Agency
ERM	Environmental Resources Management
GHG	Green House Gas
IRR	Internal Rate of Return
ISO	International Organization for Standardization
LCA	Life Cycle analysis
MACC	Marginal Abatement Cost Curve
PAS	Publicly Available Specification
SME	Small Medium Sized Enterprise
WBCSD	World Business Council for Sustainable Development
WRI	World Resources Institute

Executive summary

Scope and objectives of the study

There are a number of GHG measurement/assessment tools available for companies to measure/assess and report on the Greenhouse Gas (GHG) emissions from their activities, products and/or services. ERM has been commissioned by Defra to undertake a study to:

- evaluate and recommend approaches by which government can monitor the uptake of GHG measurement/assessment and reporting (for both corporate and product/service footprinting), and assess the likely effectiveness of the approaches which are recommended;
- assess the extent to which uptake of GHG measurement/assessment and reporting leads to reduction in GHG emissions.

Identification of approaches for measuring uptake of GHG measurement/assessment and reporting, and their likely effectiveness

In identifying the recommended approaches to measuring uptake of GHG measurement/assessment and reporting, ERM went through a two stage screening process, considering each approach against a range of weighted parameters.

Two approaches to measuring uptake of corporate GHG measurement/assessment and reporting were identified as the bodies of data gathered by Corporate Register and the Carbon Disclosure Project (CDP). Despite some concerns over CDP's strong alignment with the GHG Protocol, it is recognised that the use of the CDP would bring other advantages such as readily available datasets, whereas the Corporate Register dataset would require some additional interrogation and analysis.

Our assessment has concluded that that these two sources of data would be largely complementary, although the main weakness of both these approaches is that they have gathered a body of data for larger companies, and do not provide a fully representative picture of GHG reporting uptake by smaller companies. Therefore, it is suggested that use of Corporate Register/CDP could be supplemented by the use of sector-based surveys coordinated by Trade Associations, to provide an understanding of the uptake of GHG assessment and reporting by smaller companies in different industry sectors. This approach would benefit from having a representative, UK-focused, sample and would reinforce the data drawn from Corporate Register/CDP, allowing insight across and comparison between specific industry sectors.

No equivalent sources of data exist in relation to uptake of product/service footprinting. However, the emerging Carbon Trust Footprint Registry is considered to represent a suitable approach to measure uptake of GHG measurement/assessment tools for product/service footprinting. The Footprint Registry approach is preferred over the Carbon Trust CLC data, as once launched it is expected to hold data on a larger portfolio of companies. In comparison to the maturity of the corporate reporting area, reporting of product/service footprints is at a very early stage. All but one of the approaches (Trade Association survey) was found to contain issues surrounding representation of the “sample universe”. As a result, it is recommended that data from the Carbon Trust Footprint Registry be strengthened by the use of UK Trade Association surveys, as these would allow data to be contextualised within the wider sample universe (as well as providing an understanding of uptake focused on different industry sectors).

Given the Carbon Trust Footprint Registry is currently being developed and the Trade Association surveys would need to be specifically commissioned, ERM were only able to consider the effectiveness of the Corporate Register and CDP as recommended approaches. The availability of information held by these organisations on GHG assessment and reporting was assessed for a random sample of both FT500/FTSE100, and FTSE250 companies, and was concluded to be good for this universe of companies.

Assessing whether GHG measurement/assessment and reporting delivers emission reductions

To address this second key objective of the study, ERM took as a starting point the hypothesis that GHG measurement/assessment tools, whilst a fundamental enabler of reductions in GHG emissions, are not likely to deliver those reductions on their own (i.e. in the absence of other cost, regulatory, customer/market, and reputational ‘drivers’). To test this hypothesis, ERM developed a “Hypothetical Framework” that identifies the key drivers influencing companies at different stages of the GHG management cycle and the role played by GHG measurement/assessment tools in achieving emission reductions. In recognition of the different drivers (combinations of drivers) that lead to emission reductions in different company situations, a “case study” approach has been adopted, drawing upon company specific information from five case study companies, to be assessed against the “Hypothetical Framework”. ERM engaged with key representatives from each of the five case study companies, in order to understand the strength of each of the four drivers (cost, compliance, reputation and innovation) at different stages of the GHG management cycle.

Looking at the whole GHG management cycle, reputation is the driver cited most frequently by the case study companies (particularly with reference to corporate reporting), followed by innovation. Although identified as drivers, reputation and innovation have also been identified as barriers by at least one of the case study companies at particular stages of the GHG management

cycle, mainly due to availability of feasible technologies to achieve emission reductions.

Compliance was identified as a key driver within the corporate reporting arena, although, as expected, not on the agenda for product/service reporting, for which mandatory reporting is not currently a requirement. Cost has been identified as both driver and barrier by the case study companies.

Summarising briefly the learning's from the 5 case studies:

- Greenvale use the data collected through GHG monitoring as a management tool, which ultimately allows the company to understand their position and make informed decisions including setting of appropriate emission reduction targets.
- For SCA, understanding of their emissions is considered to be an essential pre-requisite to good business order.
- G4S strive to be an innovative sector leader and their ability to measure their footprint via the GHG Protocol has allowed them to develop an informed, realistic and achievable reduction strategy and carbon intensity reduction targets.
- Continental Clothing are slightly unusual in that they had already made the decision to reduce their emissions as part of the development of the new product range. Alignment to the PAS 2050 has enabled Continental Clothing to quantify and report emission reductions against a recognised and approved GHG measurement/ assessment tool.
- National Express uses data calculated through the GHG measurement/ assessment tools to inform the company's GHG management strategy.

It was identified that there is a definite link between companies aligning with GHG measurement/assessment tools (for both corporate and product/service GHG emissions), and actions by those companies to work towards and achieve emission reductions. GHG measurement/assessment typically enables reductions to be delivered, through allowing an understanding of the emission footprint and therefore allowing companies to actively manage their emissions. Whilst GHG measurement and assessment is a fundamental enabler of emissions reductions, the findings of the case studies indicate that reductions result primarily due to the influence of the key drivers; Cost, Innovation, Reputation & Compliance. This supports the hypothesis that GHG measurement/ assessment tools do not actually deliver emission reductions on their own. However, the case studies supported the conclusion that public reporting of GHG emissions by companies, by supporting the reputational 'driver', can have the effect of further stimulating activity by those companies to reduce emissions.

Recommendations for further research

This study has supported the conclusion that GHG measurement/assessment tools are enablers of emission reductions, and that public reporting of emissions can, through supporting the reputational driver on companies,

stimulate activity to reduce emissions. We recommend that further research should be undertaken to determine the strength of the effect of reporting on emissions reduction, in comparison to the effect of other policy measures that are available to government.

1 Introduction and objectives

There are a number of GHG measurement/assessment tools available for companies to measure/assess and report on the Greenhouse Gas (GHG) emissions from their activities, products and/or services. ERM have been commissioned by Defra to undertake a study to determine how to measure the uptake of GHG measurement/assessment and reporting (for both corporate and product (including both goods and services) footprinting) and the effectiveness of any approaches recommended.

The study is limited to reporting by companies and does not include reporting by public sector organisations.

Phase 1 of the project includes identification of approaches by which uptake of GHG reporting can be measured. The clear output of Phase 1 is to assess and identify appropriate approaches to measuring uptake of GHG measurement/assessment and reporting.

Phase 2 of the project involves further assessment of the effectiveness of the approaches identified within Phase 1. Where appropriate, ERM have endeavoured to test the selected approaches with data from the identified reporting scheme(s). However it should be noted that where ERM recommends an approach which is not currently utilised, testing of the approach has been based on a narrative summary.

In Phase 2, ERM considered the key drivers influencing companies at different stages of the GHG management cycle and the interaction of these different drivers in delivering GHG emission reductions and the role played by GHG methodologies. A selection of five case study companies were assessed against the “Hypothetical Framework” in order to test the hypothesis as to whether GHG measurement/assessment tools result in companies working towards/achieving emission reductions on their own, and the role of other factors (drivers) in the process.

The assessment of five case study companies using the “Hypothetical Framework” allows a better understanding of:

- the role played by GHG footprinting, and associated measurement tools (both for organisations and for product/services) in providing the management information that enables emissions reduction;
- the role of GHG reporting schemes (as distinct from the GHG footprinting itself), in driving or supporting emissions reductions;
- the interaction between GHG footprinting, reporting schemes, and the other drivers of emission reductions mentioned (i.e. financial cost, regulatory, customer/market and reputational).

2 Phase 1 – Identification & Evaluation of methods by which uptake of GHG assessment and reporting can be monitored

In order to understand the potential existing and future approaches to measuring uptake of GHG measurement/assessment tools¹ and subsequent reporting, ERM have engaged with a selection of stakeholders through a stakeholder consultation process.

2.1 Mapping of Stakeholders for Consultation

ERM mapped out and agreed with Defra on the key stakeholders who should be approached during the study, to discuss possible approaches to measuring uptake of GHG measurement/assessment tools (for both corporate and product/service footprinting).

Of the fifteen stakeholders approached by ERM, thirteen were available to discuss potential approaches for measurement of GHG measurement/assessment tools. Table 2.1 below lists the fifteen stakeholders contacted and the thirteen who were available to participate.

Table 2.1 Summary of stakeholders and contacts

Corporate		
Stakeholders	Contact	Detail
WBCSD/WRI GHG Protocol	David Rich	Call – Details in Annex B and summary in Annex C
ISO & Corporate Register ²	David Rich	Call – Details in Annex B and summary in Annex C
CDP (Corporate) ³	Kate Levick	Call – Details in Annex B and summary in Annex C
Carbon Trust Standard	Harry Morrison	Call – Details in Annex B and summary in Annex C
California Climate Action Registry ⁴	Sarah Stanner-Cranston	Call – Details in Annex B and summary in Annex C

¹ For the purpose of this study, GHG measurement/assessment tools are defined as the GHG Protocol and ISO 14064 (for corporate footprinting) and PAS 2050 (for product/service footprinting).

² It should be noted that the Corporate Register approach was discussed and advocated by the WRI. ERM were unable to make contact with The Corporate Register. As a result, information pertaining to the Corporate Register approach has been based on discussions with WRI and information available within the public domain.

³ As part of this study, CDP's corporate climate change data has been considered. At this stage, the method by which CDP choose to cut the data is less relevant.

⁴ CCAR discussions included reference to the US Climate Registry

UK Government Sustainable Development Commission ⁵	Farooq Ullah	Call – Details in Annex B and summary in Annex C
Local Government Association	Phillip Mind	Call – Details in Annex B and summary in Annex C
DEFRA (Defra own survey)	Rocky Harris	Call – Details in Annex B and summary in Annex C
US Climate Registry		No direct contact. Details taken from publically available information and discussions with CCAR. Summary in Annex C.
ISO 14064 ⁶		No direct contact and no response through webpage contact facility. Details taken from publically available information. Summary in Annex C.
Product/Service		
Stakeholders	Contact	Detail
BSI PAS 2050	Maria Varbeva-Daley	Call – Details in Annex B and summary in Annex C
CDP (Supply chain Initiative) ⁷	Kate Levick	Call – Details in Annex B and summary in Annex C
Carbon Trust - Carbon Labelling Company	Euan Murray	Call – Details in Annex B and summary in Annex C
Climate Group	Emily Farnworth	Call – Details in Annex B and summary in Annex C
EC Platform on LCA	David Pennington	Call – Details in Annex B and summary in Annex C
DEFRA (Defra own survey)	Rocky Harris	Call – Details in Annex B and summary in Annex C

It should be noted that ISO were not contacted for information on the new international Standard for product carbon footprinting and labelling - ISO 14067- which is currently under development. The feasibility of using the ISO 14067 as a potential future approach to measure uptake (either through commissioning ISO to undertake a survey on uptake of ISO 14067; or through directly assessing ISO data on uptake from downloads, subscriptions etc) is expected to align with the conclusions drawn for the other GHG measurement/assessment tool providers (i.e. BSI on the PAS 2050 or WBCSDI /WRI on the GHG Protocol).

⁵ These UK Government stakeholders have been included to allow understanding of approaches in place in the public sector. Given that the scope of this study excludes public sector organisations, the outcomes of these discussions will not feed into the findings of the study.

⁶ ERM were unable to make contact with ISO on the 14064. Given that ISO 14064 is a key GHG measurement/assessment tool for corporate reporting, information pertaining to the measurement on uptake of ISO 14064 was based in publically available information and our understanding of approaches available to measure uptake through other GHG measurement/assessment tool providers (BSI and WBCSD/WRI).

⁷ It should be noted that, the CDP Supply Chain program is not a product footprinting initiative, but a process to increase corporate reporting by getting large purchasers to ask their suppliers to report at corporate level. There is an option for suppliers to provide product-related emissions data if this is available. The supply chain programs can also result in product-level information.

2.2 Parameters against which to Evaluate Approaches

In order to assess the suitability of each of the approaches suggested by our key stakeholders (set out in Table 2.1), a set of parameters were established and agreed with Defra, covering the significant elements to be considered as part of the assessment of approaches. Adopting the parameters also ensured consistency of information coverage and therefore a consistent comparison between approaches. It should be noted that given the inclusion of “Assurance” and “Representative Sample” as key parameters, “likely sample size” has been excluded based on the premise that focus should be on quality rather than quantity of data.

1. **Global Coverage:** The capacity of the proposed approach to cover geographical areas outside the UK. It does not imply universal coverage, but is a measure as to whether the approach is focussed on a single geographical region.
2. **Assurance:** The extent to which the data collected through the proposed approach is assured or is capable of being assured independently or by a third party. This includes data that has been assured as part of a company’s third party assurance (i.e. a high proportion of the corporate footprinting data held by CDP and Corporate Register has undergone third party assurance).
3. **Representative Sample - GHG measurement/assessment tools:** This parameter seeks to understand the extent to which a particular approach can measure uptake of available GHG measurement/assessment tools (i.e. does the proposed approach have the ability to consider uptake of both the GHG Protocol and ISO 14064?). This issue has been identified where a stakeholders approach focuses on - or is aligned to - a particular GHG measurement/assessment tool, resulting in the data on uptake unfairly showing a preference to a particular tool.
4. **Representative Sample - sample universe:** In assessing uptake of GHG management/assessment tools does the proposed approach allow an understanding of uptake to be contextualised within a sample universe (i.e. would the approach represent a skewed view of uptake by focusing on specific parts of the total sample universe).

It should be noted that Parameter 4 (Representative Sample – sample universe) has been identified as a major consideration associated with a number of the proposed approaches. Although stakeholder approaches for which this parameter has been identified as a potential issue would feasibly be able to provide a figure on uptake, it is foreseen that by their very nature the sample group of these stakeholders are likely to comprise of companies who have already aligned to a GHG measurement/assessment tool. This situation would most likely result in a false 100% uptake rate within the sample group, rather than an uptake rate that is reflective of a random sample universe (which ultimately could be used to reflect the % uptake across the UK and potentially extrapolated to provide

an estimation of companies aligning with the GHG measurement/assessment tool across the UK).

5. **Likelihood of Significant Participation:** Whether the proposed approach will receive a response from a large proportion of the sample. It is assumed that approaches involving existing sources of information will result in a higher level of participation, than approaches involving new data sources.
6. **Cross sector:** This parameter identifies whether the proposed approach is limited to companies within one business sector, or if it covers multiple sectors.
7. **Some data available:** Whether some data required for the approach is already available, will shortly be available or has yet to become available.
8. **Current:** Whether the approach is already in place.
9. **Additional resources:** The extent of additional resources required, i.e. where limited additional resources are required (limited to discussion, interpretation and analysis of existing data sources) or where more extensive additional resources (such as a new survey) are required.

During the stakeholder interviews, a standard proforma (included within Annex A) was used as the basis for discussion on how the stakeholder would propose measuring uptake of GHG measurement/assessment tools. The proforma includes assessment of the proposed approach against each of the parameters.

It should be noted, that the UK Government stakeholders (Sustainable Development Commission and the Local Government Association) have been included on Defra's request to allow understanding of potential measurement approaches for the public sector. However at this stage, the study is limited to reporting by companies and does not include reporting by public sector organisations, the outcomes of these discussions will not feed into the findings of the study. Interview summaries have been included within Annex B for Defra's information.

2.3 Initial stakeholder consultation

Telephone interviews were held with each of the identified stakeholders (as listed in Table 2.1 above) to discuss potential approaches to measuring uptake of GHG measurement/assessment tools.

In addition to the identified stakeholders, Rocky Harris of Defra was consulted regarding the feasibility of Defra commissioning its own survey. A summary of this interview is also included within Annex B and discussed below.

Following the interview, each stakeholder was sent a copy of their respective interview summary for comment and approval. Where no response was received by the comment deadline, it was assumed that the stakeholder had

no comments. Additional comments were received from BSI, CDP, the Carbon Label Company, The Climate Group and the EC Platform on LCA⁸. Final stakeholder interview summaries (incorporating all comments) are included within Annex B. A matrix of each of the discussed measurement approaches against the agreed parameters is included in Annex C and discussed further in Section 3.

The opinions presented in this report are those discussed during the interviews with each of the stakeholders. Whilst ERM made every effort to ensure that the interviews were conducted with the best placed person/people and reflect the opinion of the whole company/organisation, the opinions presented are still those of the interviewee(s) and do not necessarily represent those of the whole company/organisation (or divisions within). ERM has presented the interviews as accurately as possible and therefore accept no liability for inaccuracies in the data provided.

Thank you to each of the stakeholders who took part this study, for their commitment and co-operation.

2.4 Categorisation of Approaches for Monitoring Uptake of GHG methodologies

At project inception, it was identified that approaches for measuring uptake of GHG measurement/assessment tools would fall into one of four categories, as listed below:

- **Approach Category 1** - A survey, or multiple surveys, conducted by Defra.
- **Approach Category 2** - A survey, or multiple surveys, conducted by other organisations.
- **Approach Category 3** - Drawing upon existing surveys.
- **Approach Category 4** - Drawing upon other information held by organisations within the GHG assessment and reporting arena.

Following the telephone interviews with stakeholders and Defra (Table 2.1), ERM were able to categorise each stakeholder's proposed approach into one of the four categories. It was found that GHG measurement/assessment tool providers were able to make multiple suggestions, covering more than one approach category, as detailed further in the following sections.

Explanation for exclusion of approach category 3

Based on the information collected as part of the stakeholder interviews, it was identified that despite pockets of information being available from different organisations, no existing surveys (approach category 3), designed

⁸ It should be noted that despite approving the interview summary, the EC Platform on LCA have requested inclusion of the following disclaimer in respect to their summary and any use of the information: The views given in the EC Platform on LCA interview summary (Annex B) do not necessarily reflect those of the organisation.

specifically for monitoring uptake of GHG measurement/assessment tools currently exist. As a result, it is considered that the option of drawing upon existing surveys (approach category 3) is not available as an option at the current time.

Approach Categories 1, 2 and 4 (as set out above) represent the most appropriate approach types, which will be explored further through the screening process (section 3 below).

2.5 Approaches Identified through Stakeholder Consultation

The stakeholder consultation process has resulted in the identification of 17 potential approaches to measuring uptake of GHG measurement/assessment tools, and subsequent reporting of GHG emissions, covering approaches categories 1, 2 and 4, as summarised in Table 2.2.

Table 2.2 Summary of Approaches Identified through Stakeholder Consultation

Corporate		
Stakeholder	Approach	Approach Category #
Defra	Defra commissioned/tagged survey	1
WBCSD/WRI & ISO	GHG measurement/assessment tool - Provider survey	2
Defra	Trade Association Survey	2
WBCSD/WRI & ISO	Use of GHG measurement/assessment tool providers data	4
Carbon Disclosure Project (CDP)	Use of CDP Data	4
WRI & Corporate Register ⁹	Use of Corporate Register's data	4
The Climate Group	Use of The Climate Group's data	4
Carbon Trust Standard Company	Use of the Carbon Trust Standard Company's data	4
Californian Climate Action Registry (CCAR)	Use of the CCAR/ US Climate Registry's data	4
Carbon Reduction Commitment (CRC)	Use of CRC data	4
Product/Service		
Stakeholder	Approach	Approach Category
Defra	Defra commissioned/tagged survey	1

⁹ It should be noted that the Corporate Register approach was discussed and advocated by the WRI. ERM were unable to make contact with The Corporate Register. As a result, information pertaining to the Corporate Register approach has been based on discussions with WRI and information available within the public domain.

BSI	GHG measurement/assessment tool - Provider survey	2
Defra & EC Platform on LCA ¹⁰	Trade Association Survey	2
BSI	Use of GHG measurement/assessment tool providers data	4
Carbon Disclosure Project (CDP) & Climate Group ¹¹	Use of CDP Data	4
Carbon Label Company	Use of the Carbon Label Company's Carbon Labelling data	4
Carbon Label Company	Use of the Carbon Label Company's Footprint Registry data	4

In Phase 2 of this study, the 17 identified approaches are further assessed through a two-stage screening process in order to identify the preferred approach(es)/combination of approach(es) to measuring uptake of GHG measurement/assessment tools for both corporate and product/service footprinting. Details are provided in Section 3.

¹⁰ Although the EC Platform on LCA couldn't suggest any feasible approaches to measuring uptake using their data, they do suggest a survey of industry sectors as an approach.

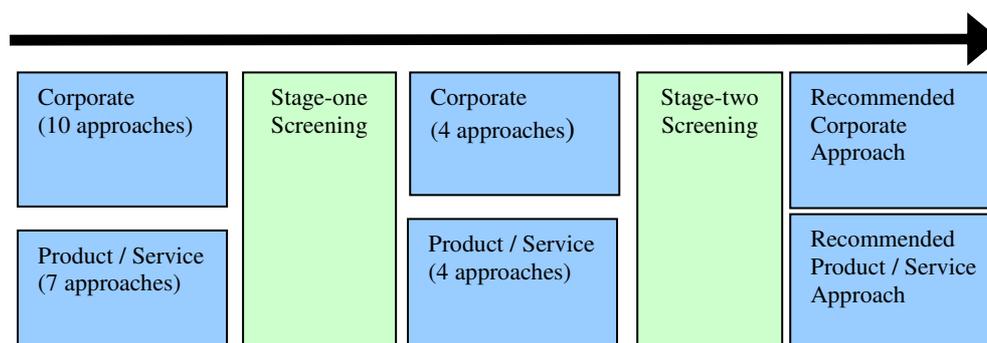
¹¹ A primary source of data for The Climate Group is the CDP supply chain survey. As a result the approach the Climate Group approach to measuring uptake has been discounted (given that CDP data approach has been included as a proposed approach).

3 Phase 2 – Applying & analysing the effectiveness of the 17 identified approaches and ultimate links to emission reductions

3.1 Assessing the effectiveness of identified approaches in capturing measurement/assessment/reporting take up & the likely level of variation in data produced through different approaches

The stakeholder consultation process conducted in Phase 1 of this study resulted in the identification of 17 potential approaches to measuring uptake of GHG measurement/assessment tools. In Phase 2, the 17 approaches have been further assessed through a two-stage screening process in order to identify the preferred approach(es)/combination of approach(es) to measuring uptake of GHG measurement/assessment tools for both corporate and product/service footprinting. Figure 3.1 (below) sets out the two-stage screening process.

Figure 3.1 Process of screening identified approaches to measuring uptake



3.2 Stage-one screening

Stage-one screening considered the 17 approaches (10 corporate, 7 product/service) for measuring uptake, as identified through the stakeholder interviews in Phase 1. The screening process focused on the agreed parameters (as set out in Section 2.2), covering the significant elements to be considered as part of the assessment of approaches.

Table 3.1 provides a summary of each approach against the agreed parameters. A full summary of each approach (Annex D), is essential reading in order to understand the screening process and identification of the 4 corporate and 4 product/service preferred approaches to be further considered as part of the stage-two screening.

Table 3.1 Stage 1 screening against agreed parameters - summary matrix

Parameter	Corporate (10 identified approaches)										Product/Service (7 identified approaches)						
	Defra commissioned/tagged	Survey by GHG tool providers: WRI / ISO	Trade Association survey	GHG tool providers data: WRI / ISO	CDP data	Corporate Register data	Climate Group data	Carbon Trust Standard data	CCAR / US Climate Registry data	Carbon Reduction Commitment data	Defra commissioned/tagged	Survey by GHG tool provider BSI	Trade Association survey	GHG tool provider data: BSI	CDP data	Carbon Label Company's Carbon Labelling data	Carbon Label Company's Footprint
Approach Category	1	2	2	4	4	4	4	4	4	4	1	2	2	4	4	4	4
Global coverage	x	✓	x	✓	✓	✓	✓	x	x	x	x	✓	x	✓	✓	✓	✓
Assurance	x	x	x	x	✓*	✓	x	✓	✓	✓	x	x	x	✓*	✓	✓	✓
Is the sample representative (GHG measurement/ assessment tools)	✓	x	✓	x	x	✓	x	✓	✓	✓	✓	x	✓	x	x	x	x
Is the sample representative (Sample universe)	✓	x	✓	x	✓	✓	x	x	x	✓	✓	x	✓	x	x	x	x
Likelihood of significant participation	x	x	x	✓	✓	✓	✓	✓	✓	✓	x	x	x	✓	✓	✓	✓
Cross sector	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Some data available	x	x	x	✓	✓	✓	✓	✓	✓	x	x	✓	✓	x	✓	✓	x
Current	✓	✓	✓	✓	✓	✓	✓	✓	✓	x	✓	✓	✓	x	✓	✓	x
Additional resources	x	✓	✓	✓	✓	✓	✓	✓	✓	✓	x	✓	✓	x	✓	✓	✓
Preferred option	x	x	✓	x	✓	✓	x	x	x	✓	x	x	✓	x	✓	✓	✓

* Although CDP does not currently undertake verification of data provided from reporting companies, all data disclosed to CDP can potentially be assured.

The eight preferred approaches (4 corporate and 4 product/service) identified through the stage-one screening, were considered in further detail as part of the stage-two assessment process, in order to identify the preferred approach(es)/combination of approach(es) to measuring uptake of GHG measurement/assessment tools for both corporate and product/service footprinting.

All eight approaches to be further considered as part of the stage-two screening are from approach categories 2 and 4. Approach categories 2 and 4 are therefore considered to represent the most appropriate approaches to measuring GHG measurement/assessment tool uptake.

- ~~Approach Category 1 - A survey, or multiple surveys, conducted by Defra.~~
- **Approach Category 2** - A survey, or multiple surveys, conducted by other organisations.
- ~~Approach Category 3 - Drawing upon existing surveys.~~
- **Approach Category 4** - Drawing upon other information held by organisations within the GHG assessment and reporting arena.

Explanation for exclusion of approach category 1

In considering the option of Defra commissioning its own survey (approach category 1), to measure uptake of GHG monitoring and reporting methodologies, ERM had discussions with Rocky Harris (Statistician, Sustainable Consumption and Production policy) of Defra to understand the options and implications of Defra commissioning its own survey.

The discussion revealed that although a new Defra survey could be commissioned, or additional questions could be “tagged” to an existing Defra survey, there are a number of clear drawbacks to this approach category (approach category 1), including cost (financial, time and resources), lack of assurance, likelihood of limited coverage and response rate, and additional reporting burden on respondent companies. For “tagging” onto existing surveys, additional issues include limited sway over questions to be included and survey audience (a full summary of this approach is included within Annex D). As a result, the option of Defra conducting its own survey (approach category 1) has not been identified as a preferred approach at the current time.

3.2.2 Stage 1 screening - summary of preferred options

This section provides a brief summary of the eight preferred approaches identified for further consideration through the stage-two screening process. A full summary of each approach is provided within Annex D.

Approach category 2: Trade association surveys (corporate & product/service)

For both corporate and product footprinting, it has been identified that engaging with Trade Associations in order to commission surveys on uptake

of reporting methodologies across their members is an attractive option. This option also avoids issues with bias and skewing of data, which has been identified as an issue amongst many of the other options. A key disadvantage of this approach is the limitation in global coverage. However, Defra could explore options of linking to trade associations within other countries, or applying a phased approach where depending on the success of the UK surveys, further surveys could be rolled out via trade associations in other countries. This would result in overarching data which could be sorted by both sector and country. A hurdle to be overcome if working with Trade Associations would be how to engage and incentivise them to become involved with the data collection exercise. Consideration of this would be crucial, given the current economic situation.

Approach category 4: Corporate Register & CDP (corporate)

For corporate footprinting, Corporate Register and CDP have both been identified as organisations offering opportunities for measuring uptake of GHG measurement/assessment tools. Both organisations can offer existing data, global presence, integrity of data¹² and both benefit from their broadly accepted positions in this arena. It is considered that both organisations are willing to undertake specific research projects.

Approach category 4: Carbon Trust Carbon Label (product/service)

Given that the Carbon Trust Carbon Label Company was responsible for the pilot of the PAS 2050 and the infancy of this reporting arena, the Carbon Trust Carbon Label Company should be considered as a key source of information on uptake of product footprinting, despite issues identified as part of the review (i.e. limitation on the number of companies for which the Carbon Label Company holds data).

Approach category 4: Future schemes – CRC & CT Footprint Registry (corporate & product/service)

Approaches, based on data from schemes which are not yet in place, have been identified to measure uptake of both corporate and product/service GHG measurement/assessment tools. Although there are some questions around exactly how these future approaches will work, the assessment of them against the identified parameters in the stage-one screening has identified them as preferred approaches to be considered further in the stage-two screening.

- For corporate footprinting it has been identified that data collated as a result of the Carbon Reduction Commitment (CRC) could be used to measure uptake GHG measurement/assessment tools. Again, this approach would be UK focused, although would benefit from a level of data assurance and would provide a cross sector view. Although there

¹² Although CDP does not currently undertake verification of data provided from reporting companies, all data disclosed to CDP can potentially be assured. Many companies do submit verified data to CDP, e.g. 49% of Global 500 companies reported verified emissions to CDP in 2009, and provided evidence of the verification.

would be no issues of the sample being representative, the inclusion of companies would be limited to those caught under the CRC.

- On the product footprinting side, it has been identified that Defra could potentially source data from the voluntary Carbon Trust Footprint Registry, which will comprise a publically available list of projects and completed product footprints. Under the Footprint Registry, companies who have used the PAS2050 following the June 2007 – October 2008 pilots run in support of the development of the PAS 2050, would be invited to come forward and add their own product footprints to the register. It has been identified that such a register could be a core source of data for monitoring PAS2050 uptake.

3.3 Stage-two screening

The outcome of the stage 1 screening process was identification of 4 corporate and 4 product/service preferred approaches, as set out in Table 3.1 and section 3.2.2. The stage-two screening involved further evaluation of the 8 preferred approaches. A summary of each of the 8 approaches against the parameters identified in Section 2.2 has been included in Table 3.2. A full description of each approach is included in the respective stakeholder interview summary (Annex B), matrix of measurement approaches (Annex C) and summary of identified approaches (Annex D).

Table 3.2 Evaluation of preferred approaches

Parameters	Corporate				Product/Service			
	Trade Association Survey	CDP Data	Corporate Register Data	CRC Data	Trade Association Survey	CDP Supply Chain Initiative Data	CT Carbon Labelling Company (CLC) Data	CT Footprint Registry Data
Approach Category	2	4	4	4	2	4	4	4
Global coverage	Trade association survey would most likely be UK focused.	CDP is a global reporting mechanism and therefore could provide global coverage.	Corporate Register monitors the reporting practices of companies globally.	Once implemented the CRC will focus on the UK.	Trade association survey would most likely be UK focused.	CDP is a global reporting mechanism and the CDP Supply Chain Initiative draws on supplier information from a handful of their global participants. The approach would therefore provide a global coverage.	The Carbon Trust Carbon Labelling Company (CLC) monitors the reports practices of companies globally (although the level of reporting is limited to those companies who approach the Carbon Trust).	Once launched, the Carbon Trust Footprint Registry (FR) will monitor the reporting practices of companies globally.
Assurance	There would be limited/no third party assurance of the data gathered through Trade Association survey. In addition, it would be hard to seek third party assurance of this data.	Although CDP does not currently undertake verification of data provided from reporting companies, all data disclosed to CDP can potentially be assured. Many companies do submit verified data to CDP, e.g. 49% of Global 500 companies reported verified emissions to CDP in 2009, and provided evidence of the verification.	Although no direct assurance of companies' data is undertaken by Corporate Register, they work closely with companies to encourage them to seek third party assurance of their data.	Once implemented, it is planned that 25% of the CRC participants will be audited annually (25% selected randomly).	There would be limited/no third party assurance of the data gathered through Trade Association survey. In addition, it would be hard to seek third party assurance of this data.	Although CDP does not currently undertake verification of data provided from reporting companies, all data disclosed to CDP can potentially be assured. It should be noted that the level of assurance expected amongst the selection of each company's suppliers will be dependent on supplier size.	The Carbon Trust CLC works closely with companies on product/service footprinting (PAS 2050 pilot) to ensure that they align with the principles of the PAS2050. Although there is no third party assurance of the information provided by the companies, the CT CLC can provide some level of independent assurance of the data through working so closely with the companies involved. The CT is sponsoring UKAS to develop an accreditation scheme for verification against PAS 2050, from 2010.	Through working closely with companies, it is expected that once launched, the CT Footprint Registry will be in a position to provide independent checking and assurance of the data.
Representative Sample - GHG measurement/assessment tools	It is considered that the trade association survey could cover all appropriate GHG measurement/assessment tools and therefore representative.	Although the CDP does allow reference to other GHG measurement/assessment protocols, the CDP questions on GHG footprint are closely aligned (ie via reference to Scope 1, 2, 3), to the GHG Protocol, which is likely to result in uptake data showing a preference for the GHG Protocol rather than other international or national reporting protocols. This may not be representative of the situation in the UK.	The Corporate Register, by monitoring CSR activities of companies, could be used to assess uptake of all appropriate GHG measurement/assessment tools, with no focus on a particular tool.	Once implemented it is understood that the CRC will measure uptake of all appropriate GHG measurement/assessment tools (as a method to understanding GHG calculation approach taken by participants) with no focus on a particular tool.	It is considered that the trade association survey could cover all appropriate GHG measurement/assessment tools/future tools and would therefore be representative. <i>NB: In the absence of other generally accepted GHG measurement/assessment tools for product/service footprinting, any approach being representative of more than one GHG measurement/assessment tool would be unlikely.</i>	The CDP Supply chain initiative is primarily focussed on corporate footprinting rather than product footprinting. The programme does not currently include reference to any GHG measurement/assessment tools for product/service footprinting.	The CT CLC had a crucial role in producing the first version of the PAS 2050 and subsequent work with Defra and BSI to produce the current version of the PAS 2050. As a result, the CT CLC approach will result in uptake data showing a preference to the PAS 2050. <i>NB: In the absence of other generally accepted GHG measurement/assessment tools for product/service footprinting, any approach being representative of more than one GHG measurement/assessment tool would be unlikely.</i>	Once launched, it is intended that the Carbon Trust Footprint Registry would invite companies undertaking product/service footprinting using PAS 2050 to add their product footprints to the register. As a result, the CT Footprint Registry approach will result in uptake data showing a preference to the PAS 2050. <i>NB: In the absence of other generally accepted GHG measurement/assessment tools for product/service footprinting, any approach being representative of more than one GHG measurement/assessment tool would be unlikely.</i>
Representative Sample - sample universe	It is considered that the trade association sample universe would be representative of companies within any particular sector.	The CDP sends its questionnaire systematically to all constituents of FTSE100, FTSE250 and similar indices globally, which makes the sample representative (and indeed comprehensive) for larger publicly quoted companies. If not already doing so, companies asked to participate in the CDP are likely to be stimulated to engage in GHG monitoring and reporting because of its reputation and backing by investors and other stakeholders. As such, CDP can be seen as a driver of GHG monitoring and reporting, but we don't consider this to affect the representativeness of the sample. However, the sample is not representative of companies outside of the FTSE350. The CDP Supply Chain Initiative, which does target companies in this category, is in its early stages of development and requests information from suppliers of a relatively small number of CDP's larger global participants.	Given that the Corporate Register provides a portal to information on the CSR "credentials", including GHG management, of a wide range of companies, it is considered that the Corporate Register sample universe is representative of larger companies. However, it is clear that the Corporate Register does focus on larger, publicly quoted companies (i.e. the Global FT500 and FTSE100). It has limited information on, and therefore is considered not to be fully representative of, companies in FTSE250 and below who do not typically produce standalone CSR reports or substantial CSR sections in their annual reports.	This parameter has been identified as a key issue for the CRC data approach. Once implemented, it will be mandatory for companies falling under the CRC to monitor and report their emissions. By its very nature, the CRC sample group will therefore be monitoring and reporting their GHG emissions in line with the requirements of the regulation. As a result, the data provided through the CRC approach is likely to result in a "100%" uptake of GHG monitoring and reporting within the sample group, rather than an uptake rate that is reflective of a random sample universe of companies of a similar size.	It is considered that the trade association sample universe would be representative of companies within any particular sector.	The CDP Supply Chain Initiative requests supplier information from a relatively small number of CDP's global participants. The CDP's primary focus is on corporate GHG reporting and the CDP Supply Chain survey does not include reference to GHG measurement/assessment for product/service footprinting.	By its very nature, the CT CLC sample group are likely to be measuring their product/service GHG footprints using the PAS 2050. As a result, the data provided through the CT CLC approach would most likely result in a false 100% uptake rate within the sample group, rather than an uptake rate that is reflective of a random sample universe.	By its very nature, CT Footprint Registry sample group are likely to be measuring their product/service GHG footprints using the PAS 2050. As a result, the data provided through the CT Footprint Registry approach would most likely result in a false 100% uptake rate within the sample group, rather than an uptake rate that is reflective of a random sample universe.
Likelihood of significant participation	Approach uses new data so considered less likely to achieve a high level of participation.	Approach uses existing data so considered more likely to achieve a high level of participation.	Approach uses existing data so considered more likely to achieve a high level of participation.	This approach is linked to the CRC legislation which has not yet come into force. However, once launched this approach will use existing data, so considered more likely to achieve a high level of participation.	Approach uses new data so considered less likely to achieve a high level of participation.	Approach uses existing data so considered more likely to achieve a high level of participation.	Approach uses existing data so considered more likely to achieve a high level of participation.	This approach is linked to the CT Footprint Registry, which has not yet been launched. However, once launched this approach will use existing data, so considered more likely to achieve a high level of participation.
Cross sector	The scope of the trade association surveys could be focused to cover the sectors required by Defra.	CDP covers a full range of sectors.	Corporate Register monitors the CSR reporting practices of companies across all sectors.	Once implemented, the CRC will cover companies across all sectors.	The scope of the trade association surveys could be focused to cover the sectors required by Defra.	CDP covers a full range of sectors.	Carbon Trust CLC covers a broad range of sectors.	Carbon Trust Footprint Registry covers a broad range of sectors.
Some data available	This would be a new survey and therefore no data is currently available.	Measurement using this approach is based on information held by the CDP. Therefore data is already available. Uniquely, the data (via the CORE database) is already available in a searchable format.	Measurement using this approach is based on information held by the Corporate Register. Therefore data is already available. Some further processing of the information by Corporate Register may be needed to put it into the format required by Defra.	This approach is linked to the CRC legislation which has not yet come into force. As a result no data is currently available.	This would be a new survey and therefore no data is currently available.	At this stage there is no reference to product GHG measurement/assessment tools adopted within the CDP Supply Chain Survey. Therefore no data is currently available.	Measurement using this approach is based on information held by the Carbon Trust CLC. Therefore data is already available.	This approach is linked to the CT Footprint Registry which has not yet been launched. As a result no data is currently available.
Current	Measurement using this approach is based on currently available information and could therefore be implemented immediately.	Measurement using this approach is based on currently available information and could therefore be implemented immediately.	Measurement using this approach is based on currently available information and could therefore be implemented immediately.	This approach is linked to the CRC legislation which has not yet come into force. As a result measurement using this approach should be considered as an option for the future.	Measurement using this approach is based on currently available information and could therefore be implemented immediately.	At this stage there is no reference to product GHG measurement/assessment tools adopted within the CDP Supply Chain. As a result, measurement using this approach could not be implemented immediately.	Measurement using this approach is based on currently available information and could therefore be implemented immediately.	This approach is linked to the CT Footprint Registry which has not yet been launched. As a result measurement using this approach should be considered as an option for the future.
Additional resources	New survey, therefore additional research or data acquisition work would need to be undertaken.	Approach based on existing data which, for FTSE 350, is already analysed in a format that could be used by Defra,	Approach based on existing data, therefore additional work would be limited to discussion and interpretation/analysis of existing data sources.	This approach is based in based on data that will become available once the CRC is launched, therefore additional work would be limited to discussion and interpretation/analysis of existing data sources.	New survey, therefore additional research or data acquisition work would need to be undertaken.	At this stage there is no reference to product GHG measurement/assessment tools adopted within the CDP Supply Chain Survey (Defra would need to work with CDP to include a request for this information). As a result, additional research or data acquisition work would need to be undertaken.	Approach based on existing data, therefore additional work would be limited to discussion and interpretation/analysis of existing data sources.	This approach is based in based on data that will become available once the CT Footprint Registry is launched, therefore additional work would be limited to discussion and interpretation/analysis of existing data sources.

3.3.1 Consideration and Review of Parameters

In order to further differentiate between the eight prioritised approaches, and guide and inform the eventual conclusions, further consideration has been given to the relative importance of each parameter used within the stage-two screening process. This helps us to make a judgement on whether these parameters should be weighted within the assessment process.

“Global Coverage”, “Assurance”, “Representative Sample” and “Likelihood of Significant Participation”: These parameters give us information about coverage and participation but they do not tell us about the sample size. “Global Coverage” tells us about whether the boundaries are confined to the UK or are wider geographically, and “Likelihood of Significant Participation” tells us whether the proposed approach will cover a large proportion of the sample. However, as set out above, sample size is not necessarily crucial if the approach is robust.

“Likelihood of Significant Participation”: This parameter tends to discriminate against surveys. Surveys carry an inherent issue of lower participation than other methods, such as the deeper analysis of existing data. Again we do not believe that this is a crucial issue, and would recommend that surveys should continue to be seen as part of the possible range of future solutions;

“Some Data Available” and “Current”: These parameters appear to measure essentially similar things. We might therefore conclude that their effect on the overall scoring should be carefully weighted so that this does not skew our conclusions;

“Cross sector”: Because all of the approaches are “Cross Sector”, this parameter does not appear to give us information to differentiate any given approach, to assist our decision. Therefore this parameter doesn’t discriminate between these approaches. It is mostly useful then to use this parameter for completeness rather than for informing our conclusions.

3.3.2 Potential weighting of parameters

The discussion in Section 3.3.1 shows how the parameters that we have used can influence the outcome of the comparisons between approaches. It is also important to review whether some parameters should be weighted more or less strongly than others. This would allow decisions and conclusions to be properly weighted towards parameters that are more important than others.

Table 3.4 places each of the identified parameters within one of three ‘importance’ columns. This placement reflects our own interpretation of the information and feedback that we have received from Defra. We believe that the most significant alternative weighting that should be considered here is

whether “Global Coverage” represents a parameter of “high” or “moderate” importance (as shown in Table 3.3).

Table 3.3 Weighting of parameters

Importance		
High	Moderate	Low
Assurance	<i>Global coverage</i> ¹³	Significant participation
Representative Sample - GHG measurement/ assessment tools	Cross sector	
Representative Sample – Sample universe	Some data available	
Additional resources	Current	
<i>Global coverage</i> ¹⁴		

Parameters considered as having a: high weighting

“Assurance” & “Representative Sample”: These are considered to be important parameters in ensuring that the approach Defra adopts leads to robust data through a rigorous and high quality analysis. By categorising these parameters as “high” importance, it is considered that the sample size parameter can be downgraded in importance (if the data is valid and strong even if small-scale it might be capable of extrapolation).

“Resources”: It has been assumed that Defra would wish to adopt solutions that entail least additional resources. Therefore any level of intervention (beyond the minimum) needs to be justified and the greater the intervention the more justification would be required.

“Global Coverage” (where given a high weighting): ERM considered that Global Coverage could well be considered a parameter of high importance to Defra. Under this assumption, Defra may wish to measure uptake of GHG measurement/assessment tools across many countries (not just limited to the UK) which in turn could be a major factor in helping to determine the approach of choice. In selecting the measurement approach, Defra may wish to align with the approach recommended whilst considering “Global Coverage” as high importance, allowing the selected approach to be implemented for the UK and extended at a later date.

Parameters considered as having a: moderate weighting

“Global Coverage” (where given a moderate weighting): The significance of this parameter depends primarily on Defra’s viewpoint. We have at this stage given this parameter a moderate rating, but an alternative would be to consider a high rating (which is discussed further above). Within Table 3.4, a

¹³ Global Coverage has been considered in two scenarios as being of “high” and “moderate” importance.

¹⁴ Global Coverage has been considered in two scenarios as being of “high” and “moderate” importance.

moderate rating for Global Coverage implies that the solutions would entail seeking UK approaches first and then extending these to the rest of the world at some future point.

“Cross Sector”: Each of the 8 approaches has been identified as being “cross sector”. As a result the weighting of this parameter will have no impact on the approach selection. For completeness this parameter has been categorised as having moderate importance.

“Some data available” & “Current”: It is considered that these parameters are individually of moderate importance. It has also been noted that these parameters overlap, implying that their collective significance should be carefully reviewed.

Parameter considered as having a: low weighting

“Significant Participation”: As described in Section 3.3.1, this parameter tells us whether the proposed approach will cover a large proportion of the sample. However, as discussed, sample size is not necessarily crucial if the approach is robust. As a result, “Significant Participation” has been assigned a low weighting.

3.4 Approaches recommended for measuring uptake of GHG measurement/assessment and reporting

The approaches recommended below aim to reflect:

- The evaluation of possible methodologies set out in Table 3.2.
- The discussion of the parameters used to assess the approaches.
- The suggested weighting of the parameters shown in Table 3.3.

3.4.1 Corporate Footprinting and Reporting

Through the stage-two assessment outlined above, we have identified 2 approaches to measuring uptake of corporate GHG measurement/assessment and reporting. These are:

- Corporate Register;
- Carbon Disclosure Project.

Both of these approaches would provide a number of benefits to Defra:

- Recognition that the additional resources required would be limited to discussion & interpretation/analysis of existing data sources.
- A representative sample of FT500/FTSE100 companies (for both approaches) and FTSE250 (for CDP).
- We have some remaining concerns that the CDP’s strong alignment with the GHG Protocol will show preference for that particular monitoring/assessment

tool (as opposed to e.g. ISO14064), but the use of CDP would bring other advantages such as readily available datasets, whereas the Corporate Register dataset would require some additional interrogation and analysis.

We consider that these two sources of data would be largely complementary, since Corporate Register holds data on GHG reporting as part of the wider set of Corporate Social Responsibility issues, whereas the CDP holds focused data on GHGs within the context of assessing corporate exposure to climate change risk.

The main weakness of both these approaches is that they have gathered a body of data for larger companies, and do not provide a fully representative picture of GHG reporting uptake by smaller companies. It is understood that CDP are at the early stages of engaging with SME's, the data from which may become available to Defra in future.

Therefore, it is suggested that use of Corporate Register/CDP could be supplemented by the use of Trade Association surveys, to provide understanding of uptake of GHG assessment and reporting by smaller companies in different industry sectors. Although UK focussed, the Trade Association survey approach benefits from having a representative sample and would re-enforce the data drawn from Corporate Register/CDP, allowing insight across/comparison between specific industry sectors. The main disadvantage of the Trade Association approach is the requirement for additional resources. However, if used to provide focused sector case studies, in addition to the overarching Corporate Register/CDP data, these issues would become less significant.

Although engagement with the GHG measurement/assessment tool providers (GHG Protocol Secretariat, ISO) could be re-considered as an alternative "global" approach to accompany the Corporate Register (in place of Trade Association surveys), as set out in Table 3.1, the issue of provider data not reflecting representative samples (GHG measurement/assessment tool or sample universe) is still valid, resulting in the decision that the provider approach should remain discounted as this stage.

Whilst the Trade Association survey is a discrete one-off exercise, providing a "snapshot" of uptake at a particular time, a key benefit of the Corporate Register/CDP approach is that the data is continuously being updated. As a result, once the reporting mechanism is established with the Corporate Register/CDP, data on uptake of GHG measurement/assessment tools could be reported as frequently as required (i.e. quarterly, annually). This flexibility of reporting ensures the Corporate Register/CDP approach is a long term solution to measuring uptake.

In assessing the different approaches through the stage-two screening, it has been identified that the Corporate Register and CDP both provide "global coverage". As a result, if adopted, they would allow Defra flexibility to extend

its measurement from UK to global uptake of GHG measurement/assessment and reporting, through use of the same approach.

3.4.2 Product/Service Footprinting

The emerging Carbon Trust Footprint Registry is considered to represent a suitable approach to measure uptake of GHG measurement/assessment tools for product footprinting (including both goods & services)¹⁵. The Footprint Registry approach is preferred over the Carbon Trust CLC data, as once launched it is expected to hold data on a larger portfolio of companies.

The Carbon Trust Footprint Registry provides a positive response (where possible) to each of the identified key parameters. The key benefits of this approach are:

- The level of assurance that can be provided by the Carbon Label Company.
- Recognition that the additional resources required to adopt this approach would be limited to discussion & interpretation/analysis of existing data sources.

Issues of reflecting a representative sample of GHG measurement/assessment tools have been identified for all identified approaches at the current time (given that the PAS 2050 is the only widely recognised GHG measurement/assessment tool for product/service footprinting at the current time). As a result, it is accepted that the issue of a representative sample is unavoidable with any approach at the current time.

In comparison to the maturity of the corporate reporting area, reporting of product/service footprints is at a very early stage. All but one of the approaches (Trade Association survey) was found to contain issues surrounding representation of the “sample universe”. As a result, it is recommended that the Carbon Trust Footprint Registry could be strengthened by the use of UK Trade Association surveys, as these would allow data to be contextualised within the wider sample universe (as well as providing an understanding of uptake focused on different industry sectors). It has also been identified that the Trade Association survey approach would be able to provide a representative sample (GHG measurement/assessment tool), as and when alternative product/service footprinting tools become available.

The main disadvantage of the Trade Association approach is the requirement for additional resources and the lack of assurance, however if used as a tool to

¹⁵ Prior to the Carbon Trust Footprint Registry being adopted as the preferred approach for measuring uptake of GHG measurement/assessment tools for product/service footprinting, further discussion should be held with the Carbon Trust to understand: Any restrictions (current/future) on the availability of information through the Registry; Whether the information from the Footprint Registry going to be used on a commercial basis; The cost to Defra of receiving data from the Registry.

contextualise data gathered through the Carbon Trust Footprint Registry, these issues would become less significant.

Engagement with the GHG measurement/assessment tool provider (BSI) could be re-considered as an alternative “global” approach to accompany the Carbon Trust Footprint Registry (in place of Trade Association surveys). However, as set out in Table 3.1, the issue of provided data not reflecting representative samples (GHG measurement/ assessment tool or sample universe) is a major disadvantage, considering the role of the Trade Association surveys is to contextualise data gathered through the Carbon Trust Footprint Registry. This has resulted in the decision that the provider approach should remain discounted as this stage.

Whilst the Trade Association survey is a discrete one-off exercise, providing a “snapshot” of uptake at a particular time, the benefit of the Carbon Trust Footprint Registry is that the data is continuously being updated. As a result, once the reporting mechanism is established with the Carbon Trust, data on uptake of GHG measurement/assessment tools could be reported as frequently as required (i.e. quarterly, annually). It should however be noted that there are elements of the Carbon Trust Footprint Registry that are currently unknown and will need to be explored fully by Defra prior to and decisions being taken, such as whether restrictions will be placed on access to data in the future for commercial purposes, will it be free etc.

The Carbon Trust Footprint Registry data could then be contextualised against the Trade Association “snapshot” data. Although this approach is suitable for reporting uptake in the medium to long term, it is generally accepted that the area of product/service footprinting is likely to change more rapidly than corporate reporting, and as such more appropriate approaches to measuring uptake - incorporating a representative “sample universe”, may become available in the short to medium term.

In assessing the different approaches through the stage-two screening, it has been identified that the Carbon Trust Footprint Registry provides “global coverage”. As a result, if adopted, this approach would allow Defra flexibility to extend its measurement from UK to global uptake of GHG measurement/assessment tools for product/service footprinting, through use of the same approach.

Further clarification of the CDP approach: As discussed previously, the CDP Supply Chain Initiative is primarily focussed on corporate footprinting rather than product footprinting. Although the initiative provides some level of assurance (49% of Global 500 companies reported verified emissions to CDP in 2009, and provided evidence of the verification) and global coverage, the approach does not provide an approach to measuring uptake of product/service GHG measurement/assessment tools.

3.4.3 Preferred Approaches

It is clear from our analysis and recommendations that the identified preferred approaches could be adopted in their own right (for measurement of uptake globally), or for UK focused measurement of uptake, the approaches could be strengthened by additional approaches.

Our recommendations have sought to identify solutions that will provide maximum confidence in data assurance and provision of representative samples, which we identify as fundamental requirements of the possible approaches.

Table 3.4 Final GHG Monitoring Recommended Approach(es)

	Approaches for measuring uptake (UK)		Approach for measuring uptake (Global)
	Main Approach	Supported by	Main Approach
Corporate Footprinting	Corporate Register and CDP	Trade Association surveys	Corporate Register and CDP
Product/Service Footprinting	Carbon Trust Footprint Registry	Trade Association surveys	Carbon Trust Footprint Registry

3.5 Effectiveness of the Recommended Approaches

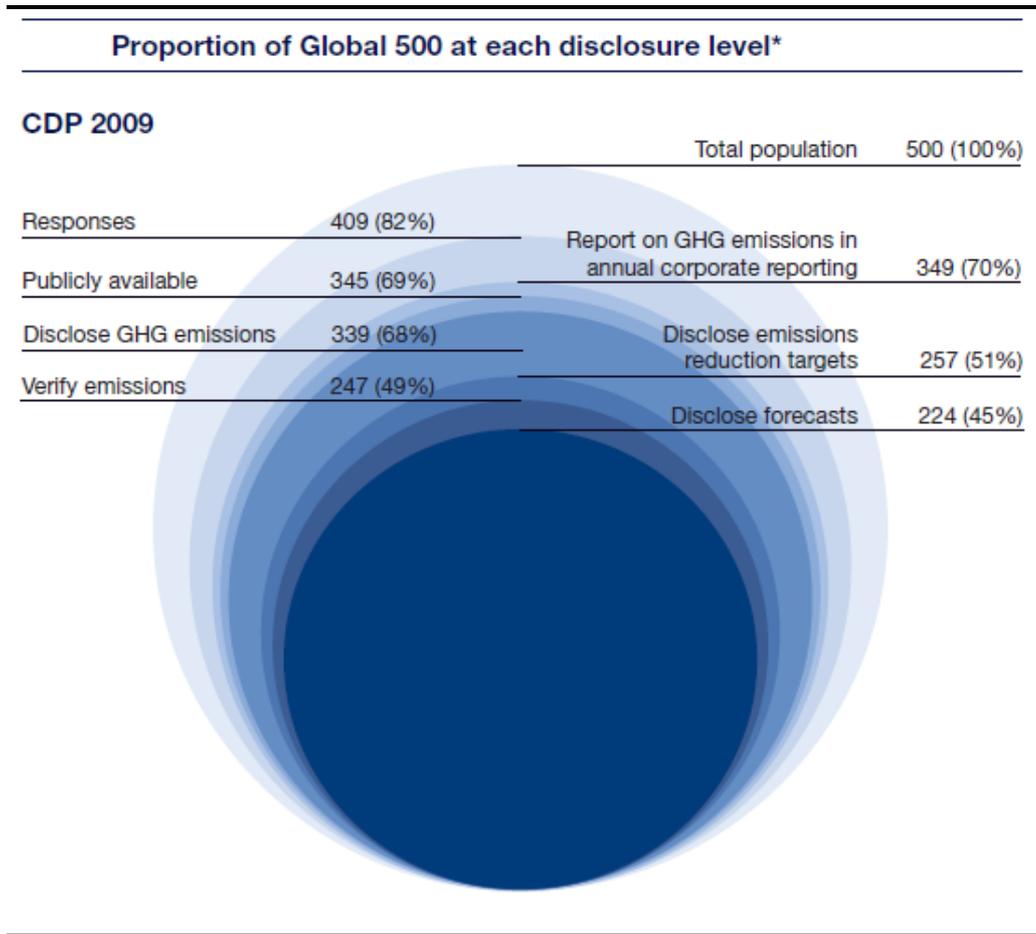
This section strives to assess the effectiveness of the recommended approaches in capturing and reporting uptake of GHG measurement/assessment tools and likely variation of the data produced.

Of the recommended approaches (as set out in Table 3.4), the Carbon Trust Footprint Registry is currently being developed, the Trade Association surveys would need to be specifically commissioned, whereas the Corporate Register and CDP are already in existence and would involve Defra to engaging with these stakeholders to establish parameters with which to interrogate their data and establish a reporting template.

To compare and contrast the effectiveness of the Corporate Register and CDP, we have checked the availability of information held by these organisations on GHG assessment and reporting for a random sample of FT500/FTSE100 companies, and a random sample of FTSE250 companies, for both the latest year (i.e. 2008/9) and previous years. This is shown in Table 3.5.

CDP already produces analysis of the GHG reporting uptake of the FT500 and FTSE100/250, and example of which is shown in Figure 3.1.

Figure 3.2 Example of Analysis of GHG Reporting Uptake by CDP, 2009



It should be noted that through undertaking the two-stage process for assessing, short listing and recommending preferred approaches for measuring uptake of GHG measurement/assessment tools, the approaches identified as “preferred” do represent the best available and therefore most effective approaches available at the current time. It is expected that there will be some level of variation in data provided between the recommended approaches, given the report specific reporting criteria. This can be seen from Table 3.5, where there are some differences in availability of information. The comparison provided in Table 3.5 is based on information available in the public domain.

Table 3.5 Comparison of Information from Corporate Register and CDP

Randomly Selected Global FT500 / *UK FTSE100 Companies						
	Corporate Register			Carbon Disclosure Project		
	Latest yr	Previous yrs		Latest yr	Previous yrs	
Anglo American*	Y	Y	Back to 2001 and split geographically	Y	Y	
BAE Systems*	Y	Y	Back to 2001	N	Y	Responds annually but recent years NP. Referred to corporate website for data in 2006.
Cadbury*	Y	Y	Back to 1999	Y	Y	
Diageo*	Y	Y	Back to 1999 and split geographically	Y	Y	
E.ON	Y	Y	Back to 2004 and split geographically	Y	Y	
France Telecom	Y	Y	Back to 1999 and split geographically	Y	Y	
Goldman Sachs	Y	Y	Back to 2006	N	N	Responds annually but NP.
Honeywell	N	N	Only for German specialty chems division	Y	Y	But no CO2 data.
Imperial Tobacco*	Y	Y	Back to 2001	Y	Y	
Johnson Controls	Y	Y	Back to 2003	Y	Y	
Kimberly Clark	Y	Y	Back to 2000	Y	Y	
L'Oreal	Y	Y	Back to 2004	Y	Y	
MacQuarie	N	N	Only for Westlink subsidiary	Y	Y	Limited CO2 data
National Oilwell	N	N	No record of this company	N	N	No response
Oracle	Y	Y	Back to 2007	Y	Y	
Prudential*	Y	Y	Back to 2002	Y	Y	
Reckitt Benckiser*	Y	Y	Back to 2000	Y	Y	
Schlumberger	N	N	No reports	Y	Y	Back to 2008. Previous years NP
Tesco*	Y	Y	Back to 2001	Y	Y	
Unilever*	Y	Y	Back to 2000 and split geographically	Y	Y	
Vodafone*	Y	Y	Back to 2001 and split geographically	Y	Y	
WalMart	Y	Y	Back to 2006-2007.	Y	Y	
Yahoo	N	N	No reports	Y	Y	2008 and 2007 available
Zurich Financial	N	N	Report available for Zurich UK ISA but not for parent Group	N	Y	2006 submission available. NP for subsequent years.

Randomly Selected UK FTSE250 Companies						
	Corporate Register			Carbon Disclosure Project		
	Latest yr	Previous yrs		Latest yr	Previous yrs	
Arriva	N	Y	CSR reports for 2005 and 2006, but neither have any carbon footprint information	Y		
Balfour Beatty	Y	Y	Back to 2001			
Cookson	N	N	No reports	N	Y	Limited information on energy use only, in 2007.
De La Rue	N	N	No reports	N	Y	Limited information for 06. NP 2007-2008. NR 2009
Electrocomponents	N	N	No reports	Y	Y	
Forth Ports	N	N	No reports	N	N	Declined to participate
GKN	Y	Y	Only limited information on CO2 contained in these reports	N	N	Responded but not publicly available
Hays Group	N	N	No reports	N	N	Responded but not publicly available
Inchcape	Y	Y	No CO2 data contained in reports	Y	N	Responded in 2008 but no CO2 data
Jardine Lloyd	N	N	No reports	N	Y	Responded in 2008 but no CO2 data
Lamprell	N	N	No record of this company	N	N	No record of this company
Meggitt	N	N	No reports	N	Y	Data provided for 2007. NP for 2008 and 2009.
Northern Foods	Y	Y	Only limited information on CO2 contained in these reports	Y	Y	CO2 data for 2009. Energy use data for 2008.
Persimmon	Y	Y	Back to 2007	Y	Y	
Qinetiq	N	N	Reference to information on company website	Y	Y	
Robert Wiseman	N	N	No reports	N	N	Responded in 2009 but NP.
Stobart	N	N	No record of this company	N	N	Declined to participate
Tomkins	Y	Y	Back to 2006	Y	Y	
Ultra	N	N	No reports	N	N	Declined to participate
VT Group	Y	Y	Back to 2006	Y	Y	
Wood Group	N	N	No reports	N	N	Responded in 2009 but NP.
XChanging	N	N	No reports	Y	Y	Data for 2009 but not for 2008
Yell	Y	Y	Back to 2005	Y	Y	

3.5.1 Recommended approaches – reporting parameters

In establishing reporting parameters with each of the approach providers, it is considered that Defra would have the opportunity to engage with the Trade Associations, Carbon Trust, Corporate Register and CDP to agree how the data on uptake would be reported back to Defra (i.e. in what format).

It has been established in Section 4 that, although an enabler to GHG emission reductions, GHG measurement /assessment tools do not lead to actual emission reductions in their own right. As a result, data on company emission reductions could be accessed (year on year), through the reporting parameters, however this reduction data cannot actually be attributed to GHG measurement/assessment and reporting in itself.

3.6 Data gaps and recommended further research

We believe that the following issues may require more detailed attention, either as aspects of the recommended solutions or in order to inform subsequent choices.

- More detailed work is required to understand and define in detail how the trade associations should be engaged to provide complementary support.
- Consideration that product/service reporting is at very early stages. It is expected that new schemes representing further approaches for measuring uptake of methodologies will become available in the medium term. It is recommended that Defra monitors the situation for the availability of approaches capable of reflecting a representative sample for both GHG measurement/assessment tools (once alternatives are available) and sample universe.

4 Stage 2 – Hypothesis, “Hypothetical Framework” and Case Study Companies

It is considered that GHG measurement/assessment tools, whilst a fundamental enabler of reductions in GHG emissions, are not likely to deliver those reductions on their own (i.e. in the absence of other cost, regulatory customer, market, reputational drivers).

In order to test this hypothesis ERM have developed a “Hypothetical Framework” that identifies the key drivers influencing companies at different stages of the GHG management cycle and describes the interaction of these different drivers in delivering GHG emission reductions and the role played by GHG measurement/assessment tools.

In recognition of the different drivers (and combinations of drivers) that lead to emission reductions in different company situations, a “case study” approach has been adopted, drawing upon company specific information on the drivers through the GHG management cycle. This exercise will ultimately determine whether measurement/assessment tools deliver GHG reductions in their own right, or whether these are dependant on external drivers (or a combination of external drivers).

Assessment of the five selected case study companies using the “Hypothetical Framework” should provide an insight as to how the drivers influence a company’s decision to measure their footprint and identify any links between adopting a GHG measurement/assessment tools and working towards/achieving emission reductions.

4.1 Development of a “Hypothetical Framework”

To test the hypothesis that GHG assessment and reporting does not, in itself, lead to GHG emissions reduction, in the absence of other reputational, compliance cost and innovation drivers, ERM have developed a hypothetical framework as the basis for assessing the link between GHG assessment, reporting and eventual emissions reductions at both a corporate/organisational level and for products/services.

The “Hypothetical Framework” was developed to understand the influence that the four recognised drivers: Cost, Regulation, Reputation and Innovation have on the GHG management cycle, from:

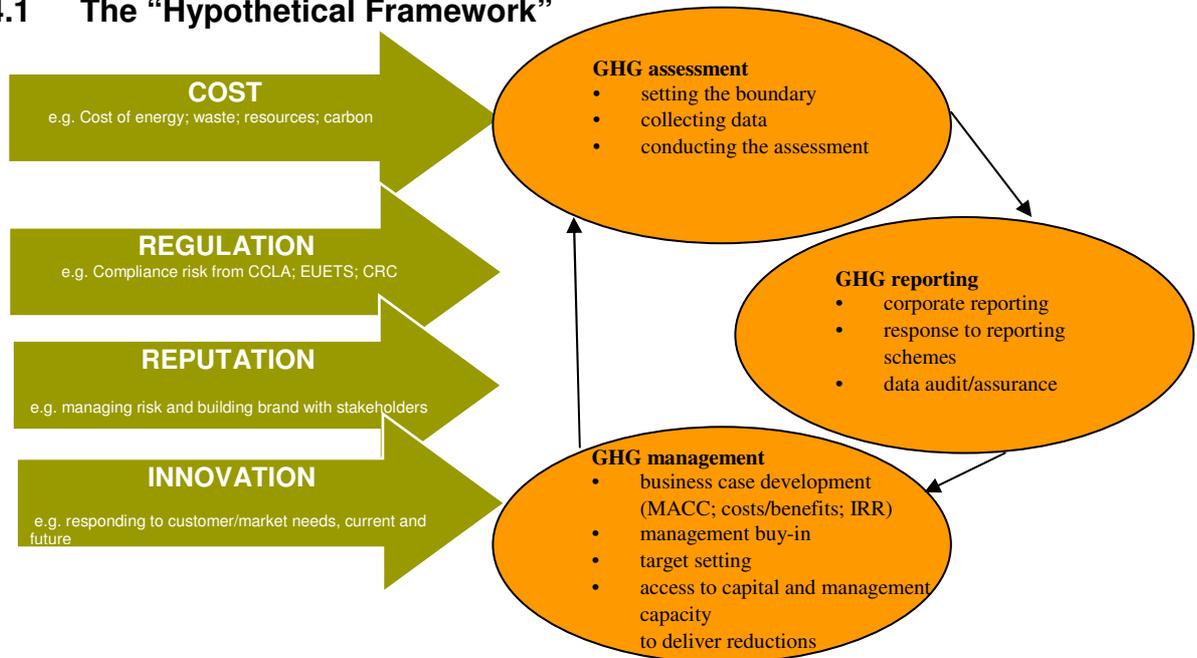
- Uptake of the GHG measurement/assessment tool.
- Calculation of emissions footprint

- Development of a GHG strategy
- Setting of reduction targets
- Working towards / achieving emission reductions

The four key drivers cost, regulation, reputation and innovation were identified through the stakeholder interviews (as detailed in section 2 - stakeholder interview summaries are provided in Annex B) and ERM’s experience in assisting clients in all aspects of the GHG management cycle.

A table detailing a range of cost, regulation, reputation and innovation drivers for companies engaged in both corporate and product/service footprinting is included in Annex E. Figure 4.1 illustrates the Hypothetical Framework and the impact of each of the four drivers on the drivers on the GHG management cycle.

Figure 4.1 The “Hypothetical Framework”



In developing the “Hypothetical Framework”, ERM considered the cost, regulation, reputation and innovation drivers faced by companies at different stages of the GHG management cycle. It is believed that the strength of each driver will be determined by a number of influencing factors, including the companies size, sector, ambition, drive on GHG issues. For example, a company who position themselves as sector leaders will have different strength cost, regulation, reputation and innovation drivers than a less proactive company.

The influence of the four identified drivers on the GHG management cycle has been tested through the use of five case study companies.

4.2 Selection of the Five Case Study Companies

Through discussions with the Defra project team around the selection of case study companies to test the hypothetical framework, it was agreed that the following criteria would be considered in selecting the case study companies:

- The size of the company (Large Corporate / SME).
- Public disclosure or non-disclosure of calculated emissions.
- Mandatory or voluntary reporting (or a combination of both).
- Companies ideally having a UK presence,

Based on the criteria set out above, ERM identified a list of potential case study companies and engaged with CDP and the Carbon Trust for corporate and product/services case studies (respectively) to seek their recommendations of companies that Defra should seek to engage with as part of this process. Based on ERM's experience with a range of companies, "likelihood of participation" was also considered. From the case study selection matrix, containing a selection of 43 potential case study companies (25 corporate & 18 product/service), Defra selected "preferred" companies. ERM approached the "preferred" companies, each of whom agreed to participate in the study. The case study selection matrix is included in Annex F.

Although it was originally agreed that ERM would engage with four case study companies (2 corporate and 2 product/service), the late decision to participate by one of Defra's identified "preferred" companies, resulted in the inclusion of five companies (3 corporate and 2 product/service) identified as "preferred" by Defra.

The case study companies were given the option to participate confidentially or non-confidentially with respect to future disclosure of the data provided (should Defra reference the data provided in any external report or as part of an evidence base to support future policy decisions). One of the five case study companies has taken part on a confidential basis and must therefore remain anonymous in any future Defra publications referencing the case study element of this study.

Table 4.1 Selected case study companies

Corporate or Product/Service	Case Study Company	Confidentiality Status
Corporate	G4S	Non Confidential Participant
Corporate	Greenvale AP	Non Confidential Participant
Corporate	SCA	Non Confidential Participant
Product	Continental Clothing	Non Confidential Participant
Service	National Express	Confidential Participant

Summaries of the five selected case study companies are provided below and in Table 4.2.

- **G4S** is the largest security services company in the UK with around 40,000 employees and a turnover of £1 billion. G4S provide a range of services to a wide spectrum of customers in the public and private sectors. <http://www.g4s.com/uk.htm>
- **Greenvale AP** are the UK's leading supplier of fresh potatoes, with sites in the major potato growing areas across the UK, including three potato-packing operations, supplying the UK's retailers, caterers and processing outlets. Greenvale AP was awarded the Queens Award for Innovation in 2006. <http://www.greenvale.co.uk/>
- **SCA** is a global consumer goods and paper company that develops, produces and markets personal care products, tissue, packaging, publication papers and solid-wood products. Sales are conducted in some 90 countries. <http://www.scapackaging.com/>
- **Continental Clothing** has been designing, manufacturing and selling wholesale to the imprintables industry since 1994. The company's main operations are in London and Germany with showrooms in NYC and Los Angeles and distribution centres conveniently located in New Jersey and Southern California, providing continuity of customers merchandizing needs on both sides of the Atlantic. <http://www.continentalclothing.com/>
- **National Express** is a large passenger transport company across the UK, US and Spain operating rail, bus and coach services with 43,000 employees worldwide. <http://www.nationalexpressgroup.com/>

Table 4.2 Summary of five case study companies

	Corporate			Product/Service	
	SCA	Greenvale	G4S	Continental Clothing (product)	National Express (service)
Large corporate	✓		✓		✓
SME		✓		✓	
UK presence	✓	✓	✓	✓	✓
Current or known future mandatory reporting requirement (CRC)	✓*	✓*			
Voluntary	✓	✓	✓	✓	✓
Public disclosure	✓	✓	✓	✓	✓
Company new to area		✓			✓
Company with footprinting track record	✓		✓	✓	
CDP/Carbon Trust Recommended		✓		✓	

* A proportion of the business is covered by the CRC

4.2.1 Development of case study interview proforma

Prior to the case study interviews being undertaken, ERM developed a standard case study interview proforma which was approved by Defra. The proforma ensured consistency in data collected, and formed a base upon which ERM focussed on the key areas for the company to collect additional information. The case study interview proforma (included in Annex G), covers the following key areas:

- Drivers to selection of the GHG measurement/assessment tool
- Drivers to monitoring and reporting emissions
- Drivers to setting emission reduction targets
- Drivers to working towards/achieving emission reductions
- Identification of any barriers within the GHG management cycle

Full case study interview notes are included within Annex H. As a result of the interviews, ERM were able to put together a matrix of drivers and, where appropriate, barriers.

4.2.2 Case study company interviews

Three of the case study company interviews were conducted face to face; the other two were conducted via teleconference. Both approaches allowed discussion to be focussed on particular areas of importance to the case study company and resulted in a more focused reflection of the company's position on GHG management and interaction of the key drivers, than would be expected through the use of a standard written questionnaire.

Following the case study interviews, each company contact was sent a copy of their respective interview summary for comment and approval. Additional comments were received from G4S, Greenvale, Continental Clothing and National Express. SCA were contacted several times for comments. The final two e-mails to SCA stated that unless a response was received, it would be assumed that the company had no comments. Final case study company interview summaries (incorporating all comments) are included within Annex H.

The opinions presented in this report are those discussed during the interviews with each of the case study companies. Whilst ERM made every effort to ensure that the interviews were conducted with the best placed person/people and reflect the opinion of the whole company, the opinions presented are still those of the interviewee(s) and do not necessarily represent those of the whole company (or divisions within the company). ERM

has presented the interviews as accurately as possible and therefore accept no liability for inaccuracies in the data provided.

Thank you to each of the case study companies that took part in this study, for their commitment and co-operation.

4.3 Assessment of case study companies against the “Hypothetical Framework”

The “Hypothetical Framework” has been used in order to gain a better understanding of the influence that the key identified drivers: Cost, Regulation, Reputation and Innovation have at different stages of the GHG management cycle, at each of the five selected case study companies. Table 4.4 summarises the drivers and barriers identified for each case study company at different stages of the GHG management cycle.

4.3.1 Summary of the drivers to selection of the GHG measurement/assessment tool

This section aims to identify the key drivers influencing the uptake of a GHG measurement/assessment tools by each of the case study companies. Table 4.3 summarises the tools adopted by each of the case study companies.

Table 4.3 GHG measurement/assessment tools adopted by case study companies

Corporate or Product/Service	Case Study Company	GHG measurement/assessment tool adopted	Reporting Mechanism used
Corporate	G4S	GHG Protocol	CDP 2009 Corporate Register Website CR Reports
Corporate	Greenvale AP	GHG Protocol	Website
Corporate	SCA	GHG Protocol	CDP 2009 Corporate Register Website
Product	Continental Clothing	PAS 2050	Website
Service	National Express	GHG Protocol ¹⁶ & PAS 2050	CDP 2009 Corporate Register Website CR Reports

¹⁶ National Express have been categorised as footprinting a service. For the purpose of this study, the service is defined as a journey. As a result, National Express aligns with the GHG Protocol.

Corporate

Both Greenvale and SCA align with the GHG Protocol. In both cases selection of the GHG Protocol was primarily because it is recognised as one of the main GHG measurement/assessment tools, and as a result, the common driver for both companies was **reputation** (i.e. reputation of aligning with a recognised tool).

Whilst Greenvale identify **compliance** as a driver (i.e. to allow Greenvale to monitor and report emissions under the CCA held for four sites), this position is not reflected by SCA, who don't consider compliance as a strong driver, as they were already monitoring emissions across all of their installations (including those who fall under mandatory reporting).

No barriers to selection of the GHG measurement/assessment tools were identified by either company.

Product/service

In calculating the emissions associated with their services "per passenger km", National Express aligned with the GHG protocol, as a recognised international tool for measuring emissions at the corporate level. This decision was based on credibility and therefore **reputation** was the key driver. In advance of the PAS 2050 as a GHG measurement/assessment tool in enabling product labeling, National Express began to look at developing a 'carbon label' for transport. Although the service footprint reflects the requirements of the PAS 2050, the **cost** of communicating the carbon footprint through a label were found to be prohibitive and therefore represented a barrier to reporting in this way¹⁷.

Continental Clothing had already developed an "in-house" method for measuring their product footprint (pre PAS 2050). Aligning to the PAS 2050 was purely as a means to demonstrate that Continental Clothing were following a recognised and credible GHG measurement/assessment tool, and as a result were permitted to use the CT CLC product label to market their "EarthPositive" range. For Continental Clothing, the main driver for uptake (or aligning to) the PAS 2050 was **innovation** and Continental Clothing's requirement to align with a recognised GHG measurement/assessment tool to allow use of the CT CLC label. No barriers were identified to Continental Clothing selecting the PAS 2050.

4.3.2 Summary of the drivers to monitoring and reporting emissions

Corporate

Compliance is currently a key driver for Greenvale, with four of the UK facilities falling under Climate Change Agreements (CCA's). It is likely that **Compliance** will continue to be a driver in the future, with the expected

¹⁷ It must be noted that whilst product labelling is outside the scope of the PAS 2050, (i.e. there is no requirement for mandatory reporting), it is enabled by the PAS 2050.

extension of CCA's until 2017 and the introduction of the CRC in 2010. For Greenvale, one of the key overarching drivers for engaging in the GHG arena is the future sustainability of the company (**Cost, Reputation and Innovation**). Although **Reputation** and **Innovation** are both strong drivers, ensuring that Greenvale future proof the business and maintain their position as sector leaders, **Cost** and **Compliance** remain as the strongest drivers.

The key drivers for SCA to monitor and report their emissions are **Reputation** and **Innovation**. Although not considered as a strong driver, Cost is not viewed as a barrier to monitoring and reporting emissions, as monitoring and reporting is seen as good practice and therefore a business requirement of the company. Despite many installations across Europe being covered by the EU ETS, SCA do not consider Compliance to be a strong driver, as they are monitoring and reporting their emissions across all of their installations anyway.

Product / service

The motivation for National Express formulating a Group-level environmental/CSR role and to begin to report greenhouse gas emissions was, in part, a question of the 'time being right'. In response to customer pressure for aggregated reporting of GHG emissions, it was generally felt that aggregated reporting either had to be done, or was the right thing to do. In this respect the most relevant category of driver would be **reputation** – encompassing elements of customer pressure, consideration of good business practice and moving with the times. In terms of reporting, early on it became clear that relative measures are important and so emissions per passenger km (average over year) are reported alongside absolute emissions. Net greenhouse gas savings in comparison with car travel (per passenger km) are also reported, showing the benefit to society associated with the service provided. Thus an element of **innovation** in the format and transparency of communication has also been a driver for change. This is demonstrated through the evolution of reporting methods over time. In terms of monitoring emissions a major driver for National Express is **cost**. Projects/research into emissions reductions are always ongoing, as emissions are fundamentally linked with fuel consumption, which, in turn, is fundamentally linked to costs.

Continental Clothing's decision to monitor and report emissions (initially following their own "in-house" methodology then subsequently aligning to the PAS 2050), was purely driven on their business decision to develop the new "EarthPositive" product range. The key driver for monitoring and reporting was therefore **Innovation**.

No barriers were identified for National Express or Continental Clothing, it should be noted that whilst cost was neither a driver nor a barrier for Continental Clothing, (it was accepted as part of the business decision to footprint the "EarthPositive" range), it was still a consideration.

4.3.3 Summary of the drivers to setting emission reduction targets

Corporate

For SCA, there is a very strong link between their emissions data and setting of emission reduction targets. SCA see that the targets have the additional benefit of future proofing the company, preparing the company for future carbon constraints (driven by cost and regulation). As a result, future **Compliance** is seen as a driver to setting targets. **Reputation** and **Innovation** is also key drivers for SCA, who strive to meet the expectations of their customers whilst being sector leaders. Although there is a strong link between monitoring / reporting and setting of corporate emission reduction targets, SCA are firm that reporting of emissions would have been done without the ultimate goal of developing targets. For SCA, understanding of their emissions is an essential pre-requisite to good business order. No barriers to setting of emission reduction targets were identified for SCA.

Greenvale has a very informal target to reduce their normalised emissions across the business. In addition to this informal target, a formalised target to reduce emissions against a baseline year of 2007 has been set for one of their sites and will be extended to the other Greenvale sites in the future. The drivers for Greenvale setting emission reduction targets are driven by **Cost** (reduction) **Reputation** and **Innovation**. The only potential future barrier to target setting is likely to be excessive **Cost** (due to the absence of any appropriate and financially viable technologies), preventing emission reductions and therefore target setting. For Greenvale, cost represents both a driver and a barrier.

Product / service

A key credential (and target) of Continental Clothing's "EarthPositive" range was to make the range climate neutral. The 90% reduction in CO₂ that was ultimately achieved was the maximum possible reduction rather than a simple reduction target, which can be improved year on year. The target to become climate neutral was very much driven by **Innovation** and **Reputation** drivers. A future barrier to emission reductions is that Continental Clothing have achieved maximum reductions in year one, with very limited further reductions possible whilst continuing production.

National Express has set emission reduction targets for both absolute and relative emissions. Despite having official targets, National Express's fundamental position is that neither absolute nor relative reduction targets are appropriate to their business model. For absolute emissions, it is considered that National Express should aim to increase its absolute emissions as a result of an expansion in services and thereby indirectly deliver net reductions in emissions from the UK transport sector. In relation to relative emissions, National Express believe it is not possible to meaningfully set a 'per passenger km' target given that the major variables affecting fuel consumption (congestion, route etc), and therefore emissions are out of the control of National Express. For National Express **innovation** and **cost** represent key

barriers, reflecting the availability of financially feasible technologies that reduce emissions without having an adverse impacts (emissions of other pollutants, safety/passenger numbers? etc).

4.3.4 Summary of the drivers to working towards/achieving emission reductions

Corporate

In 2008, SCA announced a demanding target of 20% reduction on 2005 CO₂ levels by 2020. SCA have developed a corporate business plan of how they will achieve their demanding targets. In 2008, SCA initiated a number of investments identified as delivering emission reductions, as set out in their strategy and have achieved a 2.6% reduction on 2005 emissions (in line with their strategy for meeting the 20% reduction target). In line with SCA's position striving to be an innovative sector leaders, **Reputation** and **Innovation** are both drivers to working towards/achieving emission reductions. The availability of appropriate and financially viable technologies to enable SCA to meet their emission reduction targets is seen as a potential barrier to SCA working towards/achieving emission reductions, resulting in **Innovation** and **Cost** becoming potential barriers to reductions.

With four of the Greenvale UK facilities having Climate Change agreements (CCA's) and falling under the future Carbon Reduction Commitment (CRC), **Compliance** is a key driver for Greenvale working towards/achieving emission reductions. Other drivers associated with emission reductions are **Reputation** and **Innovation**. These drivers are particularly pertinent in Greenvale's business planning, commitment and decisions to invest in technologies to achieve emission reductions (i.e. in renewable technology). Through understanding the company's carbon footprint and the financial cost of carbon, Greenvale factors the current and likely future cost of carbon into the financial feasibility of investment decisions, making **Cost** a driver to reductions. However, where financially viable technologies are not available or payback periods are not sufficient to make a business case, **Innovation** and **Cost** can represent a barrier to reduction. Greenvale do not strive to make emission reductions to the detriment of other environmental factors. As part of considering GHG data alongside other environmental and financial factors, within an integrated business management approach, Greenvale may decide not to install a financially feasible piece of equipment, able to achieve emission reduction, if it has a massively detrimental impact on water consumption or waste production. As a result, **Reputation** may become a barrier to emission reductions.

Product / service

Despite not being directly applicable, projects/research into emissions reductions are always ongoing (trials for hybrid busses, lighter coaches), as emissions are fundamentally linked with fuel consumption, which, in turn, is fundamentally linked to cost. As a result **Cost** is both the driver and barrier to any emission reductions ultimately achieved by National Express.

For Continental Clothing, the key drivers to working towards/achieving their emission reduction target to become carbon neutral were **Innovation** and **Reputation**.

4.3.5 Overview of the drivers identified across the five case study companies across the GHG management cycle

Engagement with the five case study companies has revealed a range of drivers and barriers reflecting the specific circumstances of each company and in places trends in the data. Table 4.4 summarises the drivers and barriers identified for each case study company at different stages of the GHG management cycle.

Drivers and barriers across the whole GHG management cycle

Looking at the whole GHG management cycle, reputation is the most frequent driver (particularly in corporate reporting), followed by innovation, (which appears as a strong driver across both corporate and product/service reporting). Although identified as drivers, reputation and innovation (particularly innovation with 4 out of 5 companies) have also been identified as barriers at particular stages of the GHG management cycle, mainly due to availability of feasible technologies to achieve emission reductions.

Some companies experience follow on benefits of taking action, particularly due to Reputational and Innovation drivers, which can lead to an improved reputation of the company.

Compliance was identified as a key driver within the corporate reporting arena, although, as expected, not on the agenda for product/service reporting, for whom mandatory reporting is not currently a requirement.

Cost has been identified as both driver and barrier across four of the five companies, with one company only identifying cost as just a barrier (not seen as a driver at all). Cost was identified as the strongest barrier across all five case study companies.

The type of Cost driver/barrier reported by the company (i.e. cost of reporting and cost of change) is dependant on the situation of the individual company and the stage of the GHG management cycle.

The drivers and barriers noted across the GHG management cycle and the company's ultimate position of working towards/achieving emission reductions is dependant on the influence of each of the drivers/barriers on the individual company.

Drivers and barriers to: selection of the GHG measurement/assessment tool

Four of the five case study companies identified reputation as a key driver to aligning with the GHG Protocol or PAS 2050. Compliance and innovation were each identified as drivers to selection of the GHG measurement/assessment tool by one (different) company.

The only barrier/potential barrier to selection of the GHG measurement/assessment tool was identified as cost, by one of the five companies. This barrier was reported by National Express who identified that the cost of communicating a carbon footprint through a label were prohibitive and represented a barrier to reporting in this way (i.e. cost of communicating the results of the GHG assessment is considered to represent a barrier).

Drivers and barriers to: monitoring and reporting emissions

Two of the corporate case study companies identified all four drivers as key in monitoring and reporting emissions. All five case study companies reference innovation as a key driver to monitoring and reporting emissions, whilst four referenced reputation, three identified cost and two identified compliance.

No barrier/potential barriers to monitoring and reporting emissions were identified by any of the case study companies.

Drivers and barriers to: setting emission reduction targets

One company (corporate reporting) identified all four drivers as key in monitoring and reporting emissions. Reputation and innovation were identified as key drivers by four of the companies, whilst cost and compliance were identified by three and two companies (respectively).

The Cost of change (financial cost) was identified as a barrier/potential barrier to target setting by four of the companies, with innovation also identified as a barrier/potential barrier. Cost and innovation were identified as barriers due to the availability of financially feasible technologies to help achieve reductions and therefore enable reduction targets to be set (i.e. the cost of change).

Drivers and barriers to: working towards/achieving emission reductions

Two of the corporate case study companies identified all four drivers as key in working towards/achieving emission reductions. As is the case under “setting emission reduction targets”, reputation and innovation were identified as key drivers by four of the companies, whilst cost and compliance were identified by three and two companies (respectively).

Cost (i.e. cost of change) was identified as a barrier/potential barrier by four of the companies, with innovation identified as a barrier by three companies. Only one company considered reputation to be a barrier/potential barrier to working towards/achieving emission reductions. As expected, no companies identified compliance as a barrier/potential barrier to emission reductions.

Table 4.4 Case study identified drivers and barriers

		Drivers and Barriers to:	Cost	Compliance	Reputation	Innovation
Corporate Reporting	Greenvale	Selection of the GHG measurement/assessment tool				
		Monitoring & reporting emissions				
		Setting emission reduction targets				
		Working towards/achieving emission reductions				
	SCA	Selection of the GHG measurement/assessment tool				
		Monitoring & reporting emissions				
		Setting emission reduction targets				
		Working towards/achieving emission reductions				
	G4S	Selection of the GHG measurement/assessment tool				
		Monitoring & reporting emissions				
		Setting emission reduction targets				
		Working towards/achieving emission reductions				
Product / Service Reporting	National Express	Selection of the GHG measurement/assessment tool				
		Monitoring & reporting emissions				
		Setting emission reduction targets				
		Working towards/achieving emission reductions				
	Continental Clothing	Selection of the GHG measurement/assessment tool				
		Monitoring & reporting emissions				
		Setting emission reduction targets				
		Working towards/achieving emission reductions				
Drivers			Barriers			

4.4 Testing of the Hypothesis: Do GHG measurement/assessment tools deliver emission reductions in the absence of external drivers?

The assessment of the five case study companies using the “Hypothetical Framework” has tested the hypotheses that emission reductions are not necessarily the direct result of the GHG measurement/assessment tool, but

are ultimately influenced by a number of external factors (drivers). This assessment has ultimately allowed an understanding of whether GHG measurement/assessment tools, deliver emission reductions on their own. The findings for each case study company are provided below (and summarised in Table 4.4):

Greenvale: There is a definite link between Greenvale's use of the GHG Protocol, reporting of emissions and setting of emission reduction targets. Greenvale use the data collected through GHG monitoring as a management tool, which ultimately allows the company to understand their current position and make informed short to medium term decisions including setting of appropriate and realistic emission reduction targets. Although no emission reductions have been achieved by Greenvale to date (2007 was the first year full year for which data was collected and emissions increased slightly in 2008), If reductions are achieved, a link back to the GHG Protocol could be identified.

For Greenvale, a link between use of a GHG measurement/assessment tool (GHG Protocol) and working towards emission reductions can be made. However, it should be noted that the GHG measurement/assessment tool is unlikely to have *caused* reductions; it simply *allowed* them to happen through Greenvale understanding and actively managing its footprint. Any reductions worked towards/achieved by Greenvale would be attributable to a combination of the drivers (reputation being the predominant driver).

SCA: There is a very strong link between SCA monitoring and reporting using the GHG protocol and setting their emission reduction targets. In 2008, SCA achieved a 2.6% reduction on emissions against their 2005 base year and are in line to meet their corporate emission reduction target of 20% below 2005 levels by 2020. Given that SCA align to the GHG Protocol, a link can be seen between the GHG measurement/assessment tool (GHG Protocol) and emission reductions.

For SCA, a link between use of the GHG measurement/assessment tool, setting of emission reduction targets and working towards/achieving emission reductions can be made. It should however be noted that the tool is unlikely to have *caused* reductions, it simply *allowed* them to happen through SCA understanding and actively managing its footprint. Any reductions worked towards/achieved by SCA would be attributable to a combination of the drivers (reputation being the predominant driver).

G4S: There is a definite link between G4S's use of the GHG Protocol as the GHG measurement/assessment tool for measuring their footprint and setting of emission reduction targets. G4S strive to be an innovative sector leader and their ability to measure their footprint via the GHG Protocol has allowed them to develop their informed, realistic and achievable reduction strategy and carbon intensity reduction targets (reduction of CO₂ e per million £

revenue). G4S are in line to reduce their emission intensity by 15% on 2009 levels by 2012. Any reductions worked towards/achieved will be partly attributable to use of the GHG Protocol as a tool to allow G4S to understand their GHG footprint and make informed emission intensity reduction targets.

For G4S, the use of the GHG measurement/assessment tool has directly influenced the companies GHG strategy. As a result, a link between use of the tool, setting of emission reduction targets and ultimately working towards/achieving emission reductions can be made. It should however be noted that whilst the GHG measurement/assessment tool (GHG Protocol) is unlikely to have *caused* reductions, it simply *allowed* them to happen (through providing understanding and active management of G4S's footprint). Any reductions worked towards/achieved by G4S would be attributable to a combination of all four identified drivers (reputation being the predominant driver).

Continental Clothing: Continental Clothing had already made the decision to reduce their emissions as part of the development of the new product range. As a result, use of the PAS2050 as a GHG measurement/assessment tool had no impact on the setting of environmental reduction targets. The calculation of emissions associated with the product (and alignment to the PAS 2050) has however enabled Continental Clothing to quantify and report emission reductions against a recognised and approved GHG measurement/assessment tool. It is considered that any future emission reductions (if deemed possible through technology improvements) would indirectly link to the PAS 2050 as a tool for understanding the product footprint.

It should be noted that Continental Clothing is perhaps atypical of companies with a similar size and profile in the clothing market, because it had already been committed to emission reduction as part of its new product development process

For Continental Clothing a link between alignment with a GHG measurement/assessment tool (PAS 2050) and setting of emission reduction targets and working towards/achieving emission reductions cannot be made. Continental Clothing had already made the decision to reduce the emissions of their product prior to alignment with the PAS 2050. Whilst it is recognised that the PAS 2050 is an assessment standard and does not require or provide guidance on reduction, this study is focused on links between measurement and reduction and ultimately the influence of the PAS 2050 on the GHG management cycle (i.e. the framework provided by the PAS 2050), against which a company can assess the emissions (and reductions) from their processes.

For Continental Clothing, Innovation was the predominant driver to ultimate emission reductions.

National Express: National Express uses data calculated through the GHG measurement/assessment tools - GHG protocol and PAS2050 as a management tool. Although there is no firm link to target-setting, it is acknowledged that the implementation of a process for measuring their footprint has informed the companies GHG management strategy, ultimately leading to National Express working towards/achieving emission reductions.

For National Express there is no strong link between alignment with the GHG Protocol / PAS 2050 and setting of emission reduction targets and working towards/achieving emission reductions. It should however be noted that whilst the tools are unlikely to have *caused* reductions, they would have *allowed* National Express to understand and manage its emissions. Based on the discussions with National Express, emission reductions cannot be directly attributable to specific drivers.

Through engaging with the five case study companies, ERM has proved the hypothesis that GHG emissions result from the influence of the key drivers and that whilst the GHG Protocol and PAS 2050 are fundamental enablers of GHG emission reductions (through enabling companies to measure, report and manage their emissions), GHG measurement/assessment tools are not likely to deliver those reductions on their own.

- Although links between GHG measurement/assessment tools, reporting and target setting/working towards emission reductions can often be identified, it has been proved that GHG measurement/assessment tools do not actually *cause* emission reductions.
- GHG measurement/assessment tools can often *allow* reductions to happen (through *allowing* an understanding of the emission footprint and therefore *allowing* companies to actively manage their emissions). As such GHG measurement/assessment tools act as a tool/enabler which can be used by companies through the GHG management cycle.
- GHG measurement/assessment tools allow for reduction to be determined by providing a common basis against which emissions are calculated at different points in time.
- All drivers can be broadly categorised into four overarching drivers: Cost, Compliance, Reputation and Innovation.
- Drivers often change at different stages of the GHG management cycle.
- Despite some identified trends, drivers appear to vary depending on the individual company.
- Companies identified as “Sector Leaders” are more likely to use GHG measurement/assessment tools as an enabler to development of GHG

strategies, setting emission reduction targets and working towards/achieving emission reductions.

4.4.1 Attributing company emission reductions to uptake of GHG tools

ERM have identified that GHG Protocol and PAS 2050 are fundamental enablers of GHG emission reductions (through enabling companies to measure, report and manage their emissions), GHG measurement/assessment tools are not likely to deliver those reductions on their own.

4.5 Appropriateness of the “Hypothetical Framework” & selected case study companies

The “Hypothetical Framework” was found to be a robust and effective method for testing the hypothesis using the five case study companies. The “Hypothetical Framework” allowed careful consideration of the drivers at each stage of the GHG management cycle and ultimately the key drivers (or combination of drivers) influencing the companies decision to work towards/achieve emission reductions. The framework also allowed links between GHG measurement/assessment tools and different elements of the GHG management cycle to be identified.

It should be noted that the five case study companies selected all have very specific circumstances and should not therefore be considered as standard.

Four of the five case study companies openly position themselves as “sector leaders”. This positioning immediately strengthens the occurrence of the innovation and reputation drivers amongst the case study group and also increased the likelihood of the company agreeing to engage in this study. When selecting case study companies, there is always an increased probability of engaging with well positioned companies who are openly disclosing their GHG management cycle.

With particular reference to Continental Clothing, it should be noted that the company are very focussed on innovation and the fact that they developed their own GHG measurement/assessment method before aligning with the PAS 2050 is a good reflection of this. However, this is not a fair reflection of all companies, many of whom may be constrained by factors such as cost (representing a barrier), rather than it being a consideration and accepted as a cost associated with the development of a new product range.

Annex A: Interview Proforma



Annex A

Monitoring Uptake of GHG Measurement Tools and Resulting Reductions in GHG Emissions

Introduction

There are a number of methods and tools available for companies to calculate and report on the Greenhouse Gas (GHG) emissions from their activities, products and/or services. ERM have been appointed by Defra to undertake a study determining how to measure (i.e. via which methods) the uptake of 'GHG footprinting' (for both corporate emissions and products & services) and the level of GHG emissions reductions that this generates. We will also assess the effectiveness of any methods recommended by testing them on existing data.

In order to measure uptake of 'GHG footprinting', we intend to work closely with a number of stakeholder organisations centrally involved in GHG footprinting and reporting to benefit from their quantitative and qualitative information on uptake, particularly in the business community.

Task 1 – Interview Questions

- How in theory would you measure uptake of GHG monitoring?
 - Are systems already in place to monitor uptake?
 - Can you foresee any problems / limitations in using these systems to measure uptake of GHG monitoring (i.e. companies / sectors that don't tend to respond)?
- Completeness of coverage:
 - What geographical region does your methodology/protocol/survey cover (Country specific, global, other geographical boundary).
 - What type of companies does your methodology/protocol/survey target (i.e. multinational companies, SME, public sector organisations, sector specific companies)?
 - What types of companies respond to your methodology/protocol/survey (i.e. multinational companies, SME, public sector organisations, sector specific companies)?
- Accuracy:
 - Response rate from the companies/organisations from which data is requested?
 - Completeness of responses?
 - Method(s) (if any) used to check and verify data (i.e. sample selection, sample size etc)?
- Repeatability:
 - What is the frequency of data collection?

- Do subsequent questions align to allow trends to be identified?
- Drivers
 - What drivers have you identified for companies using your methodology/protocol/survey to report GHG monitoring (i.e. investor pressure, improved branding, issues of resource use in the supply chain)?
- Access to data (for phase 2)
 - As part of phase two of this project we will be requesting data on uptake of GHG monitoring. Will you be able to provide this information from your methodology/protocol/survey?
 - Do you foresee any difficulties in providing this data to Defra?

Additional/alternative questions for stakeholders not directly involved with development of GHG monitoring and reporting methodologies/tools (LGA, SDC etc)

- What kind of GHG methodologies/tools might be utilised by your sector? E.g. procurement of goods and services by Local Authorities; GHG reporting by government departments
- How aware is the sector of the existence and potential use of such methodologies/tools?
- Are there any central or devolved policies/strategies in place to currently employ, introduce or increase use of these tools in future? E.g. mandated during tendering for goods and services; universal application across a reporting regime such as government or Local Authority environmental KPIs

Annex B: Interview Notes



Annex B – (British Standards Institution)

Monitoring Uptake of GHG Measurement Tools and Resulting Reductions in GHG Emissions

Introduction

There are a number of methods and tools available for companies to calculate and report on the Greenhouse Gas (GHG) emissions from their activities, products and/or services. ERM have been appointed by Defra to undertake a study determining how to measure (i.e. via which methods) the uptake of 'GHG footprinting' (for both corporate emissions and products & services) and the level of GHG emissions reductions that this generates. We will also assess the effectiveness of any methods recommended by testing them on existing data.

In order to measure uptake of 'GHG footprinting', we intend to work closely with a number of stakeholder organisations centrally involved in GHG footprinting and reporting to benefit from their quantitative and qualitative information on uptake, particularly in the business community.

Task 1 – Interview Questions

British Standards Institution Overview:

Maria Varbeva-Daley is main contact. At the time of the interview Maria was Sector Content Manager – Sustainability. Prior to this, she was a Senior Consultant with BSI Professional Standards Services and as such the BSI PAS 2050 Project Manager.

BSI is a global independent business services organization that inspires confidence and delivers assurance to over 80,000 customers with standards-based solutions. Originating as the world's first national standards body, BSI has over 2,300 staff operating in over 120 countries through more than 50 global offices. BSI's key offerings are:

- The development of private, national and international standards and supporting information that promote and share best practice
- Management systems assessment and certification in all critical areas of management disciplines
- Testing and certification of services and products for Kitemark and CE marking to UK, European and International standards. BSI is a Notified Body for 15 New Approach EU Directives
- Certification of high-risk, complex medical devices
- Performance management software solutions
- Training services in support of standards implementation and business best practice.

For further information visit www.bsigroup.com.

Maria is with the standards drafting arm of BSI, the National Standards Body of the UK.

- How in theory would you measure uptake of GHG monitoring?
 - Are systems already in place to monitor uptake?
 - Can you foresee any problems / limitations in using these systems to measure uptake of GHG monitoring (i.e. companies / sectors that don't tend to respond)?

There are various ways to track the uptake of PAS2050 but no single, universal method is in place. The fact that PAS2050 has only been available since October 2008 means that tracking uptake is only at an early stage. BSI has been working with Defra and the CT to push uptake, publicise the methodology's existence and to make it as easy as possible to use.

The general way that BSI would monitor the uptake of one of its standards would be to go on the rate of sales. This would involve looking at how many hard copies of a particular standard have been sold, how many have been downloaded and how many subscriptions have been taken out to track the progress of a developing standard. Monitoring uptake of the PAS2050 in this way is problematic, given its freely accessible nature, so a range of methods which can be used in combination are detailed below (please note these approaches are not intended as stand alone, but in combination with other BSI suggested approaches for monitoring uptake):

1. Monitoring the download rate of the PAS2050 from the BSI website. More than 17,000 copies have been downloaded to date (November 2009), from across 80 countries. A limitation might be that the download can be made from any location, but put to use in another, and there is no guarantee that every download results in the PAS actually being put to use.
2. Recording conference speaking opportunities. A broad trend in uptake could be derived from the popularity of the PAS at conferences, judged on the basis of appearance requests submitted to BSI. BSI Marketing department monitors this to gauge interest in, and demand for, its work.
3. The 'Drafts for Public Comments' system (DPC). This is in place to allow people to comment / consult on draft standards and specifications. BSI can monitor the number and types of enquiry to form a picture of uptake. See link for more info <http://www.bsi-global.com/en/Standards-and-Publications/Current-work/DPCs/>
4. Conformity to PAS 2050 can be sought through: self assessment, peer-review and independent third party certification.

While the first 2 options are tricky to monitor, 3rd party certification under the PAS could be monitored to provide uptake data. However, it is early days for the PAS and no formalised accreditation scheme is yet in place,

though one is currently being piloted. Also, 3rd party certification is voluntary, so self-certification and peer-certification would not be captured by monitoring just this area.

It should be noted that UKAS are trialling the accreditation and certification approach for PAS 2050 and for PAS 2050 combined with the Code of Good Practice, working with a small group of certification bodies that expressed an interest to participate in a pilot programme. The pilot programme is expected to be completed by the end of 2009.

5. Whilst product labelling is outside of the scope of PAS 2050 (i.e. there is no requirement for mandatory labelling), it is enabled by PAS 2050. Uptake could ultimately be measured through PAS 2050 enabled product labels. This would allow measurement of uptake by product type/sector. However, this would not be mandatory so would not provide a full picture. Measurement of uptake could also be undertaken through consideration of other projects which BSI is engaged in (of relevance to monitoring uptake of GHG tools). These include both specific national and international projects.

6. Pilot projects. Defra is currently running 4 pilot projects aimed at examining the use of the PAS on a sectoral basis. In addition, CT has run 20 pilot projects with different organisations to test run the implementation of the PAS. Monitoring these projects could provide a broad sectoral view of uptake.

- Completeness of coverage:
 - What geographical region does your methodology/protocol/survey cover (Country specific, global, other geographical boundary).
 - What type of companies does your methodology/protocol/survey target (i.e. multinational companies, SME, public sector organisations, sector specific companies)?
 - What types of companies respond to your methodology/protocol/survey (i.e. multinational companies, SME, public sector organisations, sector specific companies)?

BSI has a global reach, with standards and specifications such as the PAS 2050 being available internationally. BSI is also engaged in standardization activities (e.g. development of national standards and supporting tools, contribution to European and International/ISO standardization). In addition, BSI covers different sectors and develops different types of standards. All these are factors which determine the reach and the uptake of standards (including PAS 2050). PAS 2050's uptake has been high across different continents. For example, there is a lot of interest in PAS 2050 in Asia (not only in Europe and North America).

- Accuracy:
 - Response rate from the companies/organisations from which data is requested?
 - Completeness of responses?

- Method(s) (if any) used to check and verify data (i.e. sample selection, sample size etc)?

Accuracy varies across the range of suggested monitoring methodologies. Gathering data from web downloads and marketing exercises can only provide an indicative picture of uptake. More involved methods, such as monitoring the PAS2050 certification scheme would provide more accurate data for particular areas, but would exclude those which are not covered by a formal 3rd party certification exercise.

- Repeatability:
 - What is the frequency of data collection?
 - Do subsequent questions align to allow trends to be identified?

Data is collected on an ongoing basis by BSI Marketing and PR. Trends can be identified though with caveats to highlight those areas not covered by the data collection, or those which provide anecdotal evidence as opposed to empirical data.

- Drivers
 - What drivers have you identified for companies using your methodology/protocol/survey to report GHG monitoring (i.e. investor pressure, improved branding, issues of resource use in the supply chain)?

The PAS2050 was born out of the market's need for a single, consistent, high detail tool for product footprinting.

Before the PAS there was no recognised product footprinting methodology. Increasing public awareness of climate change and pressure for suppliers to quantify the GHG associated with their products, added to the call from the producers, manufacturers and retailers. The latter group is particularly keen on demonstrating leadership on climate change, while across the board companies are keen to address the emissions associated with /production manufacturing processes in light of the new Carbon Reduction Commitment legislation. For more drivers, see inside the PAS2050 document.

PAS 2050 helps business to:

- Understand the “story” of their products – where they come from and their impact
- move beyond managing direct operational greenhouse gas emissions to look for reduction opportunities in the whole supply chains of goods and services
- Identify key sources of emissions, or “hot spots”, in their supply chain and therefore help prioritise emission reduction initiatives,
- innovate around the development of lower carbon products and even phase out carbon intensive goods and services in favour of lower carbon alternative

- communicate with their customers - for example through providing transparent and reliable information about the carbon footprints of goods and services which can then be factored into purchasing decisions.”
- Access to data (for phase 2)
 - As part of phase two of this project we will be requesting data on uptake of GHG monitoring. Will you be able to provide this information from your methodology/protocol/survey?
 - Do you foresee any difficulties in providing this data to Defra?

Maria is happy to help with obtaining specific information from the BSI Marketing and PR departments. We would need to know what to ask for, as opposed to a blanket request for data. The information available could allow us to examine uptake based on download volumes by sector and geographical spread.

Additional/alternative questions for stakeholders not directly involved with development of GHG monitoring and reporting methodologies/tools (LGA, SDC etc)

- What kind of GHG methodologies/tools might be utilised by your sector? E.g. procurement of goods and services by Local Authorities; GHG reporting by government departments
- How aware is the sector of the existence and potential use of such methodologies/tools?
- Are there any central or devolved policies/strategies in place to currently employ, introduce or increase use of these tools in future? E.g mandated during tendering for goods and services; universal application across a reporting regime such as government or Local Authority environmental KPIs

Annex B (Californian Climate Action Registry & the US Climate Registry)

Monitoring Uptake of GHG Measurement Tools and Resulting Reductions in GHG Emissions

Introduction

There are a number of methods and tools available for companies to calculate and report on the Greenhouse Gas (GHG) emissions from their activities, products and/or services. ERM have been appointed by Defra to undertake a study determining how to measure (i.e. via which methods) the uptake of 'GHG footprinting' (for both corporate emissions and products & services) and the level of GHG emissions reductions that this generates. We will also assess the effectiveness of any methods recommended by testing them on existing data.

In order to measure uptake of 'GHG footprinting', we intend to work closely with a number of stakeholder organisations centrally involved in GHG footprinting and reporting to benefit from their quantitative and qualitative information on uptake, particularly in the business community.

Task 1 – Interview Questions

Californian Climate Action Registry overview:

Main contact is Sarah Stanner-Cranston – works as Program Manager for the California Registry, dealing with verification and reporting for entity level emissions inventories and for emissions reduction projects under the Climate Action Reserve.

The CCAR is a private non-profit organisation originally formed by the State of California. The Registry serves as a voluntary GHG registry to protect and promote early actions to reduce GHG emissions by organisations. It provides leadership on climate change by developing and promoting credible, accurate, and consistent GHG reporting standards and tools for organisations to measure, monitor, third-party verify and reduce their GHG emissions consistently across industry sectors and geographical borders. The tools are derived from, and compatible with, the GHG Protocol

CCAR is a program partner of The US Climate Registry (TCR). TCR is a collaboration between over 40 states, provinces and tribes in the United States, Canada, and Mexico to develop and manage a common and unified GHG emissions reporting system. It is designed to support various GHG emission reporting and reduction policies for its members based on data that is accurate, complete, consistent, transparent and verified. The Registry consists of a voluntary entity-wide reporting program as well as the infrastructure to collect and track GHG data reported to state mandatory and regulatory programs.

TCR is founded on the GHG Protocol Corporate Accounting and Reporting Standard. WRI provided technical support and facilitation throughout the development process to ensure capability with the GHG Protocol.

TCR is an effort to unify existing US state and regional registries also founded on the GHG Protocol and facilitated by WRI. These include the CCAR and the Eastern Climate Registry, a joint project of several Northeast states. TCR represents the joint efforts of California and the Northeast, together with states in the Midwest, Western, and Southeast US, to create a single unified greenhouse gas emissions registry.

- How in theory would you measure uptake of GHG monitoring?
 - Are systems already in place to monitor uptake?
 - Can you foresee any problems / limitations in using these systems to measure uptake of GHG monitoring (i.e. companies / sectors that don't tend to respond)?

CCAR has 350 'reporters' who submit data on an ongoing basis for third part review and verification. The tools used for monitoring and reporting are produced based on industry requirements via an open stakeholder process. They are freely available online to anyone who wishes to use them, as opposed to being limited to CCAR members / reporters only.

There is no methodology in place to monitor the uptake or use of the tools via 'external' users. However, some surveys have been carried out to examine what different sectors are using. Eventually, mandatory reporting will force participants to declare to the State which tools they use.

A plus-point to the CCAR method is the ability to tie emission reductions and total company emissions to users of the tools via the CCAR registry reports and software. CCAR also require emission reductions to be attributed to specific causes, e.g. organic reductions caused by changes in the business, or actual effort put in by the company as a result of using the tools.

- Completeness of coverage:
 - What geographical region does your methodology/protocol/survey cover (Country specific, global, other geographical boundary).
 - What type of companies does your methodology/protocol/survey target (i.e. multinational companies, SME, public sector organisations, sector specific companies)?
 - What types of companies respond to your methodology/protocol/survey (i.e. multinational companies, SME, public sector organisations, sector specific companies)?

CCAR accepts data on a nationwide basis and even globally too, though this is not run through their verification system. TCR covers all of the US, while CCAR reporters are currently 75% Californian and 25% rest of US. All types and sizes of reporter participate in the registry, from aerospace to counties, to agriculture, education, oil and gas and so on.

- Accuracy:
 - Response rate from the companies/organisations from which data is requested?
 - Completeness of responses?
 - Method(s) (if any) used to check and verify data (i.e. sample selection, sample size etc)?

CCAR's registry and reporting data is of exceptionally high quality given the system of verification involved. A 5% margin of error is allowed on the reporter's side but no data gaps are permitted. An incomplete return would not be accepted into the CCAR database.

- Repeatability:
 - What is the frequency of data collection?
 - Do subsequent questions align to allow trends to be identified?

CCAR is a voluntary programme which reports and verifies on an annual basis. June 30th is the deadline for reporting, with verification taking place between then and 31st October, when full reports are required to be entered onto the database. There is some leeway with this timetable though.

- Drivers
 - What drivers have you identified for companies using your methodology/protocol/survey to report GHG monitoring (i.e. investor pressure, improved branding, issues of resource use in the supply chain)?

The key driver for organisations becoming CCAR reporters is a general sense of good corporate responsibility on behalf of the participating organisations. Reporters also see the value in using CCAR as a method of preparing for future mandatory reporting regimes, as voluntary participation now lets them capture data and identify any issues.

- Access to data (for phase 2)
 - As part of phase two of this project we will be requesting data on uptake of GHG monitoring. Will you be able to provide this information from your methodology/protocol/survey?
 - Do you foresee any difficulties in providing this data to Defra?

Sarah would be happy to provide aggregated data. Public reports are also already available online.

Additional/alternative questions for stakeholders not directly involved with development of GHG monitoring and reporting methodologies/tools (LGA, SDC etc)

- What kind of GHG methodologies/tools might be utilised by your sector?
E.g. procurement of goods and services by Local Authorities; GHG reporting by government departments
- How aware is the sector of the existence and potential use of such methodologies/tools?
- Are there any central or devolved policies/strategies in place to currently employ, introduce or increase use of these tools in future? E.g mandated during tendering for goods and services; universal application across a reporting regime such as government or Local Authority environmental KPIs

Annex B – (CDP)

Monitoring Uptake of GHG Measurement Tools and Resulting Reductions in GHG Emissions

Introduction

There are a number of methods and tools available for companies to calculate and report on the Greenhouse Gas (GHG) emissions from their activities, products and/or services. ERM have been appointed by Defra to undertake a study determining how to measure (i.e. via which methods) the uptake of 'GHG footprinting' (for both corporate emissions and products & services) and the level of GHG emissions reductions that this generates. We will also assess the effectiveness of any methods recommended by testing them on existing data.

In order to measure uptake of 'GHG footprinting', we intend to work closely with a number of stakeholder organisations centrally involved in GHG footprinting and reporting to benefit from their quantitative and qualitative information on uptake, particularly in the business community.

Task 1 – Interview Questions

CDP Overview:

Contacts Kate Levick – Main contact

Daniel Turner – Data management (deals with specific data queries)

See CDP website for reports on data reporting.

2008 data CDP 2008, deadline 31st May 2009, absolute deadline end June 2009, data published August 2009.

CDP has three main programme streams, as follows:

The questions asked as part of the Investor and Corporate surveys are very similar. Some companies are eligible to respond/have their answers included within both surveys.

Investor (corporate reporting – this is the original CDP)

- CDP sends requests to 3,500 global companies annually. Including the largest companies within each country.
- The first Investor survey was issued in 2002.
- Two of the key datasets run by CDP are the FTSE 100 and 350 UK data.
- The investor CDP responses are returned with a high proportion of responses to be disclosed publically, particularly within the UK – where a high % report publically.

Corporate strategy – Supply Chain

- Includes 40 multinational companies and between 20 – 200 of their global suppliers. Overall, c.1800 additional companies receive the CDP data request through this program (this figure does not include overlap where companies already receive a request via the Investor program).
- The first Supply Chain data request was made in 2008 (2007 data).
- The Corporate Strategy CDP responses are returned with a higher proportion of responses not to be disclosed publically. This could reflect the infancy of this reporting type.

Public Sector – Supply Chain

- This data set is as above (for the corporate strategy – supply chain), but for public sector bodies (i.e. government departments and their suppliers).
- This is less relevant to the project – but CDP will be sending to us for information.

CDP to send datasets through:

- Investor – login and password. Some of the oldest datasets are not available on the same system, and are within separate spreadsheets. These will be e-mailed separately.
- Corporate – data downloaded to excel files to be e-mailed.
- Public Sector – data downloaded to excel files to be e-mailed.

• How in theory would you measure uptake of GHG monitoring?

- Are systems already in place to monitor uptake?

Individual sample response rates are shown at the front of all CDP reports, available on the CDP website. Creating an overall aggregate response rate would involve a simple process of counting up all requests sent out, plus responses received from those who didn't receive a request (but feel that completing the CDP is the right thing to do) and comparing against total responses (both public and non-public)*

**CDP can do this easily – ERM to include in list of requests to CDP.*

- Can you foresee any problems / limitations in using these systems to measure uptake of GHG monitoring (i.e. companies / sectors that don't tend to respond)?

Issues of partial completion of responses addressed through scoring companies for completeness of reporting - CDLI (see below).

Issue of reporting the same data (i.e. repeating the same data each year and not making any progress) is slightly harder to address as this involves review of qualitative data rather than a simple completion check. CDP are currently investigating methods for assessing data change and performance improvements. A pilot project scoring companies for performance as well as than disclosure was conducted in 2009, high performance scores were strongly correlated with high disclosure scores.

Assurance is a key issue. CDP does not currently require verification of data submitted, although it asks whether the data is verified and requests that companies provide evidence of this, e.g. copies of verification certificates. It's considered that as companies are self-reporting to stakeholders, they should be taking care to ensure correct data is disclosed. CDP is considering bringing in a system, whereby companies could active a top tier reporting category through undertaking data verification.

- Completeness of coverage:

CDP sends requests to 5000 companies per year.

- What geographical region does your methodology/protocol/survey cover (Country specific, global, other geographical boundary).

The CDP database holds data for all respondents. The database can be searched by company, country (based on country that company is listed in or by HQ if required), sector, or by other areas (i.e. companies operating under the EU ETS).

For the purposes of the CDP samples (enquiries of the data), CDP consider the country in which a company is listed as being its country of origin, even where companies have operations globally.

- What type of companies does your methodology/protocol/survey target (i.e. multinational companies, SME, public sector organisations, sector specific companies)?
- What types of companies respond to your methodology/protocol/survey (i.e. multinational companies, SME, public sector organisations, sector specific companies)?

The Investor survey covers the largest global companies and organisations. SMEs don't respond to the investor survey usually for a number of reasons – including their size and the fact that they often don't have shareholders (and therefore are not driven by investors).

The public sector do not respond to the investor survey (because it's recognised that the public sector already report to the SD commission) . CDP is considering the options of liaising with the SD commission on this.

The Supply Chain survey includes data from a number of sizes of organisation, including many SMEs.

- Accuracy:
 - Response rate from the companies/organisations from which data is requested?
 - Individual sample response rates are shown at the front of all CDP reports, available on the CDP website. Creating an overall aggregate response rate would involve a simple process of counting up all

requests sent out, plus responses received from those who didn't receive a request (but feel that completing the CDP is the right thing to do) and comparing against total responses (both public and non-public)*

- Completeness of responses?

–

CDP have developed a process to address the issue of responses only being partially completed. Under this process, companies are scored by % completion of the survey under the CDLI (Carbon Disclosure Leadership index).

- Method(s) (if any) used to check and verify data (i.e. sample selection, sample size etc)?

–

CDP does not currently require verification of data submitted, although it asks whether the data is verified and requests that companies provide evidence of this, e.g. copies of verification certificates. It's considered that as companies are self-reporting to stakeholders, they should be taking care to ensure correct data is disclosed. CDP is considering bringing in a system, whereby companies could active a top tier reporting category through undertaking data verification.

- Repeatability:

- What is the frequency of data collection?

Annually

- Do subsequent questions align to allow trends to be identified?

Yes. A report is written each year analysing trends for each sample and program. Although CDP don't undertake internal analysis it shares data with partners who do, e.g. PwC which writes a number of reports each year. The CDP is set up to allow analysis of trends over years across organisations or sectors. CDP tends to provide data to investors to carry out the analysis they require.

- Drivers

- What drivers have you identified for companies using your methodology/protocol/survey to report GHG monitoring (i.e. investor pressure, improved branding, issues of resource use in the supply chain)?

Investor survey – drivers include shareholders, public image, public relation strategy, public awareness, competing within the sector, risk management – understanding regulatory liabilities, exposure and risks.

Supply Chain survey:

- The drivers for multinational company asking its suppliers to report include: reducing cost and carbon of the supply chain, ensuring the credentials of suppliers (greening the supply chain), being able to report transparently on the environmental impact through the supply

chain, risk management (understand areas of potential risks and exposure).

- The drivers for the company within the supply chain include: respond positively to customer demands, understanding environmental performance in order to address issues and maintain competitiveness, to ensure operating as efficiently as possible, to understand exposure and regulatory risks.
- Access to data (for phase 2)
 - As part of phase two of this project we will be requesting data on uptake of GHG monitoring. Will you be able to provide this information from your methodology/protocol/survey?
ERM to put together a list of data required from CDP.
 - Do you foresee any difficulties in providing this data to Defra?
No

Additional alternative questions for stakeholders not directly involved with development of GHG monitoring and reporting methodologies/tools (LGA, SDC etc)

- What kind of GHG methodologies/tools might be utilised by your sector? E.g. procurement of goods and services by Local Authorities; GHG reporting by government departments
- How aware is the sector of the existence and potential use of such methodologies/tools?
- Are there any central or devolved policies/strategies in place to currently employ, introduce or increase use of these tools in future? E.g. mandated during tendering for goods and services; universal application across a reporting regime such as government or Local Authority environmental KPIs

ERM's summary of the CDP

- The CDP survey asks the specific open question as to which GHG monitoring / reporting methodology is employed by the respondent organisation.
- Supplementary questions ask which calculation tools and data methods have been used to augment the use of the GHG Protocol or ISO14064-1.
- Subsequent questions probe further into which emission sources are covered (i.e. scopes) and the quantities reported each year.
- Survey requests were sent to 3,700 global companies in 2009, up from 3000 in the previous year, including the largest companies within each target country. In 2008, 1600 responses were submitted compared to the 3,700 requests issued, which is a 43% response rate. A higher response rate may be required to obtain the level of coverage needed to monitor uptake of GHG methodologies worldwide.
- 24 industry sectors are currently covered by the survey across 24 international regions. The focus of the survey is on the private, rather than public sector, which should suit Defra's requirements.

- The first Investor survey was issued in 2002, allowing the potential for data to be compared over a 7 year period from 2003 - 09. However, the survey issuance and response rates started at much lower levels than they have reached today. In 2003 only 219 responses were submitted, rising by 100 for each of the next 2 years before significant increases from 2006 onwards. As a result, year-on-year analysis of changes in uptake by the same companies may be difficult Annual process.
- Two of the key datasets run by CDP are the UK's FTSE 500 and 350. Other reports are compiled on a regional and sectoral basis. However, CDP does not undertake internal analysis; data is provided to investors who carry out the analysis that they require. This seems the most likely route for Defra's aim to monitor GHG methodology uptake.
- The CDP survey includes sections on regulatory, physical and general risks posed to the respondent by climate change. These could be interpreted as some of the key drivers involved in a company's move towards GHG monitoring and reporting.
- Current and future exposure to emissions trading schemes and carbon budgeting is often highlighted as having an impact on operational costs and the spending habits of the customer base. Increase in fossil fuel resources cost base will also affect operational costs. Failing to innovate will exacerbate these costs and be a turn-off for customers. Financial and business risks, plus the opportunities presented by the same factors are highlighted throughout the completed CDP surveys.
- Specific questions focus on emissions trading - whether it affects the respondent at all and, if so, what the impact on profitability has been. This lends support to identifying compliance drivers and their estimated current and future impact on companies.
- The survey also identifies energy costs – fossil fuel vs renewable – and corporate communications as further potential driver to GHG monitoring and reporting. Public disclosure of CDP responses may point to reputation being an important driver, but so too may non-disclosure.
- The survey provides key insights to corporate GHG emissions accounting practices, including the reporting boundary, reporting year and scopes of emissions covered.
- Further questions enquire about external verification of emissions data and internal assurance practices, together with information on emission reduction plans, with the setting of a baseline year and targets going forward.
- Details on costs and savings generated by emission reduction measures could be attributed to the use of GHG monitoring and reporting methodologies which enable companies to identify areas for cost-effective action. The same argument applies to the information gathered on emissions intensity and associated reduction targets.
- Completed surveys identify management level responsibility for climate change / GHG emissions reporting and progress towards targets.

Annex B – (Climate Group Overview)

Monitoring Uptake of GHG Measurement Tools and Resulting Reductions in GHG Emissions

Introduction

There are a number of methods and tools available for companies to calculate and report on the Greenhouse Gas (GHG) emissions from their activities, products and/or services. ERM have been appointed by Defra to undertake a study determining how to measure (i.e. via which methods) the uptake of 'GHG footprinting' (for both corporate emissions and products & services) and the level of GHG emissions reductions that this generates. We will also assess the effectiveness of any methods recommended by testing them on existing data.

In order to measure uptake of 'GHG footprinting', we intend to work closely with a number of stakeholder organisations centrally involved in GHG footprinting and reporting to benefit from their quantitative and qualitative information on uptake, particularly in the business community.

Task 1 – Interview Questions

Climate Group Overview:

Emily Farnworth is main contact – her focus is working with the finance sector, including the Climate Principles initiative. The Climate Group has 3 areas of activity which may be relevant:

The Climate Group Principles (which are signed by every member)

<http://www.theclimategroup.org/assets/The%20Climate%20Group%20Principles.pdf>

The Climate Group is a membership organisation working with states, regions, cities and businesses that want to tackle climate change. A prerequisite to becoming a member of The Climate Group is signing their principles which include a requirement to publicly disclosure GHG emissions.

Together

http://www.theclimategroup.org/what_we_do/together

The main consumer engagement campaign. Working with the biggest brand-name partners like Tesco and Target. It delivers consumers easy and affordable ways to fight climate change.

Covers UK, Australia and US.

The Climate Principles

http://www.theclimategroup.org/about/corporate_leadership/climate_principles

The Climate Principles provide a voluntary framework to guide the finance sector in tackling the challenge of climate change. Although it is not the main

focus, the initiative addresses the management of operational GHG emissions and provides strategic direction on managing climate change across the full range of financial products and services.

- How in theory would you measure uptake of GHG monitoring?
 - Are systems already in place to monitor uptake?
 - Can you foresee any problems / limitations in using these systems to measure uptake of GHG monitoring (i.e. companies / sectors that don't tend to respond)?

The Climate Group carries out its own in-house research to find out what its members use in terms of GHG tools and methodologies, then check those findings with the members themselves. Primary sources of information / data includes the CDP and the members' own websites

In terms of the Together campaign, CG members on the product / services side (e.g. Tesco) supply uptake data in terms of those products / services offerings which are part of the campaign which are being used by the public. Through a combination of in-house and EST calculations, the subsequent associated emission reductions can be extrapolated.

There is no specific requirement for CG members to use a prescribed selection of GHG methodologies or tools, but information about the methodology used is gathered for members of The Climate Group and financial institutions that have adopted the Climate Principles . Organisations use the GHG Protocol, Defra CRG and other European methodologies. Again, the CG investigate via corporate websites and conversations with members to gather this uptake information

- Completeness of coverage:
 - What geographical region does your methodology/protocol/survey cover (Country specific, global, other geographical boundary).
 - What type of companies does your methodology/protocol/survey target (i.e. multinational companies, SME, public sector organisations, sector specific companies)?
 - What types of companies respond to your methodology/protocol/survey (i.e. multinational companies, SME, public sector organisations, sector specific companies)?

The CG currently operates its campaigns in Europe, North America, China, India and Australia. The scope of membership currently covers a wide range of private sector corporations, with the Climate Principles campaign focusing on the finance sector. In the future, campaigns will switch to a technology and policy focus to align with those companies specialising in low carbon solutions, for example, LED lighting, CCS, electric vehicles and energy efficient buildings.

- Accuracy:
 - Response rate from the companies/organisations from which data is requested?
 - Completeness of responses?
 - Method(s) (if any) used to check and verify data (i.e. sample selection, sample size etc)?

The CG currently asks members whether their GHG data (whether a footprint or a reduction claim) has been externally verified. Information is collected from the CDP and corporate websites to ensure member information is as complete and accurate as possible.

- Repeatability:
 - What is the frequency of data collection?
 - Do subsequent questions align to allow trends to be identified?

The CG collects information/data on its members on an annual basis. More frequent updates to member profiles can be made throughout the year if more up to date information is provided..

Data trends are used in the CG's programmatic work, for example when understanding what solutions can have the biggest impact on reducing GHG emissions eg. energy efficiency technologies used in the buildings sector (it should be noted that the issue of reviewing GHG emissions from this sector has happened at a macro level to drive some of our policy work – it hasn't really involved looking at emissions from a company level). The work tends to focus around identifying how members make best use of the GHG management / reduction opportunities available to them.

- Drivers
 - What drivers have you identified for companies using your methodology/protocol/survey to report GHG monitoring (i.e. investor pressure, improved branding, issues of resource use in the supply chain)?

Companies are keen to access the senior level climate change network which the CG provides. The network provides valuable in-roads to policy and technology information as well as business links across the public and private sectors. The CG network, and the campaigns operating therein, then provide the opportunity for members to understand how different technologies may be helpful in reducing GHG emissions. It also provides a useful network for members to discuss changes in GHG emissions reporting – for example, the CRC.

In terms of campaigns such as the Climate Principles, members join because they are and would like to remain leaders in their sector and value the consistency which such an approach provides, negating the need to reinvent the wheel and allowing the group to tackle issues together rather than as separate institutions.

- Access to data (for phase 2)
 - As part of phase two of this project we will be requesting data on uptake of GHG monitoring. Will you be able to provide this information from your methodology/protocol/survey?
 - Do you foresee any difficulties in providing this data to Defra?

The CG is happy to provide access to information used in member profiles for phase 2.

Other points:

The CG is on the board of the Carbon Disclosure Standards Board.

The CG has supported members in the UK through discussions related to the CRC scheme. This has been in collaboration with other NGO groups.

The CG is aware of a business leadership group in Japan <http://japan-clp.jp/en/index.html> which has links with The Prince of Wales' Corporate Leaders' Group on Climate Change. This may offer a useful platform for discussions with Japanese businesses.

Additional/alternative questions for stakeholders not directly involved with development of GHG monitoring and reporting methodologies/tools (LGA, SDC etc)

- What kind of GHG methodologies/tools might be utilised by your sector? E.g. procurement of goods and services by Local Authorities; GHG reporting by government departments
- How aware is the sector of the existence and potential use of such methodologies/tools?
- Are there any central or devolved policies/strategies in place to currently employ, introduce or increase use of these tools in future? E.g mandated during tendering for goods and services; universal application across a reporting regime such as government or Local Authority environmental KPIs

Corporate – Corporate Register

Although No direct contact has been made with the CR, a summary of the CR, based on discussions with WRI and publically available information has been included as a separate Annex B sheet.

Corporate Register

The Corporate Register is a central resource for published corporate responsibility reports, without limitations on country, company size or sector. New reports are added on an ad-hoc basis, depending when they are released by companies, though the majority of these will be renewed on an annual basis to provide rolling information. Where CR reports are not provided directly, Corporate Register actively researches the data, providing the broadest possible range of reporting companies.

In mid 2009, the Corporate Register dataset covered 5409 organisations, including 22,000 individual CR reports (up to 4 years data per company).

Data on the use (uptake) of specific GHG measurement and assessment tools by companies is not currently available from the Corporate Register, however as a repository for companies CR information, data on uptake of GHG measurement/assessment tools amongst Corporate Register's portfolio of companies, could be gained through specifically commissioned search. Once the search parameters are established, it would be possible to compare uptake of GHG methodologies over time by performing searches of the same data over a number of years.

- Given the nature of Corporateregister.com as a repository for CSR reports, the use of specific GHG monitoring and reporting methodologies by individual companies is not directly available via standard search parameters. However, uptake could be identified by a keyword or other search carried out by request.
- CSR reports can be searched by Global Reporting Initiative (GRI) adherence. The GRI directly borrows heavily from the GHG Protocol and refers to it under its own GHG emissions indicators section. While this may narrow the options to that specific methodology, it would allow for GHG Protocol uptake to be examined more readily than a bespoke assessment of all CSR reports.
- Corporateregister.com currently covers 5409 organisations across the public and private sectors. 22,000 individual CSR reports are available from this pool, equating to roughly 4 years' worth per company if a direct interpretation was possible.
- The resource aims to include every relevant published corporate report, without limitations of country or company size and across all sectors, public and private. New reports are actively researched where they are not provided directly by the reporting company, providing the broadest possible range, though with the obvious

limitation that companies included are those who issue a CSR report.

- Unlike a survey, Corporateregister.com is a central resource for CSR reports. New reports are added on an ad-hoc basis, depending when they are released by companies, though the majority of these will be renewed on an annual basis to provide rolling information.
- It could be possible to compare uptake of GHG methodologies over time by performing searches of the same data over a number of years, though this functionality is not readily available, requiring a bespoke piece of research to be conducted.
- The action of publishing a CSR report and making it available via a central resource such as Corporateregister.com implies that reputational drivers are strong amongst those reporting companies. Further analysis would be required to determine whether this driver could be tied specifically to GHG monitoring and reporting rather than wider CSR issues.
- Identification of other drivers may prove more difficult, though CSR reports contain reference to efficiency savings, regulatory impacts and innovation which are all tied to environmental performance. Attributing these to GHG monitoring and reporting across a large sample would be difficult.
- CSR reports should provide access to publically available target setting, baselining and progress, though these would have to be examined on an individual basis unless a suitable search parameter can be used

Annex B – (Carbon Trust Carbon Labelling Company and Carbon Trust Footprint Registry)

Monitoring Uptake of GHG Measurement Tools and Resulting Reductions in GHG Emissions

Introduction

There are a number of methods and tools available for companies to calculate and report on the Greenhouse Gas (GHG) emissions from their activities, products and/or services. ERM have been appointed by Defra to undertake a study determining how to measure (i.e. via which methods) the uptake of 'GHG footprinting' (for both corporate emissions and products & services) and the level of GHG emissions reductions that this generates. We will also assess the effectiveness of any methods recommended by testing them on existing data.

In order to measure uptake of 'GHG footprinting', we intend to work closely with a number of stakeholder organisations centrally involved in GHG footprinting and reporting to benefit from their quantitative and qualitative information on uptake, particularly in the business community.

Task 1 – Interview Questions

The Carbon Trust Carbon Labelling Company overview:
Euan Murray is main contact – works as general manager of the Carbon Labelling Company.

The CT CLC is a wholly-owned subsidiary of the Carbon Trust. It works with companies to measure, certify, reduce and communicate the emission of products and services. Some companies engage on the full suite of services, while others cherry-pick to fit their requirements. The overall aim of the venture is to provide a globally acceptable standard / methodology. The CT CLC produced the first version of the PAS2050 (though it was not called that at the time) before teaming up with Defra and BSI to produce the current version. CT CLC has carried out a number of pilot projects to test and build the PAS2050 specification, building from a small pilot to a more global spread.

- How in theory would you measure uptake of GHG monitoring?
 - Are systems already in place to monitor uptake?
 - Can you foresee any problems / limitations in using these systems to measure uptake of GHG monitoring (i.e. companies / sectors that don't tend to respond)?

There is a system in place at present, though it is by no means comprehensive. The CT CLC closely monitors their own pilot projects and has very good reporting procedures in place (e.g. who is using the PAS,

for what products and in what geographical location). However, this level of reporting only applies to those companies who approach the CT to engage in pilot project activities.

CT CLC is of the belief that judging uptake by monitoring downloads of the PAS via the BSI is entirely unreliable and would provide anecdotal evidence at best. The main limitation with such an exercise is that the PAS could be downloaded in the UK but then put into use virtually anywhere else.

CT CLC are planning to launch a 'footprint registry' which will comprise a publically available list of projects and completed product footprints. Companies who have used the PAS outside of CT pilots would be invited to come forward and add their own product footprints to the register. Such a register could be a core source for monitoring PAS uptake, but it would be limited by being a voluntary initiative as participation in a register could not be mandated.

- Completeness of coverage:
 - What geographical region does your methodology/protocol/survey cover (Country specific, global, other geographical boundary).
 - What type of companies does your methodology/protocol/survey target (i.e. multinational companies, SME, public sector organisations, sector specific companies)?
 - What types of companies respond to your methodology/protocol/survey (i.e. multinational companies, SME, public sector organisations, sector specific companies)?

There is no limit on the geographical coverage of the PAS, and therefore on the spread of data which could be collected. In terms of type of company covered, uptake of PAS began with large consumer companies but more SMEs are beginning to come through. There is also an increase in the number of 'B to B' suppliers using the PAS to get a better picture of the full supply chain. The bulk of companies most interested in the PAS at the present time are those involved in the food and grocery sector, with other sectors gradually coming through and a longer development tail in the financial services industry. The PAS is less developed on the 'services' side, so uptake will take longer than the more established 'products' side.

- Accuracy:
 - Response rate from the companies/organisations from which data is requested?
 - Completeness of responses?
 - Method(s) (if any) used to check and verify data (i.e. sample selection, sample size etc)?

The CT CLC report on their own pilot projects on a monthly basis using full input from their own work and that of the project partner. The launch of the 'footprint registry', due in the summer, will help improve the

accuracy and repeatability of data collection for the PAS uptake which takes place outside of the CT CLC remit.

- Repeatability:
 - What is the frequency of data collection?
 - Do subsequent questions align to allow trends to be identified?

See above.

- Drivers
 - What drivers have you identified for companies using your methodology/protocol/survey to report GHG monitoring (i.e. investor pressure, improved branding, issues of resource use in the supply chain)?

Many companies have carried out energy efficiency assessments on their own operations, so addressing the supply chain was next on the list to reduce overall corporate emissions.

There is also the risk factor involved with companies not knowing what happens along their supply chains. Where the use of sweatshops on the manufacturing side had raised questions in the past, attention is shifting to the emission intensity of the supply chain. This focus has been accelerated by consumer pressure as more people look to shop for brands which are viewed as environmentally responsible.

Use of product footprinting tools has the added benefit of suppliers working more closely with their supply chain partners, while staff at the companies involved get to see how their specific roles fit in to the overall picture (e.g. by recycling more waste, corporate emissions go down), boosting motivation to do a good job.

- Access to data (for phase 2)
 - As part of phase two of this project we will be requesting data on uptake of GHG monitoring. Will you be able to provide this information from your methodology/protocol/survey?
 - Do you foresee any difficulties in providing this data to Defra?

Euan is happy to grant us access to high-level data in terms of the pilot projects they have been running, but cannot give us the finer detail on specific projects due to the confidential nature of product information.

Additional/alternative questions for stakeholders not directly involved with development of GHG monitoring and reporting methodologies/tools (LGA, SDC etc)

- What kind of GHG methodologies/tools might be utilised by your sector? E.g. procurement of goods and services by Local Authorities; GHG reporting by government departments
- How aware is the sector of the existence and potential use of such methodologies/tools?
- Are there any central or devolved policies/strategies in place to currently employ, introduce or increase use of these tools in future? E.g. mandated during tendering for goods and services; universal application across a reporting regime such as government or Local Authority environmental KPIs

ERM summary of the Carbon Trust Footprint Registry

- The Carbon Trust Footprint Registry is an idea that has developed from the activities of the CT's Carbon Labelling Company. The Footprint Registry would comprise a publically available list of projects and completed product footprints. Companies who have used the PAS2050 method outside of CT pilot projects would be invited to come forward and add their own product footprints to the register. Such a register could be a core source for monitoring PAS uptake, but would be limited by being a voluntary initiative.
- As a context for the Footprint Registry, the CT CLC closely monitors their own pilot projects and this is matched by very good reporting procedures on uptake for those projects with whom it interacts.
- The coverage of the Footprint registry will be global
- All sectors will be covered by the initiative
- There is no size limitation on participation
- The scheme has not yet started
- *The reporting schedule for the Footprint Registry is not yet clear and would depend upon how the initiative is to be monitored and managed*
- The Carbon Registry should improve the repeatability and accuracy of PAS2050 undertaken outside the CT CLC
- A number of drivers for supply chain reporting have become apparent via the operation of the CT CLC as follows
 - For many companies who have already undertaken energy efficiency assessments, supply chain activities are the next logical step
 - Companies want to be certain that risks associated with their supply chain are minimised (for example the use of sweatshops for manufacturing)
 - The adoption of footprinting tools allows closer interaction on a common basis between companies and their suppliers, leading to increased motivation to perform better across a wider front
- The fact that participating companies are already using the PAS2050 specification means that there is little if any additional burden associated with participation in this approach.

ERM summary of The Carbon Trust Carbon Labelling Company

- The Carbon Trust Carbon Labelling Company is a wholly-owned subsidiary of the Carbon Trust working with companies to measure, certify, reduce and communicate the emission of products and services. It has been intimately involved in the development of the PAS2020 specification.
- The venture aims to provide a globally acceptable standard or methodology for product GHG reporting and in that sense is well-suited to monitoring uptake of the PAS2050 methodology. CT CLC has carried out a number of pilot projects to test and build the PAS2050 specification, building from a small pilot to a more global spread

- CT CLC closely monitors their own pilot projects and this is matched by very good reporting procedures on uptake for those projects with whom it interacts.
- The coverage of the CLC is global
- All sectors are covered by the initiative
- There is no size limitation on participation
- At present the absolute coverage of the scheme is small
- The CT CLC reports monthly on its own pilot projects using their own work and that from its project partners
- Repeatability is perhaps limited by how many projects can be dealt with directly through the CLC – the forthcoming Carbon Registry should help to tackle this
- A number of drivers for supply chain reporting have become apparent to CT CLC as follows
 - For many companies who have already undertaken energy efficiency assessments, supply chain activities are the next logical step
 - Companies want to be certain that risks associated with their supply chain are minimised (for example the use of sweatshops for manufacturing)
 - The adoption of footprinting tools allows closer interaction on a common basis between companies and their suppliers, leading to increased motivation to perform better across a wider front
- The fact that participating companies are already using the PAS2050 specification means that there is little if any additional burden associated with participation in this approach.

Annex B – (Carbon Trust Standard)

Monitoring Uptake of GHG Measurement Tools and Resulting Reductions in GHG Emissions

Introduction

There are a number of methods and tools available for companies to calculate and report on the Greenhouse Gas (GHG) emissions from their activities, products and/or services. ERM have been appointed by Defra to undertake a study determining how to measure (i.e. via which methods) the uptake of 'GHG footprinting' (for both corporate emissions and products & services) and the level of GHG emissions reductions that this generates. We will also assess the effectiveness of any methods recommended by testing them on existing data.

In order to measure uptake of 'GHG footprinting', we intend to work closely with a number of stakeholder organisations centrally involved in GHG footprinting and reporting to benefit from their quantitative and qualitative information on uptake, particularly in the business community.

Task 1 – Interview Questions

Carbon Trust Standard Overview:

Contact – Harry Morrison

CT Standard is awarded to organisations that can show compliance to CT's criteria for carbon measurement, management and reduction. Compliance gives the organisation the right to use and display the CT Standard logo.

See CT Standard website for list of clients that have achieved accreditation and details of criteria.

The CT provides a service to independently assess organisations which involves a site visit and data collection exercise to measure corporate GHG emissions.

The scheme began 15 months ago and has accredited around 160 organisations to date, with a further 80 currently going through the process (November 2009).

The CT Standard is separate to the Carbon Label Company but some companies do go down both routes and Harry endorses a close link. Looking at the bigger picture, it's no good reducing your emissions if it causes issues upstream. Similarly, no point in focusing on one product area as this will not have a significant influence. Currently, there is no monitoring of organisations that are going down both routes.

- How in theory would you measure uptake of GHG monitoring?
 - Are systems already in place to monitor uptake?
 - Can you foresee any problems / limitations in using these systems to measure uptake of GHG monitoring (i.e. companies / sectors that don't tend to respond)?

CT don't actually monitor the uptake of the Standard – it is inherent in their client list.

Companies that have achieved accreditation are listed on the CT Standard website.

Companies that are in the process or have failed are not listed on the website.

The main barrier to increased uptake of the Standard is data availability. Cost is not proving to be an issue although the perception of the internal opportunity cost can be. Harry believes there is a gap in educating companies to understand that the financial savings achievable from improved efficiency, energy reduction etc far outweigh the cost of reporting emissions and implementing a management programme.

- Completeness of coverage:
 - What geographical region does your methodology / protocol / survey cover (Country specific, global, other geographical boundary).
 - What type of companies does your methodology / protocol / survey target (i.e. multinational companies, SME, public sector organisations, sector specific companies)?
 - What types of companies respond to your methodology / protocol / survey (i.e. multinational companies, SME, public sector organisations, sector specific companies)?

Reporting methodology is the GHG Protocol.

The CT Standard is currently UK based but it is not UK constrained. Currently, opportunities overseas are being investigated and this is particularly relevant for organisations that have branches / affiliations with overseas sites.

To date, CT have successfully worked with several different types of organisations – public / private and large multinational / SMEs etc. The methodology is applicable to a huge range of organisations and one particular type is not targeted.

The organisations that have sought CT's assistance are the 'top tier' of corporate reporting – showing commitment to accurately demonstrate GHG emissions measurement and reductions. The organisations have come to CT at a range of starting positions – some are quite advanced in their monitoring / reporting whilst others require much more education in what they need to measure, how they measure it etc.

- Accuracy:
 - Response rate from the companies/organisations from which data is requested?
 - Completeness of responses?
 - Method(s) (if any) used to check and verify data (i.e. sample selection, sample size etc)?

Very confident in accuracy of the data – our assessors validate the data with spot checks etc. This equates to several days of effort per company.

- Repeatability:
 - What is the frequency of data collection?
 - Do subsequent questions align to allow trends to be identified?

In order to keep accreditation and the right to use the CT Standard logo, companies must collect annual data – CT Standard check every 2 years.

For the assessment, 3 consecutive years of data are required in order to demonstrate improvements in carbon management and reductions in emissions.

- Drivers
 - What drivers have you identified for companies using your methodology/protocol/survey to report GHG monitoring (i.e. investor pressure, improved branding, issues of resource use in the supply chain)?

Four main drivers:

- Benchmark: to help understand the challenges, measure success and operate more efficiently;
- Internal communication: to demonstrate to all members of the company that they are acting environmentally responsibly, to boost the profile of the 'environmental team';
- External communication: to demonstrate (as above) responsible environmental attitude to public, stakeholders etc – PR, endorsement; and
- Regulation: financial benefit for taking action early with regard to the CRC.

- Access to data (for phase 2)
 - As part of phase two of this project we will be requesting data on uptake of GHG monitoring. Will you be able to provide this information from your methodology/protocol/survey?
 - Do you foresee any difficulties in providing this data to Defra?

The actual GHG emissions results are not available to us or to Defra as they are confidential. However, a key aggregate statistic is that over the period assessed the average saving is 6% in absolute terms

Additional/alternative questions for stakeholders not directly involved with development of GHG monitoring and reporting methodologies/tools (LGA, SDC etc)

- What kind of GHG methodologies/tools might be utilised by your sector? E.g. procurement of goods and services by Local Authorities; GHG reporting by government departments
- How aware is the sector of the existence and potential use of such methodologies/tools?
- Are there any central or devolved policies/strategies in place to currently employ, introduce or increase use of these tools in future? E.g mandated during tendering for goods and services; universal application across a reporting regime such as government or Local Authority environmental KPIs

Annex B - (EC Platform on LCA - ILCD and ELCD)

Summary call with David Pennington

Interview with David Pennington. For additional information contact lca@jrc.it

Additional information available on the website.

It should be noted that despite approving the interview summary, the EC Platform on LCA have requested inclusion of the following disclaimer in respect to their summary and any use of the information: The views given in the EC Platform on LCA interview summary (Annex B) do not necessarily reflect those of the organisation.

Task 1 – Interview Questions

- How in theory would you measure uptake of GHG monitoring?
 - Are systems already in place to monitor uptake?
 - Can you foresee any problems / limitations in using these systems to measure uptake of GHG monitoring (i.e. companies / sectors that don't tend to respond)?
 - One measure would be in take up by businesses and Member States of e.g. eco-labels, eco-design.
 - Statistics on the extent of life cycle data downloaded or hits on the database could be used to monitor the uptake of data.
 - Another method would be a survey of industry sectors.
 - Considered to be hard to measure uptake of data as databases are in their infancy.
- Completeness of coverage:
 - What geographical region does your methodology / protocol / survey cover (Country specific, global, other geographical boundary).
 - What type of companies does your methodology / protocol / survey target (i.e. multinational companies, SME, public sector organisations, sector specific companies)?
 - What types of companies respond to your methodology / protocol / survey (i.e. multinational companies, SME, public sector organisations, sector specific companies)?
 - The ILCD is being developed by the EC in an open international process. The ELCD is a European database focused on the European market. Data within the ELCD database are global, due to the global nature of the supply chains. The ELCD database is part of the broader ILCD Data Network.
 - Any organisation can add data / databases to the ILCD Datnetwork – Available later in 2009. It is not geographically restricted.
 - 16 Industry Associations at European / international level are already providing data into the ELCD database and working together with the JRC.

- Accuracy:
 - Response rate from the companies/organisations from which data is requested?
 - Completeness of responses?
 - Method(s) (if any) used to check and verify data (i.e. sample selection, sample size etc)?
- EC objective to improve availability of data, data robustness and consistency.
- Repeatability:
 - What is the frequency of data collection?
 - Do subsequent questions align to allow trends to be identified?

In industry, this can be on a 3-4 year cycle. As new data is available it is automatically updated.

- Drivers
 - What drivers have you identified for companies using your methodology/protocol/survey to report GHG monitoring (i.e. investor pressure, improved branding, issues of resource use in the supply chain)?
 - Target audience for databases are business and government.
 - Key drivers – consistency and quality assurance
 - NGO's – scepticism that correct data are being issued – looking towards assurance and verification.
 - Industry Associations are a key driver to ensure that data used represent products in a reliable way.
- Access to data (for phase 2)
 - As part of phase two of this project we will be requesting data on uptake of GHG monitoring. Will you be able to provide this information from your methodology/protocol/survey?
 - Do you foresee any difficulties in providing this data to Defra?

Additional/alternative questions for stakeholders not directly involved with development of GHG monitoring and reporting methodologies/tools (LGA, SDC etc)

- What kind of GHG methodologies/tools might be utilised by your sector? E.g. procurement of goods and services by Local Authorities; GHG reporting by government departments
- How aware is the sector of the existence and potential use of such methodologies/tools?
- Are there any central or devolved policies/strategies in place to currently

employ, introduce or increase use of these tools in future? E.g mandated during tendering for goods and services; universal application across a reporting regime such as government or Local Authority environmental KPIs

Annex B – (Local Government Association)

Monitoring Uptake of GHG Measurement Tools and Resulting Reductions in GHG Emissions

Introduction

There are a number of methods and tools available for companies to calculate and report on the Greenhouse Gas (GHG) emissions from their activities, products and/or services. ERM have been appointed by Defra to undertake a study determining how to measure (i.e. via which methods) the uptake of 'GHG footprinting' (for both corporate emissions and products & services) and the level of GHG emissions reductions that this generates. We will also assess the effectiveness of any methods recommended by testing them on existing data.

In order to measure uptake of 'GHG footprinting', we intend to work closely with a number of stakeholder organisations centrally involved in GHG footprinting and reporting to benefit from their quantitative and qualitative information on uptake, particularly in the business community.

Task 1 – Interview Questions

Local Government Association Overview:

Phillip Mind is main contact – works as a policy officer on a number of local government climate change campaigns and related policy areas.

- How in theory would you measure uptake of GHG monitoring?
 - Are systems already in place to monitor uptake?
 - Can you foresee any problems / limitations in using these systems to measure uptake of GHG monitoring (i.e. companies / sectors that don't tend to respond)?

Local government performance is rated by 198 separate indicators. Four of these relate to climate change:

NI 185 – CO₂ reduction from local authority operations

NI 186 – Per capita reduction in CO₂ emissions in the LA area

NI 187 – Fuel poverty, relating to the % of those on benefits living with energy efficient appliances

NI 186 – Developing a climate change adaptation strategy

Data collection for NI 185 is covered by DCLG, who have a methodology and corresponding online spreadsheet facility to gather information from all LAs in England, who use figures from utility bills to report carbon emissions. The GHG Protocol is not utilised to any great extent for this exercise, but DCLG acts as a central point to gather data and main consistent use of a single methodology and tool.

Local Area Agreements (LAAs) allow LAs to select 35 national indicators on which to focus and apply specific targets to them. A number of LAs have chosen those NIs which relate to climate change. Monitoring and reporting of progress against these LAAs allow DCLG to track uptake of methodologies and tools, as well as any corresponding emission reductions.

Some LAs make submissions to the Carbon Disclosure Project (CDP) on an annual basis. LGA makes it clear that it is up to individual LAs to decide what GHG methodologies to use, and to what extent to utilise them. There is no centrally directed prescription to use the GHG Protocol or other similar tools.

The outcomes of those NIs relating to carbon emissions are owned by DECC. The key contact there is James Gorie. While data collection is facilitated by DCLG, the LGA is not sure which department owns that activity. It may be worth speaking to DECC about how those NIs are managed and if there is a system in place to encourage uptake of specific tools or monitor associated emission reductions.

LAs can influence the outcome of efforts aimed at NI 186 through their procurement policies. A focus on procuring goods and services with a low carbon supply chain would lower per capita emissions in the local area. It is not clear if LAs would consider asking suppliers to use product / services / supply chain tools to provide evidence of their contractual claims. Again, DECC would own the outcome of any actions under NI 186.

- Completeness of coverage:
 - What geographical region does your methodology/protocol/survey cover (Country specific, global, other geographical boundary).
 - What type of companies does your methodology/protocol/survey target (i.e. multinational companies, SME, public sector organisations, sector specific companies)?
 - What types of companies respond to your methodology/protocol/survey (i.e. multinational companies, SME, public sector organisations, sector specific companies)?

DCLG data collection covers all LAs in England.

- Accuracy:
 - Response rate from the companies/organisations from which data is requested?
 - Completeness of responses?
 - Method(s) (if any) used to check and verify data (i.e. sample selection, sample size etc)?

Accuracy depends on the data gathered at the LA level. It is not clear that any further checks or verifications are carried out centrally.

- Repeatability:
 - What is the frequency of data collection?
 - Do subsequent questions align to allow trends to be identified?
- Drivers
 - What drivers have you identified for companies using your methodology/protocol/survey to report GHG monitoring (i.e. investor pressure, improved branding, issues of resource use in the supply chain)?

UK Government has a desire and, more importantly in the eyes of the public a requirement, to lead by example. LAs have the power to mitigate emissions at a local level, thereby feeding in to the overall national picture. They also have the ability to influence behavioural change within the local business community and general population

- Access to data (for phase 2)
 - As part of phase two of this project we will be requesting data on uptake of GHG monitoring. Will you be able to provide this information from your methodology/protocol/survey?
 - Do you foresee any difficulties in providing this data to Defra?

We may be able to access emissions data and information on what methodologies LAs are using to meet the targets set under their National Indicators. DCLG or DECC would be potential access points for this.

Other points:

There are other possible routes to information on the LA side. The Carbon Trust (Richard Rugg) has a public sector programme which most LAs / councils would go through for advice on what to use. LAs also use the Energy Savings Trust (EST) to help calculate emissions in their local areas.

The Carbon Reduction Commitment (CRC) will capture most, if not all LAs and various other public sector operations, not to mention a range of private sector ones. Is it possible that the Environment Agency, as CRC administrator, will become a good source for GHG methodology / tool uptake across sectors? Or are we going to ignore the mandatory element in favour of focusing on voluntary uptake instead?

Additional/alternative questions for stakeholders not directly involved with development of GHG monitoring and reporting methodologies/tools (LGA, SDC etc)

- What kind of GHG methodologies/tools might be utilised by your sector? E.g. procurement of goods and services by Local Authorities; GHG reporting by government departments

- How aware is the sector of the existence and potential use of such methodologies/tools?
- Are there any central or devolved policies/strategies in place to currently employ, introduce or increase use of these tools in future? E.g mandated during tendering for goods and services; universal application across a reporting regime such as government or Local Authority environmental KPIs

Annex B – (Rocky Harris – Defra)

Notes from call with Rocky Harris on 08/04/09

Defra surveys – options, benefits and drawbacks.

Holly Bryant
Oliver Parish
Rocky Harris

There are a number of options available to Defra if running their own survey to monitor the uptake of GHG reporting as follows below. All options relate to both corporate and product/supply chain information.

Survey Format:

Online Surveys

Defra have not conducted any online / web based surveys to date. Rocky commented that using an online survey would require development of the systems from scratch and so may be costly.

Postal Surveys

Defra have undertaken a number of postal surveys but the general consensus is that these tend to result in a poor response rate.

Phone Surveys

Defra have often used one off phone surveys as a methodology – further details are provided below.

Review of information available in the public domain

One option is for Defra to undertake a web survey of publically disclosed information on company websites. However, as a number of companies don't disclose (particularly PFP), this method is not comprehensive.

Note:

It should be noted that the majority of surveys are done by quota (i.e. the survey will continue until the required number of responses (survey quota) is reached).

Survey Methodology (approach):

Call off Contracts – Survey Facilitators

Defra has Call off Contracts with a number of survey facilitators, who run surveys on Defra's behalf. These include **BNRP**, **Jigsaw Research** and **DataBuild**. BNRP undertook a stakeholder postal survey, whilst DataBuild run a number of annual surveys – assessing environmental impact of a range of things. Defra often work with the Office of National Statistics (ONS) and

the National Audit Office (NAO). The Central Office of Information (COI) hold data centrally on surveys, costs etc.

Survey Types

Impact Evaluation Surveys are commonly completed by facilitators for Defra, these tend to be focussed on the actions of delivery bodies (i.e. how Defra worked in delivering a particular piece of work etc) and so may not be the correct forum to “tag” uptake of reporting questions to.

Other surveys are undertaken as required. For example - BERR ran a survey of trade association SD plans. Becoming involved with a specific survey like this one could be a route in – This survey has been completed and closed so is just an example of the type of survey we could use.

Risks associated with “tagging”

A key risk of “tagging” additional questions to any existing surveys (particularly annual surveys) is that of greater non-response to existing questions (loosing annual data and therefore disrupting annual data trends). Defra may be faced with some level of opposition for this reason.

Linking into the Office of National Statistics

Defra often work with the Office of National Statistics (ONS). The ONS tend to deal with quantitative data rather than qualitative.

One option for Defra would be to submit a couple of questions into an existing ONS survey such as ProdCon (see detail below). The cost to Defra or linking into an existing ONS survey would be relatively inexpensive.

ProdCon is a mandatory postal survey of a random selection of participants (not based on a response quota). The survey covers products “Produced by Companies”. However, manufactured products and therefore processed foods goods but not unprocessed (i.e. fruit and veg).

Question – could Defra get a question on ProdCon re footprinting to cover PFP?

Advantage = pre-set standard classification of products.

Weakness = Few companies have anything to report. Also would this measure supply chain rather than driver and take up?

Trade Associations

Rocky suggested considering trade associations as a target of our survey (if conducted), as a route to gaining information on uptake.

Timescales

Timescales will vary significantly depending on the type of survey. If Defra are “tagging” a couple of questions onto the end of an existing survey, they would have little or no influence over timescales.

If considering tagging on to an existing survey, it should be noted that some surveys are annual, some are ad-hoc and so timings of relevant surveys could not be guaranteed.

If Defra decided to commission a new survey, this could be completed at a very minimum in 2 months (but this would be a huge rush and not recommended). Ideally the timescale would be set at 6 months from inception to reporting.

Key elements of a successful survey are:

- Targeting the right companies.
- Targeting a broad range of sectors.
- Specify / understand whether the survey is completed to quota.
- Ability to speak to the correct person within an organisation.
- Length of survey (prevent burden of reporting).
- Timing to prevent cross over with other Defra surveys (again preventing reporting burden) and avoiding holidays (to ensure high response rate).
- Allowing respondents to pitch their own activities – experience has shown that respondents to Defra surveys tend to volunteer additional information on their “good practice”. Allowing space for this would encourage responses and may allow collection of useful qualitative data.
- Use of the right facilitator – Rocky recommended DataBuild as experienced in the environmental sector and also as having a good portfolio of contacts across a range of sectors.
- Rocky suggests a dual approach tool/survey, to allow data on both product and corporate footprinting to be covered.

Benefit of Defra Survey

- Allows understanding of product types/groups measured (PFP)
- Classification of products (PFP)
- Understanding of how products selected
- Understanding of competition issues associated with disclosure.

Annex B – (Sustainable Development Commission)

Monitoring Uptake of GHG Measurement Tools and Resulting Reductions in GHG Emissions

Introduction

There are a number of methods and tools available for companies to calculate and report on the Greenhouse Gas (GHG) emissions from their activities, products and/or services. ERM have been appointed by Defra to undertake a study determining how to measure (i.e. via which methods) the uptake of 'GHG footprinting' (for both corporate emissions and products & services) and the level of GHG emissions reductions that this generates. We will also assess the effectiveness of any methods recommended by testing them on existing data.

In order to measure uptake of 'GHG footprinting', we intend to work closely with a number of stakeholder organisations centrally involved in GHG footprinting and reporting to benefit from their quantitative and qualitative information on uptake, particularly in the business community.

Task 1 – Interview Questions

[Sustainable Development Commission Overview:](#)

[Farooq Ullah is main contact – works as a policy analyst on the strategic assessment side, covering sustainability strategy across government.](#)

- How in theory would you measure uptake of GHG monitoring?
 - Are systems already in place to monitor uptake?
 - Can you foresee any problems / limitations in using these systems to measure uptake of GHG monitoring (i.e. companies / sectors that don't tend to respond)?

[SDC oversees implementation of the Sustainable Operations on the Government Estate \(SOGE\) targets across government, with individual departments taking ownership of specific items, e.g. DECC for carbon emissions.](#)

[The SOGE targets are due for Ministerial review on November 2009, with a likely amendment to include scopes 1 and 2 plus business travel along GHG Protocol guidelines. CESPS \(in DECC/Defra\) and the OGC will be taking forward the management of these targets with individual departments. All data and corresponding uptake of the GHG Protocol will be handled centrally via a dedicated team to which individual departments report.](#)

In addition, the HMT FReM (Financial Reporting Manual) will capture sustainability data, including emissions, and require this to be inserted into departmental reporting from June 2009.

- Completeness of coverage:
 - What geographical region does your methodology/protocol/survey cover (Country specific, global, other geographical boundary).
 - What type of companies does your methodology/protocol/survey target (i.e. multinational companies, SME, public sector organisations, sector specific companies)?
 - What types of companies respond to your methodology/protocol/survey (i.e. multinational companies, SME, public sector organisations, sector specific companies)?

The work co-ordinated by CESPS / OGC will cover all UK government departments. The SDC also collects data in terms of schools and NHS facilities, specifically in regard to the co-ordination of carbon footprinting activities for these organisations.

It is worth noting that this type of footprinting exercise uses a methodology designed by the Stockholm Environment Institute, which uses financial markers to assess sectors to provide a top-down approach based on energy costs. Using the SEI methodology is cheaper, faster and easier than applying the GHG Protocol across an entire sector.

- Accuracy:
 - Response rate from the companies/organisations from which data is requested?
 - Completeness of responses?
 - Method(s) (if any) used to check and verify data (i.e. sample selection, sample size etc)?

CESPS / OGC and HMT will request all departmental emissions data, but the accuracy of the returns will be down to the departments submitting the information. Efforts to establish and maintain accuracy will be made through the top-down approach of trying to ensure that every department uses the same methodology and calculation tools.

- Repeatability:
 - What is the frequency of data collection?
 - Do subsequent questions align to allow trends to be identified?

Departmental data is collected annually. The revised SOGE targets will establish a baseline of 2010/11 for future trends to be monitored.

- Drivers
 - What drivers have you identified for companies using your methodology/protocol/survey to report GHG monitoring (i.e. investor pressure, improved branding, issues of resource use in the supply chain)?

UK Government has a desire and, more importantly in the eyes of the public a requirement, to lead by example. Establishing a system of emissions reporting using internationally recognised and accepted methodologies will help achieve this.

The next SDiG (Sustainable Development in Government) report could provide a carbon footprint of the whole of government. This exercise may use a GHG Protocol / SEI hybrid model, for which a feasibility study is currently being carried out.

- Access to data (for phase 2)
 - As part of phase two of this project we will be requesting data on uptake of GHG monitoring. Will you be able to provide this information from your methodology/protocol/survey?
 - Do you foresee any difficulties in providing this data to Defra?

SDC publishes data on government sustainability performance on an annual basis. This is publically available via their website and the SDiG reports.

Additional/alternative questions for stakeholders not directly involved with development of GHG monitoring and reporting methodologies/tools (LGA, SDC etc)

- What kind of GHG methodologies/tools might be utilised by your sector? E.g. procurement of goods and services by Local Authorities; GHG reporting by government departments
- How aware is the sector of the existence and potential use of such methodologies/tools?
- Are there any central or devolved policies/strategies in place to currently employ, introduce or increase use of these tools in future? E.g. mandated during tendering for goods and services; universal application across a reporting regime such as government or Local Authority environmental KPIs

Annex B – (World Resources Institute)

Monitoring Uptake of GHG Measurement Tools and Resulting Reductions in GHG Emissions

Introduction

There are a number of methods and tools available for companies to calculate and report on the Greenhouse Gas (GHG) emissions from their activities, products and/or services. ERM have been appointed by Defra to undertake a study determining how to measure (i.e. via which methods) the uptake of 'GHG footprinting' (for both corporate emissions and products & services) and the level of GHG emissions reductions that this generates. We will also assess the effectiveness of any methods recommended by testing them on existing data.

In order to measure uptake of 'GHG footprinting', we intend to work closely with a number of stakeholder organisations centrally involved in GHG footprinting and reporting to benefit from their quantitative and qualitative information on uptake, particularly in the business community.

Task 1 – Interview Questions

The World Resources Institute overview:

David Rich is main contact – works as Associate in the Climate and Energy Program at WRI. He works on the Greenhouse Gas Protocol Initiative and focuses on the development of greenhouse gas emissions registries.

WRI is one of the founding organisations behind the GHG Protocol. It is also in the process of running a Product and Supply Chain Initiative. In 2007 a survey revealed the need for two new standards dealing with product and corporate level footprints for supply chains. A multi-stakeholder consultation process is ongoing, with the final drafts due for completion in around 18 months' time (end of 2010). WRI is aiming for consistency with the PAS2050, given the very similar goals both sets of tools are striving for. The hope is that eventually the WRI product and supply chain standards and the PAS2050 will converge.

- How in theory would you measure uptake of GHG monitoring?
 - Are systems already in place to monitor uptake?
 - Can you foresee any problems / limitations in using these systems to measure uptake of GHG monitoring (i.e. companies / sectors that don't tend to respond)?

The WRI rely on other organisations to measure and monitor the uptake of the GHG Protocol, with the CDP being the main source of that information.

Another good source of information on uptake is The Corporate Register - <http://www.corporateregister.com/> which details thousands of CSR reports. Their report, 'Corporate Climate Communications Report 2007' provides an analysis of FT500 companies, stating that 78% of reporters disclose quantitative emissions data and 63% of them use the GHG Protocol. *Although No direct contact has been made with the CR, a summary of the CR, based on discussions with WRI and publically available information has been included as a separate Annex B sheet.*

An important point to note, which came from the CCAR interview as opposed to this one, is that the WRI/WBCSD apparently forces people to register with them before downloading a copy of the GHG Protocol. This raw user data is not, however, tracked or broken down via any reporting methodology. This could prove a valuable source of data in terms of monitoring uptake.

On the theoretical side, there are several options:

- The WRI could conduct research / surveys themselves, but this would prove very time consuming and resource intensive, making it impractical.
 - Surveys could be commissioned to be carried out across the WRI/WBCSD company and partner networks. This would be less resource intensive but would produce a skewed result given that all respondents would respond that they use the GHG Protocol. Similar surveys in the past have also demonstrated a less than 100% response rate.
 - Targeted outreach to those sectors which are not currently members of the WRI/WBCSD networks could be carried out. However, again, this would be resource intensive and would need to be commissioned through other organisations.
-
- Completeness of coverage:
 - What geographical region does your methodology/protocol/survey cover (Country specific, global, other geographical boundary).
 - What type of companies does your methodology/protocol/survey target (i.e. multinational companies, SME, public sector organisations, sector specific companies)?
 - What types of companies respond to your methodology/protocol/survey (i.e. multinational companies, SME, public sector organisations, sector specific companies)?

There is no geographical limit for the application of the GHG Protocol, but there is a much higher user rate in Europe and North America. WRI also has some programmes operating in specific countries to provide a regional focus. Equally, there is no limit on the type of companies which apply the GHG Protocol to their emissions monitoring and reporting programmes.

- Accuracy:

- Response rate from the companies/organisations from which data is requested?
- Completeness of responses?
- Method(s) (if any) used to check and verify data (i.e. sample selection, sample size etc)?

The WRI has previously carried out a number of surveys (though not specifically on the subject of uptake) though this is by no means a core function of the organisation. Previous survey results have generally been of a high quality, though they highlight the below 100% response rate and the fact that a survey of their pro-active member networks would produce a skewed result if used for any other purpose.

- Repeatability:
 - What is the frequency of data collection?
 - Do subsequent questions align to allow trends to be identified?

See above. Surveys are currently only seldom carried out.

- Drivers
 - What drivers have you identified for companies using your methodology/protocol/survey to report GHG monitoring (i.e. investor pressure, improved branding, issues of resource use in the supply chain)?

For larger companies, the monitoring and reporting of emissions is generally now seen as standard business best practice. Similarly, using the GHG Protocol as the tool to do this is seen as the norm.

Many companies see using the GHG Protocol as a form of risk management. It enables them to manage energy costs, identify efficiencies and prepare for any future mandatory emissions regulation regime.

Companies also enjoy the benefits of participating in GHG programmes and networks, forging additional business links and partnerships as well as a greater understanding of GHG good practice.

The final point would be that there really isn't much competition for the GHG Protocol, so a driver to use it is the fact that, should a company wish to embark on a GHG monitoring a reporting programme, they don't have much choice in terms of the tools to use for the job.

- Access to data (for phase 2)
 - As part of phase two of this project we will be requesting data on uptake of GHG monitoring. Will you be able to provide this information from your methodology/protocol/survey?
 - Do you foresee any difficulties in providing this data to Defra?

WRI may be able to supply high-level user data, but we'd need to know what to ask for given the time and effort involved.

Additional/alternative questions for stakeholders not directly involved with development of GHG monitoring and reporting methodologies/tools (LGA, SDC etc)

- What kind of GHG methodologies/tools might be utilised by your sector? E.g. procurement of goods and services by Local Authorities; GHG reporting by government departments
- How aware is the sector of the existence and potential use of such methodologies/tools?
- Are there any central or devolved policies/strategies in place to currently employ, introduce or increase use of these tools in future? E.g mandated during tendering for goods and services; universal application across a reporting regime such as government or Local Authority environmental KPIs

Annex C: Matrix of measurement approaches



Corporate						
Position	Third Parties	Government Body	Government Body	Third Party	Third Party	Third Party
Name	Corporate Register	Sustainable Development Committee	Local Government Association	Climate Registry	Californian Climate Action Registry (part of the overarching US Climate Registry)	Carbon Reduction Commitment
Detail	Independent, privately held and self funded UK based organisation.	Independent watchdog for government sustainability. Monitor the progress of every		Pulls together regional programmes from over 40 states, provinces and tribes across US, Canada and Mexico. Overall aim to develop a common and unified GHG reporting system.	Private not for profit organisation, formed by the state of California. Registry is a voluntary registry into which companies report verified emissions.	
Methodology for understanding uptake	The Corporate Register annually monitor the reporting practices of 5313 companies.	Currently departments report on their emissions and SDC oversees this. DECC has ownership of carbon emissions	Local Government has a requirement to perform against a series of 198 national indicators. Four of the indicators relate to climate change and two of these relate directly to CO2 emissions. LGA - make sure that all Local Authorities report against indicators.	Climate registry founded on basis of GHG protocol and WRI provided technical support to put it together and ensures that all individual registries are compatible.	350 organisations report into the registry. Registry have developed a series of tools to help companies report emissions. The tool are derived from and are completely compatible	When it comes into force in April 2010 (2010 - 2011 is the baseline year), the EA will be scheme administrator so will hold data on every participants emissions and potentially the methodology used.
Who measures uptake of this methodology	N/A	N/A	N/A	N/A	N/A	N/A
Geographical range	Global	UK Government	UK	North America (40 states, US, Canada and Mexico).	75% of reporters are in California, rest US. Some emissions accepted globally, although not verified or posted into the registry.	UK
Sectors	All sectors	UK Government	Local Authorities in England	All	All	All
Public/Private	Both public and private sectors	Public	Public	Both	Both	Public and private
SME - Corporate	Focused on larger organisations with CR reports	UK Government	Local Authorities in England	All	All	Based on power usage threshold - likely to cover most companies. Exemptions = Emissions and CCA exemptions if covers 25% or more of
Accuracy	Although no direct assurance of companies' data is undertaken by Corporate Register, they work closely with companies to	No data therefore not accurate. No third party verification of any emissions data.	Third party assurance would be undertaken at a LA level and is unlikely.	Exceptionally high quality data.	All verification of data is completed in-house by the registry. Very stringent process. In incomplete return - it's excluded from the registry (ensuring data is full and accurate).	Once implemented, it is planned that 25% of the CRC participants will be audited annually (25% selected randomly).
Cost to reporting companies	Free listing - companies to provide CR report.	N/A	N/A	Voluntary	Unknown	Mandatory cost to comply with CRC, therefore no additional cost in providing data on methodology used.
Cost to Defra (measuring uptake)	Access to company reports free. For a professional account which give unrestricted access	N/A no data for Defra.	Another government department - free.	Unknown. this would need to be negotiated.	Unknown. This would need to be negotiated.	Unknown - would need to be negotiated with the EA.
Burden of Reporting (reporting companies)	Companies are already reporting this data, therefore no additional reporting burden.	N/A	N/A	Voluntary reporting into registry therefore no burden	Voluntary reporting into registry therefore no burden	Already reporting under mandatory CRC scheme.
Repeatability	Repeatable. Annual data collection. Corporate Register produce	Data collected annually (this doesn't currently include methodology used)	Annual	Annual	Annual	Annual
Drivers (for reporting companies)	Uptake data only forms part of the wider information provided by companies to Corporate Register. Overarching drivers include:	Lead by example (in the future - to use GHG Protocol as standard methodology).	UK Government wish to lead by example. LA want to reduce emissions locally.	Good corporate responsibility. Participants see value in using registry for future mandatory reporting regimes.	Good corporate responsibility. Participants see value in using registry for future mandatory reporting regimes.	Mandatory
Data provision for phase 2		Some emissions data on website - but nothing on methodologies used.	DCLG or DECC should be able to provide Defra access to emissions data and information on methodologies Local Authorities using in order to meet targets. DECC is the owner of the outcomes of the national indicator outcomes.	Unknown. this would need to be negotiated.	Happy to provide aggregated data to Defra.	Scheme not yet underway. Data provision unknown. Publically available league tables to be produced so would expect to see other data.

Third Party	Third Party	Third Party	Methodology	Methodology
Carbon Trust Standard	CDP	Climate Group	WRI (GHG Protocol)	ISO 14064
Carbon Trust Standard has only been going for 9 months.	CDP is a reporting methodology	Run sector specific campaigns to assist management of emissions.		ISO 14064-1:2006 specifies principles and requirements at the organisation level for the quantification and reporting of GHG emissions and removals. It includes requirements for the design,
Carbon Trust monitor uptake of the carbon trust standard. The standard involves reporting of emissions and demonstrating of improvements over three yrs.	Although no systems are actually in place to measure uptake of the CDP, this information would be easily calculated based on CDP	Climate Group do not require their members to adopt any particular methodology. When a company becomes a member of a Climate Group	Methodology for understanding uptake by WRI would be related to number of downloads (companies downloading provide contact details - however WRI don't currently use this data for	The ISO Technical Management Board Secretary at BSI has confirmed that the only data ISO have on standards uptake is via the systematic review of the Standards. The three parts of ISO 14064 are currently out for the review and as such this type of
N/A	N/A	N/A	Third Parties: CDP	N/A
Currently UK only, but not constrained to UK - so may become global in future.	Global	Europe, North America, China, India and Australia.	International (Data shows higher use within the developed world - however this is linked to place of download not place of use and often users	Global
All	All sectors. In addition, companies of all types and sizes have the	Wide range. Under which sector specific campaigns (financial services & products and finance)	Cross sectors	All
Both	Private	Campaigns are targeted at private sector.	Both public and private	Both
Both	CDP's investor program requests data from the largest publicly listed	Sector specific rather than size specific.	All	All
CT provides a service that independently assesses organisations which involves a site visit and data collection exercise to measure Corporate GHG emissions.	Although CDP does not currently undertake verification of data provided from reporting companies, all data disclosed to CDP can	Climate group ask members whether climate emissions (including methodology against which the emissions reductions are calculated) have been externally verified. This is cross checked with CDP data.	No formal survey for uptake of GHG Protocol. This is undertaken by third parties. If WRI were to undertake formal survey this would need to be completely random as all organisations	No formal survey for uptake of ISO14064 is known of. Anecdotal evidence is available in 3rd part reports, such as http://www.mpoc.org.my/download/mktstat/gofb/2008/v5i4/v5i4_3vii.pdf , and <a 175="" 4="" a="" across="" and="" around="" borders.="" by="" command="" complements="" development="" easily="" enabling="" experts="" from="" given="" great="" href="http://climate-</td> </tr> <tr> <td>Cost to companies.</td> <td>Free</td> <td>Free</td> <td>No cost - as no formal methodology or survey currently in place.</td> <td>No cost - as no formal methodology or survey currently in place.</td> </tr> <tr> <td>Unknown
CT cannot provide data to Defra as it is confidential.</td> <td>Free</td> <td>Access to information would be provided to Defra for free.</td> <td>There may be a cost if Defra commission WRI to undertake research on their behalf.</td> <td>There may be a cost if Defra commission ISO or BSI to undertake research on their behalf.</td> </tr> <tr> <td>Steady stream of companies coming forward for CT standard voluntarily.</td> <td>A large number of companies are already completing CDP (and have been since 2002), therefore the</td> <td>Minimal burden, choose to become members and Climate Group undertakes research.</td> <td>No Burden - as no formal methodology (companies using GHG Protocol are currently only asked to provide details on download).</td> <td>No Burden - as no formal methodology</td> </tr> <tr> <td>CT standard requires re-certification every 2 years.</td> <td>Annual CDP survey.</td> <td>Climate Group collect data on members annually. In addition data is monitored throughout the year (i.e. if a member updates its CSB report during the year this will be captured</td> <td>Data from downloads ongoing. If Defra commissioned WRI to undertake uptake survey this could be designed to be repeatable</td> <td>N/A</td> </tr> <tr> <td>Understand and measure challenges / success and operate efficiently.
Internal and external communication</td> <td>Drivers include shareholder pressure, public awareness, competing within the sector, risk management, understanding liabilities, exposures and risks.</td> <td>Companies keen to access senior level climate change network which the climate group provides.</td> <td>Why use the GHG Protocol:
- GHG Protocol seen as standard business best practice methodology (should rather than could).
- No other real methodologies (no competition), therefore needs to be used id want to report emissions.</td> <td>ISO14064 and its complementary standards are " incredibly="" is="" iso14064="" it="" its="" leading<="" level="" neutral",="" of="" over="" policy="" programmes="" reliability,="" td="" the="" uptake="" versatile="" world.="" years="">
CT cannot provide data to Defra as it is confidential. However data on numbers may be available - although as only 9 months worth of data, this will be limited (approx 70 companies). Defra would also need to gain data on companies who have not achieved	Already provided	Yes, willing to share database of member information (list of members and methodology used).	WRI have confirmed that Defra can request high level data (behind the downloads), however this wouldn't tell us about uptake (who has actually used the GHG Protocol), it would just inform about who's got a copy. This would only	tbc

Product					
Position	Third Party	Methodology	Methodology	Third Party	
Name	CDP	BSI - PAS 2050	CT Carbon Labelling & CT Footprint Registry	ELCD ILCD	WRI Product & Supply Chain Initiative
Detail	CDP is a reporting methodology. It should be noted that, the CDP Supply Chain program is not a product footprinting initiative, but a process to increase corporate	BSI are developers of the PAS 2050. PAS 2050 has only been available for 5 months, so tracking uptake is at an early stage. BSI has been working with Defra and the CT to push uptake,	CT CLC is a wholly-owned subsidiary of the Carbon Trust. It works with companies to measure, certify, reduce and communicate the emission of products and services.	The ELCD database comprises Life Cycle Inventory (LCI) data from front-running EU-level business associations and other sources for key materials, energy	WRI is one of the founding organisations behind the GHG Protocol. It is also in the process of running a Product and Supply Chain Initiative. In 2007 a survey
Methodology for understanding uptake	The CDP Corporate Strategy includes 34 multinational companies and between 20 - 200 of their own global suppliers. The first Corporate Strategy Survey was undertaken in 2008.	There are various ways to track the uptake of PAS2050 but no single, universal method is in place. The general way that BSI would monitor the uptake of one of its	There is a system in place at present, though it is by no means comprehensive. The CT CLC closely monitors their own pilot projects and has very good reporting procedures in place (e.g. who is using the PAS, for what products and in what geographical location). However,	there is no mechanism for measurement of uptake of the PAS 2050. Data would be limited to hits on the website or downloads from the ELCD ILCD databases as part of wider product footprinting (no detail on footprinting)	See WRI GHG Protocol entry. The P&SCI is in the development stage, so is not currently being tracked
Who measures uptake of this methodology	N/A	Unknown currently	N/A	N/A	N/A
Geographical range	Global	Global (although uptake is thought to be higher in Europe and North America)	Global	Global	Global
Sectors	All sectors – The CDP Supply Chain programme works with pre-selected suppliers, and each purchaser will have a different focus so	All	All sectors.	All	All
Public/Private	Private	Both	Both	Both	Both
SME - Corporates	Multinationals and their suppliers. The CDP Supply Chain programme works with pre-selected suppliers, and each purchaser	All	All	All	All
Accuracy	Although CDP does not currently undertake verification of data provided from reporting companies, all data disclosed to CDP can potentially be assured. It should be noted that the level of assurance expected amongst the selection of each company's suppliers will be	Accuracy varies across the range of suggested monitoring methodologies. Gathering data from web downloads and marketing exercises can only provide an indicative picture of uptake. More involved methods, such as monitoring the	The CT CLC report on their own pilot projects on a monthly basis using full input from their own work and that of the project partner. The launch of the 'footprint registry', due in the summer, will help improve the accuracy and repeatability of data collection for the PAS uptake which		See WRI GHG Protocol entry. The P&SCI is in the development stage, so is not currently being tracked
Cost to reporting companies	Free	Nothing - doing it already	Nothing - doing it already	None	See WRI GHG Protocol entry. The P&SCI is in the development stage, so is not currently being tracked
Cost to Defra (measuring uptake)	Free	Likely to be minimal	Likely to be minimal	None	See WRI GHG Protocol entry. The P&SCI is in the development stage, so is not currently being tracked
Burden of Reporting (reporting companies)	A number of companies are already completing CDP Corporate Strategy survey voluntarily, therefore the burden of additional reporting is low.	Completing PAS 2050 voluntarily already - therefore no additional reporting burden.	Completing PAS2050 already	None	See WRI GHG Protocol entry. The P&SCI is in the development stage, so is not currently being tracked
Repeatability	Annual CDP survey. However CDP do not analyse data trends, this could be done by Defra.	Yes	Yes	No methodology	See WRI GHG Protocol entry. The P&SCI is in the development stage, so is not currently being tracked
Drivers (for reporting companies)	Drivers include: reducing cost and carbon in the supply chain, ensuring the credentials of suppliers (greening the supply chain), enabling transparent reporting of the environmental impact of the supply chain, risk management, managing areas of potential exposure.	Increase public pressure to understand the impact a product has on climate change. Wanting to demonstrate leadership on climate change. Keen to address the emissions associated with the production / manufacturing process particularly in light of new stringent legislation.	Many companies have carried out energy efficiency assessments on their own operations, so addressing the supply chain was next on the list to reduce overall corporate emissions. There is also the risk factor involved with companies not knowing what happens along their supply chains. Where the use of sweatshops on the	N/A	See all other Product footprinting drivers
Data provision for phase 2	Already provided	Maria is happy to help with obtaining specific information from the BSI Marketing and PR departments. We would need to know what to ask for, as opposed to a blanket request for data. The information available could allow us to examine uptake based on download volumes by sector and geographical spread.	Euan is happy to grant us access to high-level data in terms of the pilot projects they have been running, but cannot give us the finer detail on specific projects due to the confidential nature of product information.	No data to provide	No data to provide

Annex D: Summary of 17 Identified Approaches (sorted by approach category)



Annex D – Summary of Methodology Options

Methodology Option 1: A survey or multiple surveys conducted by Defra

In considering the option of Defra commissioning its own survey to measure uptake of GHG monitoring and reporting methodologies for both corporate and product footprinting, ERM held a telephone conversation with Rocky Harris (Statistician, Sustainable Consumption and Production policy) of Defra to understand the options and financial implications of Defra commissioning its own survey. The outcome of the telephone conversation revealed that whilst there are a number of options available to Defra, a number of factors should be taken into account including survey type, survey approach and timing. These considerations are discussed further below:

Survey Type:

- Online Surveys: Defra have not conducted any online / web based surveys to date. Rocky commented that using an online survey would require development of the systems from scratch and so may be costly.
- Postal Surveys: Defra have undertaken a number of postal surveys but the general consensus is that these tend to result in a poor response rate.
- Phone Surveys: Defra have often used one off phone surveys as a methodology and generally find this to be the most beneficial technique.

Survey Approach:

- Use of Survey Facilitators: Defra has Call off Contracts with a number of survey facilitators, who run surveys on Defra's behalf. These include BNRP, Jigsaw and DataBuild. DataBuild run a number of annual surveys on Defra's behalf. Defra could consider commissioning a survey facilitator to undertake a survey on their behalf. Another option is for Defra to consider "tagging" questions to the end of a survey already commissioned through a survey facilitator (discussed further below).
- Tagging Approach: One suggested approach is "tagging" Defra's questions on uptake to an existing survey, rather than introducing a new survey. It should be noted that a key risk of "tagging" additional questions to any existing surveys (particularly annual surveys) is that of greater non-response to existing questions (losing annual data and therefore disrupting annual data trends). Defra may be faced with some level of opposition for this reason.
- Tagging onto an Impact Evaluation Survey: Impact Evaluation Surveys are commonly completed by facilitators for Defra, these tend to be focussed on the actions of delivery bodies (i.e. how Defra worked in delivering a particular piece of work etc) and so may not be the correct forum to "tag" uptake of reporting questions to. Other surveys are undertaken as required. For example - BERR ran a survey of trade association SD plans. Becoming involved with a

specific survey like this one could be a route in – This survey has been completed and closed so is just an example of the type of survey we could use.

- Trade Associations: Rocky suggested considering trade associations as a target of a survey, as a potential route to gaining information on uptake. This approach of engaging with trade associations aligns with recommendations made later within this report as a method potential approach to monitoring uptake.
- Review of Publically Available Information: Another option identified is for Defra to undertake a review of information available in the public domain. This survey would most likely include a review of publically disclosed information on company websites. However, as a number of companies don't disclose (particularly PFP), this method does not constitute a comprehensive approach.
- Linking into the Office of National Statistics: Defra often work with the Office of National Statistics (ONS) and the National Audit Office (NAO) to gain specifically required information. The ONS tend to deal with quantitative data rather than qualitative, so would be compatible with the type of data (numerical) required by Defra. One option for Defra could be to submit (tag) a couple of questions into an existing ONS survey. The cost of linking into an existing ONS survey would have to be negotiated, but is likely to be comparatively less expensive than commissioning a new survey.

Timescales:

Timescales will vary significantly depending on the type of survey. If Defra are “tagging” a couple of questions onto the end of an existing survey, they would have little or no influence over timescales. If considering tagging on to an existing survey, it should be noted that some surveys are annual, some are ad-hoc and so timings of relevant surveys could not be guaranteed.

If Defra decided to commission a new survey, this could be completed in a very minimum in 2 months (but this would be a huge rush and not recommended). Ideally the timescale would be set at 6 months from inception to reporting.

Key Elements of a Successful Survey:

- Targeting the right companies.
- Targeting a broad range of sectors.
- Understanding whether the survey is completed to quota.
- Ability to speak to the correct person within an organisation.
- Length of survey (prevent burden of reporting).
- Timing to prevent cross over with other Defra surveys (again preventing reporting burden) and avoiding holidays (to ensure high response rate).
- Allowing respondents to pitch their own activities – experience shows that respondents to Defra surveys volunteer additional

information on their “good practice”. Allowing space for this would encourage responses and may allow collection of useful qualitative data.

- Use of the right facilitator – DataBuild have been recommended as experienced in the environmental sector and also as having a good portfolio of contacts across a range of sectors.
- Rocky suggests a dual approach tool/survey, to allow data on both product and corporate footprinting to be covered.

Recommendations:

A number of options have been explored for Defra commissioning a survey on uptake of GHG reporting methodologies (both corporate and product footprinting). Although options exist for Defra to commission a new survey or “tag” onto an existing survey, clear drawbacks of this approach have been identified, including:

- A Defra commissioned survey is unlikely to be global.
- There is an element of the survey having to collect data already held by other bodies (as set out in section 2.3.4).
- Commissioning a new survey is likely to be costly both financially and in time and resources required. Whilst “tagging” onto an existing survey may be less costly, Defra will have limited control of timescales and limited authority over questions included.
- Given the different audiences, it is unlikely that any one survey would be able to cover both corporate and product footprinting.
- Commissioning a new survey and “tagging” questions to existing surveys would result in an additional reporting burden on the respondent.
- Any survey commissioned or “tagged” onto by Defra is unlikely to have any level of third party assurance as is sometimes provided for data held by other organisations.

Methodology Option 2: Survey(s) conducted by other organisations

As a method for monitoring uptake, it has been identified that Defra could commission a survey or multiple surveys undertaken by other organisations. This option could be very attractive to Defra as another organisation with expertises in this arena could be commissioned and responsible for delivering the results.

Corporate reporting:

For corporate footprinting, it has been identified that Defra could approach a number of organisations to run surveys in order to measure uptake of reporting schemes. Details of identified approaches and their feasibility are set out below:

- It has been identified that Defra could commission WRI or ISO to undertake a survey on uptake. Although these methodology

providers would provide global coverage, the issue of representative sample and assurance would be major considerations.

- Another option is for Defra to commission survey(s) on uptake through trade associations. This approach would allow uptake to be assessed at both a sector specific level and as an overarching cross-sector view on uptake. This method would allow a broad range of sectors to be targeted, covering a spectrum of business types. Using trade associations would also remove the risk of providing a representative sample, as trade associations could be asked to request information from all their members. A potential issue to be addressed if considering this approach is the global reach of the trade association members and whether any level of assurance could be provided. This approach could be run in parallel for both corporate and product footprinting and could therefore represent a single methodology on uptake for both areas.

Product Footprinting:

For product footprinting, two main approaches have been identified for Defra to engage organisations to run surveys, as set out below:

- It has been identified that Defra could commission BSI to undertake a global survey on uptake of the PAS 2050. Defra would need to engage BSI in discussion on overcoming the issue of representative sample. In addition, as PAS 2050 was only launched late in 2008, the data gathered through commissioning such a survey could not be guaranteed.
- As with corporate footprinting, another option is for Defra to commission survey(s) on uptake through trade associations. This approach would allow uptake to be assessed at both a sector specific level and as an overarching cross-sector view on uptake. This method would allow a broad range of sectors to be targeted, covering a spectrum of business types. Using trade associations would also remove the risk of representative sample, as trade associations could be asked to request information from all their members. A potential issue to be addressed if considering this approach is the global reach of the trade association members and whether any level of assurance could be provided. This approach could be run in parallel for both corporate and product footprinting and could therefore represent a single methodology on uptake for both areas.

Methodology Option 3: Drawing upon existing surveys

Corporate and Product Footprinting:

Based on the information collected as part of the stakeholder interview, it has been identified that despite pockets of information being available from different organisations, no existing surveys designed specifically for monitoring uptake of GHG methodologies currently exist. As part of this assessment, CDP's activities in the GHG monitoring and reporting arena were considered. However, despite holding some data on uptake of methodologies, this forms more of an evidence base rather than constituting a survey to measure uptake directly. As a result, it is

considered that the option of drawing upon existing surveys is not available at the current time.

Methodology Option 4: Drawing upon information held by organisations

It has been identified that a number of organisations hold some data on uptake of methodologies and although no current processes are in place to review and interrogate this data, this could be achieved fairly quickly. One option for Defra would be to tap into this data currently held in order to understand uptake.

Corporate reporting:

The Carbon Disclosure Project (CDP) could be approached to provide data on the uptake of the CDP. Given that the CDP questionnaire is based on the requirements of the GHG Protocol, uptake of CDP ultimately reflects uptake of the GHG Protocol. However the use of CDP would bring other advantages such as readily available datasets.

CDP have no formal systems currently in place to assess uptake, data could be extracted from the databases holding the CDP response data. CDP have reported that uptake could be measured based on CDP requests sent out against responses received (they could also capture data on companies that have responded to the survey without being requested). The CDP is a global reporting mechanism, with 36,000 companies reporting globally each year, focussing on the FTSE350 within the UK. Use of the CDP data to measure uptake of the GHG protocol is not a completely accurate representation in that it only reflects uptake amongst its focus groups (i.e. the FTSE 350 in the UK) and is not representative of the wider sample universe. It should be noted that the CDP does not currently undertake assurance of data provided from reporting companies. Whilst CDP does not currently undertake verification of data provided from reporting companies, all data disclosed to CDP can potentially be assured. Many companies do submit verified data to CDP, e.g. 49% of Global 500 companies reported verified emissions to CDP in 2009, and provided evidence of the verification.

Another option for measuring uptake is the “Carbon Trust Standard”, which reflects use of both the GHG protocol and ISO14064. Therefore, understanding uptake of the “Carbon Trust Standard” would automatically reflect uptake of the GHG protocol and ISO14064. In addition, Carbon Trust Standard independently assesses organisations, providing some level of data assurance. However, using the Carbon Trust Standard to understand uptake is unlikely to give an accurate unbiased picture, as a high uptake rate is expected amongst Carbon Trust Standard contacts. The Carbon Trust Standard was set up by the Carbon Trust in June 2008, and at the current time covers UK companies only. Given the early stages of the standard, a further disadvantage is the limited amount of uptake data held to date.

The Corporate Register annually monitors the reporting practices of 5313 companies globally from across all sectors and has already produced a report detailing uptake of the GHG protocol against other methodologies amongst Fortune500 reporters. Although the Corporate Register don't currently have data on uptake for all 5,313 members to hand, they can search all of the reports for key terms, which would be an efficient method of evaluating which companies use the GHG Protocol or other methodologies. Although no direct assurance is undertaken by the Corporate Register, they work closely with assurance providers and members to encourage take-up of assurance. The Corporate Register states that "Researchers and analysts are encouraged to contact us directly. We provide bespoke research services and have access to additional data through our internal databases". Based on this information, it's clear that Defra could commission the Corporate Register to undertake a bespoke piece of research analysing their data to provide a picture of global uptake of GHG reporting methodologies.

The CCAR/US Climate Registry pulls together regional programmes from over 40 states, provinces and tribes across US, Canada and Mexico with the overall aim of developing a common and unified GHG reporting system. The Climate Registry has developed a series of tools to help companies report emissions. These tools are derived from and are completely compatible with the GHG Protocol. The use of this exceptionally high quality data on tools downloaded from the Climate Registry would provide an insight to uptake, however this would be strongly biased (showing a 100% uptake rate within the sample), with no reflection of downloads for multiple uses or actual use of the tools. In addition, the resulting data would be limited geographically to North America.

As an alternative to Defra approaching the WRI or ISO to commission a survey on uptake (as detailed above), WRI or ISO could be approached for data on uptake of their tool directly. This option would rely purely on data relating to downloads of the methodologies, and would therefore be subject to issues such as representative sample (a 100% uptake rate would be assumed). Other factors such as single downloads for multiple uses, whether downloads lead to use and the geographical location (download location may not reflect location that the methodology is used) all add to the issues associated with using this method.

As part of this review, the option of using data available from the Climate Group was considered. However, it was identified that issues associated representative sample exist within the Climate group monitoring approach. In addition it was noted that the climate Group's assessment of companies (including methodologies used for monitoring and reporting GHG emissions) are based on data available from CDP and CSR reports (Corporate Register). As a result it is considered that using data available from CDP or Corporate Register directly would be preferable and therefore engaging with the Climate Group for data should be discounted.

When the Carbon Reduction Commitment (CRC) comes into force in April 2010, the EA will be scheme administrator so will hold data on every participant's emissions and potentially the methodology used. Although not currently in place, it has been identified that the CRC may provide a future vehicle for understanding uptake of methodologies amongst smaller emitters at a UK level. In addition the CRC will incorporate an element of assurance with 25% of participants being audited annually.

Product Footprinting:

The Carbon Disclosure Project (CDP) has a separate Supply Chain survey that was introduced in 2008 to assess selected large global companies and between 20 and 200 of their own global suppliers. The CDP Supply Chain programs primarily focus remains on corporate footprinting not product/service footprinting. The Supply Chain survey is identical to the CDP Corporate Survey, although its distribution is via the selected multinational companies' supply chains. As part of the Supply Chain survey CDP have collated data on uptake of corporate reporting methodologies, but there is currently no question to record uptake of the PAS 2050. Although Defra may be able to work with CDP to incorporate questions on PAS 2050 into future surveys, the CDP Supply Chain survey does not represent an approach to monitor uptake of product footprinting in its current format. Whilst CDP does not currently undertake verification of data provided from reporting companies, all data disclosed to CDP can potentially be assured. Many companies do submit verified data to CDP

As an alternative to Defra approaching BSI to commission a survey on uptake of the PAS 2050 (as detailed above), BSI could be approached for data on uptake of their tool directly. This option would rely purely on data relating to downloads of the methodology, and would therefore be subject to issues such as data Bias (a 100% uptake rate would be assumed). Other factors such as single downloads for multiple uses, whether downloads lead to use and the geographical location (download location may not reflect location that the methodology is used) all add to the issues associated with using this method.

The Carbon Trust Carbon Labelling Company is a wholly owned subsidiary of the Carbon Trust that works with companies to measure, certify, reduce and communicate the emissions of products and services. The overall aim of the venture is to provide a globally acceptable standard/methodology (based on the PAS2050). The Carbon Trust closely monitors their own pilot projects and has very good reporting procedures in place (e.g. who is using the PAS 2050), for what products and in what geographical location), however, this level of reporting only applies to those companies who approach the Carbon Trust to engage in pilot project activities. The data can be partially assured

The Carbon Trust Footprint Registry is due to be launched by the Carbon Trust shortly. The Footprint Registry will comprise a publically available list of projects and completed product footprints. Under the

Footprint Registry, companies who have used the PAS2050 outside of Carbon Trust pilots would be invited to come forward and add their own product footprints to the register. Given its cross sector position, the Carbon Trust Footprint registry has been identified as a future source of data for monitoring PAS2050 uptake, although issues of bias in the data would need to be considered.

Annex E Hypothetical Framework - Drivers

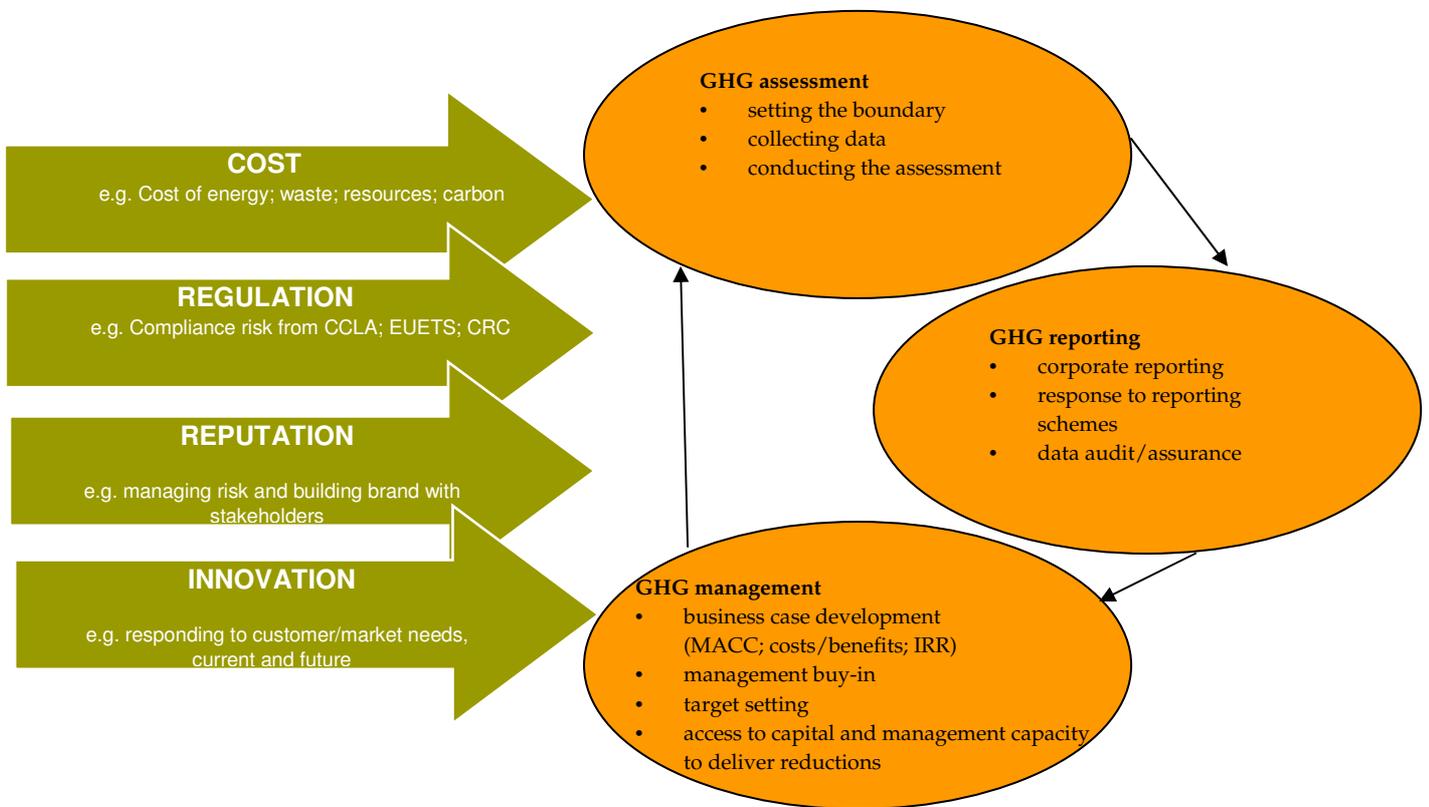


Hypothetical Framework – Annex E

Drivers – Corporate	
Reputation	Managing reputational risk
	Lead by example
	Competitive within the sector
	Seen to be doing the right thing
	Shareholder pressure
	Employee pressure
	Customer pressure
	Public pressure
	Meeting public expectation / moving with the times
	Reputation
	Considered to be good business practice
	Reduction in energy consumption
	Wanting to reduce emissions
Compliance	Managing compliance risk
	Requirement to reduce emissions
	Meet emission targets (voluntary or mandatory)
	Future proofing against future regulation
Cost Reduction	Need to reduce costs
	Managing cost risks
	Minimising un-necessary costs
Innovation	Transparent communication (internal and external)
	Good business management - understanding the inputs, outputs and efficiency of the business
	Greening the company
	Companies keen to benefit from collaboration / participation / partnerships (wanting to be part of the club)

Drivers – Product Footprinting	
Reputation	Managing reputational risk
	Lead by example
	Competitive within the sector
	Seen to be doing the right thing
	Shareholder pressure
	Employee pressure
	Customer pressure
	Public pressure
	Meeting public expectation / moving with the times
	Reputation
	Considered to be good business practice
	Reduction in energy consumption during manufacturing
	Wanting to reduce emissions
Compliance	Ensuring credentials of suppliers
	Managing compliance risk
	Requirement to reduce emissions
	Meet emission targets (voluntary or mandatory)
Cost Reduction	Future proofing against future regulation
	Need to reduce costs
	Reducing costs and carbon in supply chain
	Managing cost risks
	Minimising un-necessary costs
	Understanding future cost impacts (up and down stream)

Innovation	Transparent communication (internal and external)
	Good business management - understanding the inputs, outputs and efficiency of the business
	Greening the supply chain and ultimately company
	Companies keen to benefit from collaboration / participation / partnerships (wanting to be part of the club)
	Taking responsibility for supply chain
	Understanding impacts of the supply chain
	Addressing supply chain (scope 3) is considered to be an obvious next step from reporting scopes 1&2.
	Product footprinting is considered as companies taking broader responsibility for their impacts
	Relationship building between supplier and buyer allows sharing of expertise and can result in financial benefits



Annex F Case Study Selection Matrix



Case Study Matrix - Corporate

Case Study Companies	Prioritisation	Case Study 1 Requirements	Case Study 2 Requirements	G4S	DHL	SCA Packaging	Tesco	John Lewis	International Power	e-on	O2	Xstrata	BSkyB	3i	Slough Estates	BAE Systems	Barclays	BT Group	Cairn Energy	British Energy	Pret A Manger	Eurostar	Reed Group	Marshalls	ARM Holdings	Computacenter	Greenvale	Albert Bartlett	
		Large corporate																											
		SME																											
UK presence (Ideally but not essential)																													
Mandatory (CRC & others)				*	*	*																				*	*		
Voluntary																													
Public disclosure (not essential)																													
Non disclosure (not essential)																													
Willingness to participate		N	N	Y	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	Y	Y	Y	N	N	N	N	N	N	
CDP Recommended		x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	✓	✓	✓	✓	✓	✓	
Defra preferred (P) or identified as an option(O)		P	O	P					O	O		O			O											P	O		

* A proportion of the business is covered by the CRC

Y = Expected to be willing to participate

N = Willingness to participate unknown

Case Study Matrix - Product/Service

Case Study Companies	Prioritisation	Case Study 1 Requirements	Case Study 2 Requirements	Pepsico	Continental Clothing	Tesco	Boots (shampoo)	Innocent	Coke	Tecco installation service	IBM Farm internet (Defra)	Bank personal account	Marshalls (building products)	Kimberly-Clarke	GSK	Eurostar	M&S	National Express	Morphy Richards	Asda Wat*Mart	Lubrizon		
		Company new to area																					
		Company with footprinting track record																					
UK presence																							
Goods footprinting																							
Services footprinting																							
Large corporate																							
SME																							
Public disclosure (product and/or website)																							
Non disclosure (internal)																							
Willingness to participate		Y	Y	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	N	Y		
Carbon Trust Recommended		✓	✓	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x	x		
Defra preferred (P) or identified as an option(O)			P	O		O						O	O			O		P					

Y = Expected to be willing to participate

N = Willingness to participate unknown

Annex G Case Study Interview Proforma



Monitoring Uptake of GHG Measurement Tools and Resulting Reductions in GHG Emissions

Introduction

There are a number of methods and tools available for companies to calculate and report on the GHG emissions from their activities, products and/or services. ERM have been appointed by Defra to undertake a study determining how to measure (i.e. via which methods) the uptake of 'GHG footprinting' (for both corporate emissions and products & services) and the level of GHG emissions reductions that this generates. We will also assess the effectiveness of any methods recommended by testing them on existing data.

It is accepted that GHG assessment and reporting does not, in itself, lead to GHG emissions reduction in the absence of other reputational, compliance cost and innovation drivers. ERM have developed a hypothetical framework (Annex B) as the basis for assessing the link between GHG assessment, reporting and eventual emissions reductions at both a corporate/organisational level and for products/services.

The hypothetical framework assesses the interactions between the four core drivers and how monitoring and reporting GHG emissions strengthens these drivers and ultimately leads to emission reductions. As part of the development of the Hypothetical Framework (Annex B), ERM have identified the drivers and sub-drivers (see Annex A) associated with methodology uptake, monitoring & reporting and ultimately emission reductions. The four core drivers have been identified as:

- Reputation.
- Compliance.
- Cost Reduction.
- Innovation.

Phase 2 of the project involves testing the hypothetical framework via four case studies.

Case Study Interview Questions

1. Overview of your corporate GHG management strategy & GHG cycle:
 - How long has the GHG strategy been in place?
 - At what levels / roles does responsibility for the strategy lie?
 - Do you follow an established GHG management cycle (assess, report and manage)? Please provide detail of your GHG cycle.

2. Which GHG monitoring and reporting methodology do you currently employ:
 - Why was this particular methodology chosen above others?
 - How long have you employed this methodology?
 - Are you happy with the way the chosen methodology has integrated with your GHG management strategy and cycle? If not, why not?

3. Drivers for selecting the GHG methodology:

- Which drivers were strongest in you choosing to use a GHG methodology (reputation, compliance, cost reduction and innovation)?
- Why were these drivers the strongest?
- Why were other drivers less strong?
- Are they likely to remain the strongest drivers for selecting the GHG methodology, or has that / will that change over time?

4. Drivers for monitoring and reporting emissions:

- Which drivers were strongest in influencing the company's decision to monitor and report GHG emissions (reputation, compliance, cost reduction and innovation)?
- Why were these drivers the strongest?
- Why were other drivers less strong?
- Is the strength of drivers for monitoring and reporting GHG emissions likely to remain the same, or is the strength of each driver likely to change over time?

5. Monitoring and reporting emissions:

- What part of the business does the monitoring and reporting of GHG emissions cover?
- Which GHG sources do the monitoring and reporting cover?
- What is your KPIs and baseline based upon?
- Which GHGs do you cover (CO2 or basket of six GHG)?
- Is the coverage of GHG data global or local in nature (is it installation specific, national or global)?
- How long have you been reporting (what is the maturity of your system)?
- Do you have independent assurance?
- Who is responsible for reporting?
- Does the company have a steering group/board backing?

6. Drivers for reducing/not reducing emissions:

- Has the company reduced/is the company working to reduce GHG emissions?
- Which drivers were strongest in influencing the company's decision to reduce/not to reduce GHG emissions (reputation, compliance, cost reduction and innovation)?
- Why were these drivers the strongest?
- Why were other drivers less strong?
- Is the strength of drivers for reducing/not reducing GHG emissions likely to remain the same, or is the strength of each driver likely to change over time?
- Is the company likely to continue to reduce/not reduce GHG emissions?
- What effect did the monitoring and reporting of GHGs have on the strengthening or weakening of the drivers to reduce/not reduce?
- To what extent do you think the employment of GHG monitoring and reporting methodologies affected the identification and delivery of these emissions reductions?

7. Corporate emissions reductions (if reductions achieved):
- What level of emissions reductions have you achieved, and over what period of time?
 - How frequently are emissions calculated (i.e. monthly, quarterly, annually)?
 - How many years have emissions data been calculated for (since when)?
 - Have emission reduction targets been set?

8. Public disclosure / non disclosure of emission data:
- Is your emissions data publically disclosed or reserved for internal reporting purposes only?
 - If data is disclosed, please state through which forum (website, CDP etc)?
 - If data is not disclosed, please detail reasons for non-disclosure

9. Approach to mandatory / voluntary emissions reporting
- Do you have a mix of both emissions that must be reported by law (mandatory reporting) and voluntary emission reporting?
 - Are emissions required to be reported by law (i.e. emissions associated with installations covered by the EU ETS), treated differently to those reported voluntarily?
 - Are the mandatory and voluntary emissions calculated and reported in the same way?
 - Are mandatory and voluntary emissions reducing? If reducing, is this happening at the same rate?

10. Access to and use of data:
- If not in the public domain, would you be willing to share the company's emission data with ERM to use as part of this project?

Annex H Case Study Interview Summaries



Continental Clothing – Product Footprinting

- *Summary has been approved by Continental Clothing.*
- *Continental Clothing have confirmed that their position can be reported non-confidentially.*

7th August 2009, meeting at Continental Clothing's London offices between Holly Jeans of ERM and Mariusz Stochaj, Head of Products - Sustainable Business Development for Continental Clothing.

Overview

- SME
- BtoB Company
- Position: Continental Clothing position themselves as an innovative sector leader.
- Desire to align to PAS 2050 driven by the board

In early 2007, Continental Clothing identified a potential new product range called "EarthPositive" to diversify from existing product ranges. The EarthPositive range was designed to develop business with existing customers and allow Continental Clothing to engage with new customers and markets, through the additional sustainability credentials that the product range would have to offer.

Continental Clothing wanted to differentiate the EarthPositive range by focusing on three key areas of sustainability:

- Ethical (product manufactured ethically)
- Organic (cotton in product range would be 100% organic)
- Climate Neutral (90% lower CO₂)

Adherence to and proof of compliance with the ethical and organic criteria was straightforward, through aligning with the globally recognised criteria of the "Fair Wear Foundation" and "SA8000" for ethical issues and for organic issues, the "Global Organic Textiles Standard".

The ethical and organic credibility of the EarthPositive range was provided through the use of the relevant "Fair Wear Foundation", "SA8000" and "Global Organic Textiles Standard" logos as stamps of approval, easily recognisable by the consumer.

Although there were established systems (and associated recognised labels) in place to show the ethical and organic credentials of a product, no such established standard was available for calculating the emissions associated with a product and therefore whether it could be considered as "climate neutral". As a result, Continental Clothing decided to calculate and publish the carbon footprint of their EarthPositive range themselves (ensuring it was transparent, credible and robust), so worked closely with a PhD student to scope a methodology, which was then used to calculate the carbon footprint of the new product range.

Continental Clothing partnered with an existing manufacturing company in Tamil Nadu. As part of the development of the new product range, Continental Clothing assessed the production efficiencies and energy consumption through their manufacturing process to identify the most intensive areas of the process.

Continental Clothing began with easy wins such as low energy lamps etc, then moved to production efficiencies to reduce requirement for energy – Once actual consumption was reduced as far as possible, Continental Clothing moved to investment in renewables (wind farms). The facility is located in an area with high occurrences of winds (a consideration on the choice of location). The 29 turbines produce enough energy to power the process (plus 30%) when wind is blowing. In these conditions, the surplus is sold to the grid, making Continental Clothing a net exporter of electricity. During the few days per year when the wind is not sufficient to power the turbines, electricity is imported back from the grid (to allow production to continue).

The 90% reduction in CO₂ (compared to the footprint of a standard product), was the maximum that could be achieved through the reduction and investment in renewable technologies. As a result, the 90% reduction was not set as a target, but the maximum reduction that Continental Clothing could achieve.

The manufacture of the EarthPositive range began in July 2007, after two months, Continental Clothing came across the Carbon Trust trials of the PAS 2050. Continental Clothing engaged with the Carbon Trust and modified their product footprinting scope slightly (to include embedded carbon of the dyes) to align with the PAS 2050. As a result, Continental Clothing has been granted the right to use the Carbon Trust Carbon Label logo, which has been adopted and used a key marketing tool alongside the ethical and organic logos.

Uptake of the PAS 2050 was therefore purely used as a means to show that Continental Clothing were following a recognised and credible methodology and earn the right to use the recognised label to market the EarthPositive range. The EarthPositive range was launched in January 2008, consisting of approximately 350 carbon footprint labels.

Drivers and Barriers

Drivers, Barriers and Considerations	Cost	Compliance	Reputation	Innovation
Selection of the GHG methodology	N/A	N/A	N/A	
Monitoring & reporting emissions				
Setting emission reduction targets				
Achieving emission reductions				

Drivers	Consideration	Barriers
---------	---------------	----------

Selection of the GHG methodology

Two months after the manufacture of the EarthPositive range began, Continental Clothing came across the Carbon Trust trials of the PAS 2050. Continental Clothing engaged with the Carbon Trust and modified their product footprinting scope slightly (to include embedded carbon of the dyes) to align with the PAS 2050. As a result, Continental Clothing has been granted the right to use the Carbon Trust Carbon Label logo, which has been adopted and used a key marketing tool alongside the ethical and organic logos. Uptake of the PAS 2050 was therefore purely used as a means to show that Continental Clothing were following a recognised and credible methodology and earn the right to use the recognised label to market the EarthPositive range. The EarthPositive range was launched in January 2008, consisting of approximately 350 carbon footprint labels. Although not strictly applicable to Continental Clothing, the main driver for uptake (or aligning to) the PAS 2050 is **Innovation** and Continental Clothing's requirement to align with a recognised methodology.

Monitoring & reporting emissions

Continental Clothing's decision to monitor and report emissions (initially following their own methodology then subsequently aligning to the PAS 2050), was purely driven on their business decision to develop the new EarthPositive product range. The key driver for monitoring and reporting was therefore **Innovation**. It should be noted that although cost was neither a driver nor a barrier (it was accepted as part of the business decision to footprint the EarthPositive range), it was a consideration as part of the monitoring and reporting methodology.

Setting emission reduction targets

The 90% reduction in CO₂ (compared to the footprint of a standard product), was the maximum that could be achieved through the reduction and investment in renewable technologies (see below). As a result, the 90% reduction was not set as a target, but recorded as the maximum reduction that Continental Clothing could (and did) achieve. This 90% reduction has been set as a key credential of the EarthPositive range, the reporting of which was very much driven by **Innovation** and **Reputation** drivers

Achieving emission reductions

Although the 90% reduction in CO₂ was the maximum that could be (and was) achieved through the reduction and investment in renewable technologies, and therefore emission reductions were achieved before the 90% target was reported. Despite this, the requirement to have a reduction was driven by **Innovation** and **Reputation** drivers.

Is there a direct link between monitoring / reporting using the PAS 2050 and setting emission reduction targets?

Continental Clothing had already made the decision to reduce their emissions as part of the development of the new product range, and, as a result, use of the PAS2050 had no impact on the setting of environmental reduction targets. However, should Continental Clothing decide to further reduce their emissions, monitoring and reporting via the PAS2050 may help inform their decisions.

Is there a direct link between monitoring/reporting using the PAS 2050 and achieving emission reductions?

Continental Clothing had already made the decision to reduce their emissions as part of the development of the new product range. The calculation of the emissions associated with the product (and alignment to the PAS 2050) has however enabled Continental Clothing to quantify and report emission reductions against a recognised and approved methodology.

Drivers & Barriers

The decision for Continental Clothing to footprint and therefore use PAS 2050 was a consequence of a commercial decision to develop a new product range rather than a consequence of the methodology being available.

Innovation and **Reputation** were key drivers in the decision to develop the new product range (and therefore the footprinting of the product), where Continental Clothing strive to future proof the business through anticipating the direction of the market and provision of an innovative product range not available through competitors.

In essence, the proven environmental credentials of the EarthPositive range (aligning to recognised standards) and careful marketing have created demand and competitive advantage to Continental Clothing.

As the only recognised methodology for measuring emissions, Continental Clothing aligning to the PAS 2050, is purely a business decision based around **reputation**, giving credibility to the work carried out by Continental Clothing and reassurance to customers of the legitimacy of the claims

Footprinting in accordance with the PAS 2050 methodology was a pre-requisite to Continental Clothing using the Carbon Trust label, to communicate the climate credentials of the new product range. The drivers of which were very much based around **reputation** and **innovation**.

No barriers to embarking on the development of the EarthPositive range and therefore product footprinting were encountered within Continental Clothing. In reality, the project was met with enthusiasm.

Cost was a consideration (both as a barrier and driver) in terms of the cost of investment in renewables and the benefits associated with payback periods. However this consideration was directed at the investment and payback of renewable technologies rather than the actual cost of footprinting the EarthPositive range. In addition, although cost was a consideration, it was considered as part of the business strategy for developing the new product range and not prohibitive.

Compliance has not been noted as a driver or barrier to the uptake of the PAS 2050, product footprinting or reductions achieved by Continental Clothing.

Caveat

It should be noted that Continental Clothing are very focussed in innovation and the fact that they developed their own methodology before aligning with the PAS 2050 is a good reflection of this, however this is not a fair reflection of all companies, many of whom may be constrained by factors such as cost (representing a barrier), rather than it being a consideration and accepted as part of the development of the new product range.

1. Overview of your corporate GHG management strategy & GHG cycle:
 - How long has the GHG strategy been in place? The Continental Clothing GHG management and strategy has been in place for several years and which they are fully committed to implementing across the business.
 - At what levels / roles does responsibility for the strategy lie? GHG management / strategy is very much driven from the board.
 - Do you follow an established GHG management cycle (assess, report and manage)? Please provide detail of your GHG cycle. Continental Clothing follows the standard GHG management cycle.

2. Which GHG monitoring and reporting methodology do you currently employ: PAS2050 (see notes above about the development of own methodology that was modified to align to the PAS 2050).
 - Why was this particular methodology chosen above others? Because of it's status as the only recognised methodology
 - How long have you employed this methodology? 2007
 - Are you happy with the way the chosen methodology has integrated with your GHG management strategy and cycle? If not, why not? Yes (see noted above).

3. Drivers for selecting the GHG methodology:
 - Which drivers were strongest in you choosing to use a GHG methodology (reputation, compliance, cost reduction and innovation)? None (see notes above). The PAS2050 was selected due to its status as the key recognised methodology.
 - Why were these drivers the strongest? N/A
 - Why were other drivers less strong? N/A
 - Are they likely to remain the strongest drivers for selecting the GHG methodology, or has that / will that change over time? N/A

4. Drivers for monitoring and reporting emissions:
 - Which drivers were strongest in influencing the company's decision to monitor and report GHG emissions (reputation, compliance, cost reduction and innovation)? Continental Clothing began monitoring and reporting emissions in response to a business decision to launch a new product range. As a result innovation and reputation were the strongest drivers.
 - Why were these drivers the strongest? Due to the companies reasons for monitoring and reporting (new product development).
 - Why were other drivers less strong? Cost was a consideration but not a driver or barrier - -the focus was primarily on the development of the new product. Compliance was not an issue for Continental Clothing.
 - Is the strength of drivers for monitoring and reporting GHG emissions likely to remain the same, or is the strength of each driver likely to change over time? The strength of drivers is likely to stay the same over the medium term. However changes in the company structure or regulatory requirements may alter the importance of the drivers, making cost and compliance more important.

5. Monitoring and reporting emissions:
 - What part of the business does the monitoring and reporting of GHG emissions cover? The EarthPositive clothing range
 - Which GHG sources do the monitoring and reporting cover? The boundary has been set in accordance with the PAS2050.

- What is your KPIs and baseline based upon? The footprint of existing clothing ranges.
- Which GHGs do you cover (CO2 or basket of six GHG)? CO2e as set out within the PAS2050.
- Is the coverage of GHG data global or local in nature (is it installation specific, national or global)? The reporting reflects data associated with the Earth Postive range.
- How long have you been reporting (what is the maturity of your system)? This is the first product footprinting that has been completed by Continental Clothing, however the company has been calculating corporate emissions for a number of years.
- Do you have independent assurance? No.
- Who is responsible for reporting? Mariusz Stochaj (Head of Products)
- Does the company have a steering group/board backing? Yes, the programme is driven by the board.

6. Drivers for reducing/not reducing emissions:

- Has the company reduced/is the company working to reduce GHG emissions? Yes, Continental Clothing have reduced emissions, achieving 90% lower CO₂.
- Which drivers were strongest in influencing the company's decision to reduce/not to reduce GHG emissions (reputation, compliance, cost reduction and innovation)? Innovation and Reputation
- Why were these drivers the strongest? Because of the company's decision to achieve this as part of a business strategy to launch a new product range.
- Why were other drivers less strong? Because of the company's decision to achieve this as part of a business strategy to launch a new product range, cost is less of a key driver. Compliance is not currently an issue to Continental Clothing.
- Is the strength of drivers for reducing/not reducing GHG emissions likely to remain the same, or is the strength of each driver likely to change over time? Cost may become a more significant issue to Continental Clothing, as the company have met the strategic aims of the new product development. Also the amount of investment, emission reductions achieved to date and actual electricity consumption being due to periods of no wind (to run the turbines), make it unlikely that Continental Clothing will not consider cost as a barrier to future reductions.
- Is the company likely to continue to reduce/not reduce GHG emissions? Unknown at this time. At the very least Continental Clothing will maintain their position. However, because Continental Clothing have done as much as they can to make the 90% reduction, further emission reductions are not certain.
- What effect did the monitoring and reporting of GHGs have on the strengthening or weakening of the drivers to reduce/not reduce? No effect, Continental clothing made the decision to reduce prior to calculating the product footprints.
- To what extent do you think the employment of GHG monitoring and reporting methodologies affected the identification and delivery of these emissions reductions? It didn't at all.

7. Corporate emissions reductions (if reductions achieved):

- What level of emissions reductions have you achieved, and over what period of time? N/A Product footprinting.
- How frequently are emissions calculated (i.e. monthly, quarterly, annually)? N/A Product footprinting.

- How many years have emissions data been calculated for (since when)? N/A Product footprinting.
 - Have emission reduction targets been set? N/A Product footprinting.
8. Public disclosure / non disclosure of emission data:
- Is your emissions data publically disclosed or reserved for internal reporting purposes only? Publically disclosed. Key to marketing of the EarthPositive range.
 - If data is disclosed, please state through which forum (website, CDP etc)? Website and EarthPositive range marketing brochures.
 - If data is not disclosed, please detail reasons for non-disclosure. N/A data is disclosed.
9. Approach to mandatory / voluntary emissions reporting
- Do you have a mix of both emissions that must be reported by law (mandatory reporting) and voluntary emission reporting? NA as no mandatory reporting, all reporting is voluntary.
 - Are emissions required to be reported by law (i.e. emissions associated with installations covered by the EU ETS), treated differently to those reported voluntarily? NA as no mandatory reporting, all reporting is voluntary.
 - Are the mandatory and voluntary emissions calculated and reported in the same way? NA as no mandatory reporting, all reporting is voluntary.
 - Are mandatory and voluntary emissions reducing? If reducing, is this happening at the same rate? NA as no mandatory reporting, all reporting is voluntary.
10. Access to and use of data:
- If not in the public domain, would you be willing to share the company's emission data with ERM to use as part of this project? Yes happy to share this data (it's already disclosed publically). Although data spreadsheet(s) developed as part of this process is our intellectual property and therefore will not be shared. Also happy to act as a non confidential participant in this trial.

G4S – Corporate

- Summary has been approved by G4S.
- G4S has confirmed that their position can be reported non-confidentially to Defra and included within any future study report.

On the 25th September 2009, we held a telephone interview between Holly Jeans of ERM and Nigel Lockwood, Communications Manager of G4S.

Overview

- Large International
- Position: G4S position themselves as an innovative sector leader.

G4S are a multinational company, with operations across 110 countries, with 600,000 employees globally. Although G4S is a devolved business, there is a definite management line and large degree of authority from corporate throughout the business.

G4S align with the GHG Protocol and report Scope 1, 2 and part scope 3 emissions (business air travel). G4S report emissions by calendar year.

G4S first decided to measure their corporate emissions footprint in 2007. This trial only measured the company’s 12 biggest cash businesses and 7 largest security businesses (1 in each region). Following the trial in 2007, 2008 was considered the first year for which emissions were calculated. In 2008, it was decided that G4S would report emissions from businesses representing 80% of the group financial turnover. In fact, the final data showed that the emissions reported covered 37 countries and 82% of the group turnover). In 2009, emission reporting has been expanded to cover 93% of the group financial turnover across 46 countries. With this coverage of businesses and business types, G4S are in a position to extrapolate the actual data for the businesses which have not been included (7%), to provide an extrapolated total emission figure. G4S have not yet decided whether to base their data on extrapolation (providing 100% coverage of the groups emissions), or to report actual data for 93%.

G4S expect their footprint to increase in 2009, as the reporting process becomes more established.

Data assurance: 2008 data was locally managed and signed off. 2009 G4S undertook an internal due-diligence exercise, with some external assurance to validate the data. In the future G4S are considering third party assurance.

Drivers and Barriers

Drivers, Barriers and Considerations	Cost	Compliance	Reputation	Innovation
Selection of the GHG methodology				
Monitoring & reporting emissions	*	*	*	
Setting emission reduction targets				
Achieving emission reductions				

Drivers	Consideration	Barriers
---------	---------------	----------

* = strongest drivers

Selection of the GHG methodology

G4S aligns with the GHG Protocol. Selection of the GHG Protocol was primarily because it is recognised as one of the main GHG reporting methodologies. As a result, the methodology is very much selected for **Reputation** reasons (i.e. reputation of aligning with a recognised methodology). No barriers to selection of the GHG reporting methodology have been identified.

Monitoring & reporting emissions

For G4S, understanding their GHG footprint and therefore the company position is essential to the management of risk. The three strongest drivers to G4S monitoring and reporting emissions are **Compliance**, **Reputation** and **Cost**. **Innovation** is considered to be a weaker driver.

Although G4S are not currently caught under mandatory reporting (EU ETS etc), **Compliance** with customer and government requirements is considered key driver in order to future proof the business.

Reputation and Innovation are key drivers to G4S. As the worlds leading security organisation, G4S feel the responsibility to do the “right thing”, leading by example.

Cost is certainly not viewed as a barrier to monitoring and reporting emissions at a corporate level. The ultimate goal of emission reductions is understood to be linked to ultimate financial reductions. Financial reductions are considered to be a key method for getting people on board and therefore cost is ultimately seen as a driver for emission reductions.

Setting emission reduction targets

G4S have a Climate Action board, including senior representatives from the business. The CAB was established to drive the 2009 – 2012 reduction strategy. This strategy sets out key elements of the reduction plan (i.e. boundary, parts of the business involved, Scopes covered, accuracy, emission reduction targets etc), but has been developed as a fluid document to evolve over time. The strategy requires a 4.5% reduction in carbon intensity per year until 2012. G4S measure their carbon intensity as tonnes CO₂ per million £ revenue.

2008 = 90tonnes/million £ revenue

2009 is set as the baseline year and is expected to be higher than 2008

2010 is the first year of reductions against the 2009 baseline. G4S are considering:

- Replacement of fleet
- Electric vehicles
- Solar powered security systems
- Intelligent routing and eco-driving techniques

The 4.5% annual intensity reduction is considered to be achievable, whilst delivering a real benefit. This figure and the overarching reduction target of 15% by 2012 ties in with the EU reduction target for the same period.

G4S have identified **Compliance**, **Reputation**, **Cost** and **Innovation** as drivers to setting emission reduction targets. **Cost** is considered to be a driver, particularly during the first few years of the strategy, whilst easy reductions are made and where emission reduction through efficiency measures reduces costs. It is considered that **Cost** may become a barrier in the future (beyond 2012) as reductions require more investment. To mitigate against this potential barrier to reductions, G4S are considering internal trading and becoming carbon neutral. It is also acknowledged that some schemes (and trials) such as these may require central/corporate funding

Innovation and **Reputation** are both key to G4S, who strive to be a leader in their sector and therefore the setting and achieving emission reductions are key to demonstrating good practice. **Compliance** with customer and government requirements in order to meet current and future expectations, setting and achieving of targets is considered key to future proof the business.

Achieving emission reductions

No emission reductions have been achieved to date. 2009 is the base year against which future emission reductions will be made.

Compliance, Reputation, Cost and **Innovation** are all seen as drivers to emission reductions in the short term. **Compliance** with customer and government requirements is considered key driver in order to future proof the business. **Reputation** and **Innovation** are key to G4S in striving to lead by example. **Cost** is considered to be a driver, particularly during the first few years of the strategy, whilst easy reductions are made and where emission reduction through efficiency measures reduces costs

However, it is considered that in the longer term **Innovation** and **Cost** (financial feasibility) may both become barriers as technology needs to catch up with aspirations i.e. electric powered armoured vehicles.

Is there a direct link between monitoring / reporting using the GHG Protocol and setting emission reduction targets?

There is a definite link between G4S's use of the GHG Protocol as the methodology for monitoring and reporting and setting of emission reduction targets. Although G4S strive to be innovative sector leaders, their ability to measure their footprint via the GHG Protocol has allowed them to develop their informed, realistic and achievable reduction strategy and carbon intensity reduction targets (reduction of CO₂ e per million £ revenue).

Is there a direct link between monitoring/reporting using the GHG Protocol and achieving emission reductions?

No emission reductions have been achieved to date, however based on the information provided, G4S are in line to reduce their emission intensity by 15% on 2009 levels by 2012. Any reduction achieved will be partly attributable to use of the GHG Protocol as a methodology to allow G4S to understand their GHG footprint and make informed emission intensity reduction targets.

Greenvale Operations (AP) – Corporate

- *Summary has been approved by Greenvale.*
- *Greenvale have confirmed that their position can be reported non-confidentially.*

11th August 2009, meeting at Greenvale's facility at March, Cambridgeshire between Holly Jeans of ERM and Paul Tyson, Environmental Co-ordinator for Greenvale. Paul Tyson will be replaced by Jessica Cranthorne as Environmental Co-ordinator

Overview

- SME
- Greenvale is split into two divisions Greenvale Operations (AP) and Greenvale Growing. This project has considered emissions from the Greenvale Operations (AP) side of the business (including 3 retail sites, 1 growing site and 1 cooking plant, all within the UK). Emissions from Greenvale Growing (UK & Holland), understood to be limited to diesel fuel for farm machinery, are not collected and reported by Greenvale and have therefore been excluded from this study.
- Position: Greenvale position themselves as an innovative sector leader.

Greenvale align with the GHG Protocol, monitoring and reporting their scope 1 & 2 emissions, including electricity, gas, and fuel consumption on company vehicles (air conditioning currently excluded). Data has been collected since mid 2006, although as Greenvale report by calendar year, 2007 was the first full year's data. Greenvale complete the CDP. Relevant data is collected at each of the five UK sites and forwarded to Paul Tyson the Environmental Coordinator for inclusion in the master spreadsheet. KPI's are generated from the master spreadsheet, as a monthly, quarterly and annual carbon report for each of the 5 sites and at an overarching Greenvale AP level.

The data and accompanying reports generated from the master spreadsheet are used as a management tool, to ensure that the business is run efficiently and in a cost effective manner, whilst considering the carbon (and wider environmental impact i.e. water and waste) of the business and potential business decisions. As a result the master spreadsheet and associated reporting drive investment decisions.

Currently the emissions data and associated KPI's are not within the public domain, however this will happen in the future. In addition to reporting data publically, Greenvale AP plan to develop a CR report, which will be disclosed publically via the Greenvale AP website.

As part of the business decision making approach, Greenvale carefully balance the costs and benefits (financial and environmental) of different approaches, whilst striving to maintain or improve product quality. The cost or carbon, and potential carbon reductions are fully considered alongside other environmental factors and financial considerations and built into the business case for each major investment decision (all new equipment).

Greenvale do not strive to make emission reductions to the detriment of other environmental factors. As part of considering GHG data alongside other environmental and financial factors, within an integrated business management approach, Greenvale may decide not to install a financially feasible piece of

equipment, able to achieve emission reduction, if it has a massively detrimental impact on water consumption or waste production. The environmental benefits achieved by Greenvale can therefore only really be seen through considering all of their KPI's.

Greenvale commission specific energy surveys as part of the decision making process, in order to fully understand the carbon implications of investments (for example, if replacing a piece of equipment, a survey would be undertaken to understand the energy requirements of the old equipment, so that this can be compared to the new equipment).

Smart metering is currently being considered for all sites, to enable more accurate understanding of energy consumption and therefore emissions.

The requirement to monitor and measure is very much driven from board level. The board view the management of carbon as a central element to their business and maintaining an understanding of the company's footprint as a key tool, essential and integral to any business decisions.

One of the key overarching drivers for engaging in the GHG arena is the future sustainability of the company.

Drivers and Barriers

Drivers, Barriers and Considerations	Cost	Compliance	Reputation	Innovation
Selection of the GHG methodology				
Monitoring & reporting emissions	*	*		
Setting emission reduction targets				
Achieving emission reductions				

Drivers	Consideration	Barriers
---------	---------------	----------

* = strongest drivers

Selection of the GHG methodology

Greenvale AP aligns with the GHG Protocol. Selection of the GHG Protocol was primarily because it is recognised as one of the main GHG reporting methodologies. As a result, the methodology is very much selected for both **Compliance** (i.e. to allow Greenvale to monitor and report emissions under the CCA held for four sites) and **Reputation** reasons (i.e. reputation of aligning with a recognised methodology). No barriers to selection of the GHG reporting methodology have been identified.

Monitoring & reporting emissions

All of the key drivers influence Greenvale's decision to monitor and report their corporate emissions, as detailed below:

Compliance is currently a key driver for Greenvale AP, with four of the UK facilities falling under Climate Change Agreements (CCAs). It is likely that **Compliance** will continue to be a driver in the future, with the expected extension of CCA's until 2017 and the introduction of the CRC in 2010, which is likely to impact on the whole Greenvale AP business.

For Greenvale AP, one of the key overarching drivers for engaging in the GHG arena is the future sustainability of the company (**Cost, Reputation and Innovation**). Data collected through the monitoring and reporting process is used as a business management tool, forming part of their integrated business decision making process. Greenvale carefully balance the costs and benefits (financial and environmental) of

different investments/changes to their operations, whilst striving to maintain or improve product quality. The potential carbon reductions and financial cost of carbon on the market (current and future) are fully considered alongside other financial and environmental factors and built into the business case for major investment decisions. Although **Reputation** and **Innovation** are both strong drivers, ensuring that Greenvale future proof the business and maintain their position as sector leaders, **Cost** and **Compliance** remain as the strongest drivers.

No barriers to monitoring and reporting of emissions have been identified.

Setting emission reduction targets

Greenvale AP has a very informal target to reduce their normalised emissions across the business. In addition to this informal target, a formalised target to reduce emissions against a baseline year of 2007 has been set for the March site (in line with the sites EMS). Progress against both the formal and informal targets is monitored via KPI's from the master spreadsheet. It is understood that formal targets will be set for each of the Greenvale AP sites in the future. The drivers for Greenvale setting emission reduction targets are driven by **Cost** (reduction) **Reputation** and **Innovation**. The only potential future barrier to target setting is likely to be excessive **Cost** (due to the absence of any appropriate and financially viable technologies), preventing emission reductions and therefore target setting.

Achieving emission reductions

In addition to the obvious **Compliance** driver, the other key drivers associated with emission reductions for Greenvale are **reputation** and **innovation**. These drivers are particularly pertinent in Greenvale's business planning, commitment and decisions to invest in technologies to achieve emission reductions (i.e. in renewable technology).

Through understanding the company's carbon footprint and the financial cost of carbon, Greenvale factors the current and likely future cost of carbon into the financial feasibility of investment decisions, making **Cost** a driver to reductions. However, where financially viable technologies are not available or payback periods are not sufficient to make a business case, **Innovation** and **Cost** can represent a barrier to reduction

The availability of appropriate and financially viable technologies has been identified as another **Cost** barrier to emission reductions.

Greenvale do not strive to make emission reductions to the detriment of other environmental factors. As part of considering GHG data alongside other environmental and financial factors, within an integrated business management approach, Greenvale may decide not to install a financially feasible piece of equipment, able to achieve emission reduction, if it has a massively detrimental impact on water consumption or waste production. As a result, **Reputation** may become a barrier to emission reductions, as Greenvale block opportunities for reductions due to negative effects on other environmental factors (waster, waste etc).

Is there a direct link between monitoring / reporting using the GHG Protocol and setting emission reduction targets?

There is a definite link between Greenvale's use of the GHG Protocol as the methodology for monitoring and reporting and setting of emission reduction targets. Greenvale use the data collected through GHG monitoring as a management tool, which ultimately allows them to understand their current position and make

informed short to medium term decisions. Use of the data as a management tool allows Greenvale to and where reductions will be achieved (if any) and ultimately to set realistic and achievable emission reduction targets.

Is there a direct link between monitoring/reporting using the GHG Protocol and achieving emission reductions?

No emission reductions have been achieved to date (2007 was the first year full year for which data was collected and emissions increased slightly in 2008). However, informal and formal emission reduction targets have been set by Greenvale. If and when these reductions are achieved, there would be a link back to the GHG Protocol.

1. Overview of your corporate GHG management strategy & GHG cycle:
 - How long has the GHG strategy been in place? The Greenvale strategy has been in place for a couple of years, with data collection since 2006 (2007 is first full year of data).
 - At what levels / roles does responsibility for the strategy lie? GHG management / strategy is very much driven from the board.
 - Do you follow an established GHG management cycle (assess, report and manage)? Please provide detail of your GHG cycle. Greenvale follows the standard GHG management cycle.

2. Which GHG monitoring and reporting methodology do you currently employ: GHG Protocol
 - Why was this particular methodology chosen above others? Because of its status as the main recognised methodology.
 - How long have you employed this methodology? 2006
 - Are you happy with the way the chosen methodology has integrated with your GHG management strategy and cycle? If not, why not? Yes.

3. Drivers for selecting the GHG methodology:
 - Which drivers were strongest in you choosing to use a GHG methodology (reputation, compliance, cost reduction and innovation)? The GHG Protocol was selected due to its status as the key recognised methodology. The strongest drivers were Compliance and Reputation,
 - Why were these drivers the strongest? Compliance (because, need to comply with CCA and future CRC) and Reputation (to be aligning with a recognised methodology).
 - Why were other drivers less strong? Cost and Innovation were less strong, as little cost impact and chance to be innovative by using methodology.
 - Are they likely to remain the strongest drivers for selecting the GHG methodology, or has that / will that change over time? Likely to remain the strongest drivers.

4. Drivers for monitoring and reporting emissions:
 - Which drivers were strongest in influencing the company's decision to monitor and report GHG emissions (reputation, compliance, cost reduction and innovation)? All four of the drivers were influential in Greenvale's decision to monitor and report. Cost and compliance were the strongest two drivers.
 - Why were these drivers the strongest? Due to Greenvale's need to comply with regulations and cost, as ultimately, the decision to invest in reduction is a business decision and therefore cost is the main driver.
 - Why were other drivers less strong? The other drivers were still important, just not as strong as Compliance and cost.
 - Is the strength of drivers for monitoring and reporting GHG emissions likely to remain the same, or is the strength of each driver likely to change over time? The strength of drivers is likely to stay the same.

5. Monitoring and reporting emissions:
 - What part of the business does the monitoring and reporting of GHG emissions cover? Greenvale AP (5 UK sites).
 - Which GHG sources do the monitoring and reporting cover? Scope 1 & 2 emissions, including electricity, gas, and fuel consumption on company vehicles (air conditioning currently excluded).
 - What is your KPIs and baseline based upon? 2007 data.

- Which GHGs do you cover (CO2 or basket of six GHG)? CO₂.
- Is the coverage of GHG data global or local in nature (is it installation specific, national or global)? The reporting reflects data associated with Greenvale AP (five UK sites).
- How long have you been reporting (what is the maturity of your system)? Data has been collected since mid 2006, although as Greenvale report by calendar year, 2007 was the first full year's data.
- Do you have independent assurance? Yes internal and external data assurance.
- Who is responsible for reporting? Paul Tyson (Environmental Coordinator) reporting into Rob Philips (Operations Manager) and Trevor Dear (Operations Director).
- Does the company have a steering group/board backing? Yes, the programme is driven by the board.

6. Drivers for reducing/not reducing emissions:

- Has the company reduced/is the company working to reduce GHG emissions? Yes, Greenvale has set reduction targets and is working to reduce emissions.
- Which drivers were strongest in influencing the company's decision to reduce/not to reduce GHG emissions (reputation, compliance, cost reduction and innovation)? Cost, Innovation and Reputation
- Why were these drivers the strongest? Cost was strong as it is a key influencing factor. Innovation and reputation, to maintain the company's position as innovative and head of the sector.
- Why were other drivers less strong? Compliance, as the company is managing emissions for compliance purposes already.
- Is the strength of drivers for reducing/not reducing GHG emissions likely to remain the same, or is the strength of each driver likely to change over time? Drivers are likely to remain the same.
- Is the company likely to continue to reduce/not reduce GHG emissions? Unknown at this time.
- What effect did the monitoring and reporting of GHGs have on the strengthening or weakening of the drivers to reduce/not reduce? Strong link between monitoring and reporting and the drivers to reduce (as for Greenvale, the ability to reduce is based on understanding of the footprint and use of the data as a management tool to prioritise the best approached to reductions).
- To what extent do you think the employment of GHG monitoring and reporting methodologies affected the identification and delivery of these emissions reductions? No reductions have been achieved so far, however if reductions are made, there would be a strong link back to the monitoring and reporting methodology.

7. Corporate emissions reductions (if reductions achieved):

- What level of emissions reductions have you achieved, and over what period of time? No annual emission reductions achieved to date, however it is early days as Greenvale only have data for 2007 and 2008, and targets have not been in place for long.
- How frequently are emissions calculated (i.e. monthly, quarterly, annually)? Monthly
- How many years have emissions data been calculated for (since when)? since 2006, 2007 is the first full year of data.
- Have emission reduction targets been set? Yes.

8. Public disclosure / non disclosure of emission data:
 - Is your emissions data publically disclosed or reserved for internal reporting purposes only? **Data is not currently disclosed publically.**
 - If data is disclosed, please state through which forum (website, CDP etc)? **Data is not currently disclosed.**
 - If data is not disclosed, please detail reasons for non-disclosure. **Resources. Greenvale plan to disclose in the future.**

9. Approach to mandatory / voluntary emissions reporting
 - Do you have a mix of both emissions that must be reported by law (mandatory reporting) and voluntary emission reporting? **Yes, four of the Greenvale AP sites have CCA's.**
 - Are emissions required to be reported by law (i.e. emissions associated with installations covered by the EU ETS), treated differently to those reported voluntarily? **No, except there are different reporting mechanisms in place.**
 - Are the mandatory and voluntary emissions calculated and reported in the same way? **Yes.**
 - Are mandatory and voluntary emissions reducing? If reducing, is this happening at the same rate? **Greenvale are in compliance with their CCA's and have set targets for reduction across the whole business and at site level for the March site – if successful, site level targets may be introduced across the other 4 UK sites.**

10. Access to and use of data:
 - If not in the public domain, would you be willing to share the company's emission data with ERM to use as part of this project? **TBC – Greenvale unsure as they can't confirm emission reductions have been made, so are looking into whether reductions have been made during the first 6 months of 2009. Holly to send summary for approval.**

National Express – Service Footprinting

- *Summary has been approved by National Express.*
- *National Express have confirmed that their position should be reported **confidentially**.*

13th August 2009, meeting at National Express's York offices between Karen Fisher of ERM and Nick Coad, Group Environmental Director for National Express.

Overview

- Multi-national company with devolved structure
- In the UK, services provided are coaches, trains (East coast, East Anglia C2C) and buses (Birmingham and Dundee)
- Overseas National Express also operate coach and bus services in Spain and school buses in the USA.
- Position: National Express communicates widely about climate change and the benefits of public transportation services. The concept of 'more is less' is promoted – the position being that National Express should not seek to reduce absolute emissions, but to increase them. By increasing emissions through expansion of services there will be a net reduction in UK emissions as a result of the move from private (predominantly car) to public transport.
- Emissions reductions are continually being sought, as they have a very direct link with cost (ie fuel consumption). However, it is not considered possible to set meaningful reduction targets for service providers as they are predominantly out of their sphere of influence (more under the control of manufacturers and dependent on eg routes and traffic).

In 2001 National Express established a Group-level Environmental and Corporate Responsibility role, with a view to improving environmental reporting - or non-financial reporting in general. CSR reports previously contained no data on environmental performance and investors were beginning to request information on environmental indicators, such as greenhouse gas emissions.

From this point onwards, information has been collated from across the business to report emissions against the WBCSD standard. Early reports of aggregated total emissions soon evolved into performance-related 'per passenger km' emissions. These were used to show the benefits of coach/bus/train travel in comparison with travel by car, based on emissions and average loading. This is a key consideration for the type of service that National Express provides: ie a benefit to society that results in net environmental savings over alternative forms of transport – the default being car travel. It also drove the move to a CSR document that contains no numbers whatsoever (all greenhouse data is reported only online), but guides the reader through visions of a future with increased and evolved public transportation services and the benefits this would bring.

Part of this change in reporting style has come about as a result of a change in CEO around 2005/06. In previous years the company's approach was relatively conservative. The new CEO began to communicate more widely about climate change and the benefits of bus/train/coach services.

Given the nature of the National Express business, greenhouse gas emissions are dominated by fuel consumption. This makes the company a very straightforward one to footprint, as fuel consumption data is very easy to gather for the company. Site energy use data is the hardest information to compile.

The supply chain is also small as fuel is the main consumable purchased. Trains, are all leased, the coach network is a franchise operation, and track electricity is provided by network rail.

Projects/research into emissions reductions are always ongoing, as emissions are fundamentally linked with fuel consumption, which, in turn, is fundamentally linked to costs. For example, hybrid buses and coach light-weighting have been trialled and engineers work widely with supply chains on energy efficiency projects. Some absolute reduction targets have been set. Current targets are:

- Reduce train fleet energy use by 5% over the next 3 years.
- Comprehensive fuel management programme for bus and coach operations (by end of 2009).
- Reduce energy use at stations by 20% over the next 3 years.

Note: National Express have achieved some successes in reducing train fleet energy use (c2c introduced regenerative braking which reduces energy use by nearly 20% and NXEA won a prestigious 'Green Award' for reducing energy use in fleet by 6%) and maintenance sites (38% reduction in bus garages and 25% in train depots in 3 years).

However – normalised reduction targets have not been set, as National Express believe that they are:

1. Not always appropriate on a business-wide basis (implemented where possible – e.g. sites or train fleet).
2. It is believed that National Express should aim to increase absolute emissions as a result of an expansion in services and thereby indirectly deliver net reductions in emissions from the UK transport sector ; and
3. Not possible to meaningfully set on a 'per passenger km' basis (although previously tried). The major variables affecting fuel consumption, and therefore emissions, are out of the control of National Express (or other operators):
 - The onus on increasing vehicle fuel efficiencies is mainly on vehicle manufacturers. There is also some trade off with efforts to reduce exhaust emissions of other pollutants/improve local air quality and efforts to increase safety/passenger comfort. In general, because of these factors, the fuel consumption of newer vehicles is higher (I.e. the efficiency is lower). To improve local air quality, National Express have a 'fleet age' target (<8 years) and receive grants to improve the fleet. The implication is typically that newer vehicles have greater CO2 emissions; and
 - The other major variable in determining emissions per passenger km is the route travelled and degree of congestion etc. Emissions associated with different franchises will vary considerably, dependent on route. This is out of the control of the operator. Further, the greatest reduction potentials would be for traffic calming initiatives and, for example, more bus lanes.

Since reporting has started, there have been some reductions seen across the business: 40% reduction in site energy use in bus garages; and 25% reduction in site energy use in train garages/depots.

However, the feeling is that reporting itself doesn't lead to greenhouse gas reductions. In the context of National Express's business it provides more information for management, but does not aid with target-setting (for reasons as above). The implementation of a process for monitoring can lead to reductions, for example as seen for garages, and is intrinsically linked to commercials. But aggregated reporting does not.

Drivers and Barriers

Drivers, Barriers and Considerations	Cost	Compliance	Reputation	Innovation
Selection of the GHG methodology				
Monitoring & reporting emissions				
Setting emission reduction targets				
Achieving emission reductions				

Drivers	Consideration	Barriers
---------	---------------	----------

Monitoring & reporting emissions

The motivation for formulating a Group-level environmental/CSR role and to begin to report greenhouse gas emissions was, in part, a question of the 'time being right'. National Express' Communications Director had picked up on requests from investors for aggregated reporting of GHG emissions. It was also generally felt that it either had to be done, or was the right thing to do.

In this respect the most relevant category of driver would be **reputation** – encompassing elements of customer pressure, consideration of good business practice and moving with the times.

In terms of reporting, early on it became clear that relative measures are important and so emissions per passenger km (average over year) are reported alongside absolute emissions. Net greenhouse gas savings in comparison with car travel (per passenger km) are also reported, showing the benefit to society associated with the service provided. Thus an element of **innovation** in the format and transparency of communication has also been a driver for change.

This is demonstrated through the evolution of reporting methods over time. Since 2002 headline figures have been reported - initially in an annual CSR report and now online. CSR reports have evolved over the years from:

- documents containing headline GHG figures; to
- a document only picking out simple, key indicators (predominantly kg CO₂ per passenger km), and focusing on the comparison with car transport; to
- a document that contains no numbers whatsoever (all greenhouse data is reported only online), but guides the reader through visions of a future with increased and evolved public transportation services. Central to this is the concept that 'more is less' – that National Express should be aiming to increase absolute greenhouse gas emissions through expansion of services. In doing this greater greenhouse savings can be achieved, through the avoidance of car transport.

In terms of monitoring emissions a major driver for National Express is **cost**. Projects/research into emissions reductions are always ongoing, as emissions are

fundamentally linked with fuel consumption, which, in turn, is fundamentally linked to costs.

Selection of the GHG methodology

As the only recognised international methodology for measuring emissions at the corporate level, the choice to report against the WBCSD GHG protocol is driven by credibility and **reputation**.

For the UK, the assessment/calculations are independently assessed by ECCM. (in Spain/the US only high level figures are calculated)

Scope 1 and 2 emissions are included in the assessment, plus some scope 3 emissions where possible:

- fuel;
- refrigerants;
- electricity;
- business travel (where possible); and
- waste to landfill.

Excluded are:

- some elements of business travel (where not possible to quantify);
- capital burdens (ie vehicle construction); and
- waste recycled.

Given the nature of the business, GHG emissions are dominated by fuel consumption. In light of this, exclusions are immaterial to the resulting emissions estimates. In this respect also, the company is a very straightforward one to footprint. The importance of fuel consumption to the footprint of the total service 'per passenger km' (>90%) very much simplifies the focus of the assessment.

Two years ago National Express began to look at developing a 'carbon label' for transport (eg an A to G label). They worked with Best Foot Forward to develop a methodology that takes account the complexity of comparing different vehicles with different loadings. This was in advance of the release of the PAS 2050, but took a consistent, life cycle approach – we believe it is compatible and have updated this with an Appendix that cross references PAS. National Express has not yet launched the label. Part of the reason why is that after speaking to The Carbon Trust the cost of getting PAS verification is very high.

However, it was found that the **cost** of communicating the carbon footprint through a label in this way were prohibitive – in effect a **barrier** to reporting in this way.

Setting emission reduction targets

Although some absolute reduction targets have been set, normalised reduction targets have not been set, as National Express believe that they are:

1. Not always appropriate on a business-wide basis (implemented where possible – e.g. sites or train fleet).
2. It is believed that National Express should aim to increase absolute emissions as a result of an expansion in services and thereby indirectly deliver net reductions in emissions from the UK transport sector ; and

3. Not possible to meaningfully set on a 'per passenger km' basis (although previously tried). The major variables affecting fuel consumption, and therefore emissions, are out of the control of National Express (or other operators):
4. The onus on increasing vehicle fuel efficiencies is mainly on vehicle manufacturers. There is also some trade off with efforts to reduce exhaust emissions of other pollutants/improve local air quality and efforts to increase safety/passenger comfort. In general, because of these factor, the fuel efficiency of newer vehicles is higher. To improve local air quality, National Express have a 'fleet age' target (<8 years) and receive grants to improve the fleet. The implication is typically that newer vehicles have greater CO₂ emissions.
5. The other major variable in determining emissions per passenger km is the route travelled and degree of congestion etc. Emissions associated with different franchises will vary considerably, dependent on route. This is out of the control of the operator. Further, the greatest reduction potentials would be for traffic calming initiatives and, for example, more bus lanes.

In this respect, **compliance** is a **barrier** – either that reduction targets are not meaningful to comply with at an absolute level, or that they are not under National Express control at the performance level.

For national express **innovation** and **cost** represent key barriers, reflecting the availability of financially feasible technologies, that reduce emissions without having an adverse impacts (emissions of other pollutants, safety/passenger etc).

Achieving emission reductions

Projects/research into emissions reductions are always ongoing, as emissions are fundamentally linked with fuel consumption, which, in turn, is fundamentally linked to **cost**. As a result **Cost** is both the driver and barrier to any emission reductions ultimately achieved by National Express

Hybrid buses have been trialled, which has improved fuel consumption to some degree, but not as high as the 20% expected. The marginal abatement cost of further developments in technology is high, and has the knock-on dis-benefit of increasing public transport costs.

Other trails include a programme looking at lighter coaches that don't compromise on safety. Engineers also work widely with supply chains on efficiency projects. This is fundamentally linked to business costs and so is a key driver for emissions reductions.

Since reporting has started, there have been some reductions seen across the business: 40% reduction in site energy use in bus garages; and 25% reduction in site energy use in train garages/depots.

Is there a direct link between monitoring/reporting and achieving emission reductions?

National Express believe not. In the context of the National Express business it reporting provides more information for management, but does not aid with target-setting. The implementation of a process for monitoring can lead to reductions (as seen for garages), and is intrinsically linked to commercials. But aggregated reporting does not.

It is also believed that it is difficult to benchmark companies on the basis of their reported performance. Firstly because companies have different starting points and the reductions achievable are in part dependent on the measures already put in place (eg if the easy-hanging fruit has been picked off already). Secondly, fuel efficiency for a bus, for example, is very dependent on the specifics of the route and local area – types of road and congestion play a very big part in the fuel consumption of a vehicle and this is out of the control of the operator. Comparisons between bus companies are dependent on duty cycles and so are meaningless without further explanation/ supporting information.

The company's garage and related sites are included within the remit of the CRC. In There is a view that this will lead to increased administration but little reductions in emissions. The company has already made a number of interventions at these sites and the scale of further reductions that can be achieved is minimal.

1. Overview of your corporate GHG management strategy & GHG cycle:
 - How long has the GHG strategy been in place? Formal data gathering and reporting began in 2001.
 - At what levels / roles does responsibility for the strategy lie? GHG management / strategy is driven at Group/board level.
 - Do you follow an established GHG management cycle (assess, report and manage)? Please provide detail of your GHG cycle. National Express follows the standard GHG management cycle.

2. Which GHG monitoring and reporting methodology do you currently employ: WBCSD/WRI GHG protocol
 - Why was this particular methodology chosen above others? Internationally recognised methodology
 - How long have you employed this methodology? 2001
 - Are you happy with the way the chosen methodology has integrated with your GHG management strategy and cycle? If not, why not? Yes

3. Drivers for selecting the GHG methodology:
 - Which drivers were strongest in you choosing to use a GHG methodology (reputation, compliance, cost reduction and innovation)? Reputation.
 - Why were these drivers the strongest? Key internationally recognised methodology.
 - Why were other drivers less strong? N/A
 - Are they likely to remain the strongest drivers for selecting the GHG methodology, or has that / will that change over time? Yes – unlikely to be superseded.

4. Drivers for monitoring and reporting emissions:
 - Which drivers were strongest in influencing the company's decision to monitor and report GHG emissions (reputation, compliance, cost reduction and innovation)? Reputation. National Express began reporting in response to stakeholder queries and because it was felt the time was right. Monitoring was in general important from a business cost management perspective.
 - Why were these drivers the strongest? This was the momentum at the time (2001)
 - Why were other drivers less strong? N/A
 - Is the strength of drivers for monitoring and reporting GHG emissions likely to remain the same, or is the strength of each driver likely to change over time? The strength of drivers is likely to stay the same over the medium term. Cost will always be an important driver for monitoring in particular. Compliance will become important for some elements of the business as a result of the CRC (garages).

5. Monitoring and reporting emissions:
 - What part of the business does the monitoring and reporting of GHG emissions cover? All – although emissions are only formally quantified and reported for the UK business. In Spain/the US only high level figures are calculated.
 - Which GHG sources do the monitoring and reporting cover? Scope 1 and 2 emissions are included in the assessment, plus some scope 3 emissions where possible: fuel; refrigerants; electricity; business travel (where possible); waste to landfill. Excluded are: some elements of business travel (where not possible to quantify); capital burdens (ie vehicle construction); waste recycled

- What is your KPIs and baseline based upon? Emissions per passenger km (average over year) are reported alongside absolute emissions. Net greenhouse gas savings in comparison with car travel (per passenger km) are also reported. The importance of fuel consumption to the footprint of the total service per passenger km (>90%) very much simplifies the focus of the assessment.
- Which GHGs do you cover (CO2 or basket of six GHG)? Basket of six, but CO2 is by far the most important emission.
- Is the coverage of GHG data global or local in nature (is it installation specific, national or global)? Global, but fuel consumption is the most important aspect.
- How long have you been reporting (what is the maturity of your system)? Since 2001.
- Do you have independent assurance? For the UK, the assessment/calculations are independently assessed by ECCM.
- Who is responsible for reporting? Nick Coad (Group Environment Director)
- Does the company have a steering group/board backing? Yes, the programme is driven at Group board level.

6. Drivers for reducing/not reducing emissions:

- Has the company reduced/is the company working to reduce GHG emissions? Since reporting has started, there have been some reductions seen across the business: 40% reduction in site energy use in bus garages; and 25% reduction in site energy use in train garages/depots. However, no specific targets at the absolute or service level are set.
- Which drivers were strongest in influencing the company's decision to reduce/not to reduce GHG emissions (reputation, compliance, cost reduction and innovation)? Cost
- Why were these drivers the strongest? Direct link between emissions and cost (through fuel consumption).
- Why were other drivers less strong? Due to the nature of the business, absolute reductions in emissions are not promoted, as National Express believe their services should in fact be expanded, not reduced. And there will be a net benefit to society in doing so.
- Is the strength of drivers for reducing/not reducing GHG emissions likely to remain the same, or is the strength of each driver likely to change over time? Likely the same, although compliance will become important for some aspects of the business affected by the CRC (garages).
- Is the company likely to continue to reduce/not reduce GHG emissions? Further reductions are always sought because of the very close link between emissions and business metrics.
- What effect did the monitoring and reporting of GHGs have on the strengthening or weakening of the drivers to reduce/not reduce? No effect, emissions reductions are important to the business regardless of reporting and monitoring.
- To what extent do you think the employment of GHG monitoring and reporting methodologies affected the identification and delivery of these emissions reductions? Monitoring is a useful and effective management tool to identify sources and reduction potential.

7. Corporate emissions reductions (if reductions achieved):

- What level of emissions reductions have you achieved, and over what period of time? As above - since reporting has started, there have been some reductions seen across the business: 40% reduction in site energy use in bus

garages; and 25% reduction in site energy use in train garages/depots. However, no specific targets at the absolute or service level are set.

- How frequently are emissions calculated (i.e. monthly, quarterly, annually)? **Annually reported**
- How many years have emissions data been calculated for (since when)? **Since 2001**
- Have emission reduction targets been set? **No – either not considered relevant (absolute emissions) or possible/reliable (emissions per passenger km)**

8. Public disclosure / non disclosure of emission data:

- Is your emissions data publically disclosed or reserved for internal reporting purposes only? **Publically disclosed**
- If data is disclosed, please state through which forum (website, CDP etc)? **Now on website (previously in CSR report). Also CDP and other reporting as and when requested.**
- If data is not disclosed, please detail reasons for non-disclosure. **N/A data is disclosed.**

9. Approach to mandatory / voluntary emissions reporting

- Do you have a mix of both emissions that must be reported by law (mandatory reporting) and voluntary emission reporting? **Predominantly voluntary. Garages will be included under CRC.**
- Are emissions required to be reported by law (i.e. emissions associated with installations covered by the EU ETS), treated differently to those reported voluntarily? **No**
- Are the mandatory and voluntary emissions calculated and reported in the same way? **Yes**
- Are mandatory and voluntary emissions reducing? If reducing, is this happening at the same rate? **It is early days – although it is considered that the inclusions of garages within the CRC reporting will lead to increased administration but little reductions in emissions. The company has already made a number of interventions at these sites and the scale of further reductions that can be achieved is minimal.**

10. Access to and use of data:

- If not in the public domain, would you be willing to share the company's emission data with ERM to use as part of this project? **N/A – public domain.**

SCA - Corporate

- *Summary has been sent to SCA for approval and confirmation of confidentiality several times. No response was received from SCA. ERM e-mailed to confirm that we would assume content approved and non-confidential unless we heard otherwise. Following no further correspondence, ERM e-mailed SCA again to confirm that the summary would be submitted as it is as and SCA included as a non confidential participant.*

3rd September 2009, telephone interview between Holly Jeans of ERM and Stewart Begg (Environmental Manager – Tissue Europe), Patrik Isaksson (Vice President Environmental Affairs). The call was time constrained, so the emphasis of the call was to focus on key issues.

Overview

- Large Corporate Organisation
- SCA is split into different divisions. However as part of this study, we have considered the drivers and barriers to GHG monitoring, reporting, targets and reductions at a corporate level (for the whole global company including pulp and paper mills).
- Position: SCA position them selves as an innovative sector leader.

SCA Greenvale aligns with the GHG Protocol, monitoring and reporting their scope 1, 2 and some scope 3 emissions. The GHG Protocol is aligned with because it is the main recognised methodology available.

There is a tradition in the pulp and paper industry that company emissions are measured and reported. Reflecting this position, SCA have measured and reported their emissions since 2001. In the early days, reporting covered company use of fossil fuels, however this has since been expanded to cover electricity. Despite not always monitoring and reporting emissions associated with electricity consumption and the fact that 30% of the electricity used within the pulp and paper mills is self produced - SCA have always been aware of electricity consumption. In 2008, SCA began formally reporting emissions associated with electricity consumption, as part of its GHG monitoring and reporting – aligning to the GHG protocol.

SCA have 20 years experience in assessing and understanding the impact (including CO₂ impact) of their products. This understanding of impact has enabled SCA to make informed product modifications. Awareness of the CO₂ impact of their products has impacted on how SCA work and the company view it as natural progression to measure and report SCA’s corporate footprint.

SCA have an internal 3rd party certified tool for data collection.

Data collected through monitoring and reporting is used as a business management tool and therefore integrated into key decision making processes to assess and identify the best financial and environmental approach.

Drivers and Barriers

Drivers, Barriers and Considerations	Cost	Compliance	Reputation	Innovation
Selection of the GHG methodology				
Monitoring & reporting emissions				
Setting emission reduction targets				

Achieving emission reductions					
-------------------------------	--	--	--	--	--

Drivers	Consideration	Barriers
---------	---------------	----------

* = strongest drivers

Selection of the GHG methodology

SCA aligns with the GHG Protocol. Selection of the GHG Protocol was primarily because it is recognised as one of the main GHG reporting methodologies. As a result, the methodology is very much selected for **Reputation** reasons (i.e. reputation of aligning with a recognised methodology). No barriers to selection of the GHG reporting methodology have been identified.

Monitoring & reporting emissions

The key driver for SCA to monitor and report their emissions are **Reputation** and **Innovation**. Cost is not viewed as a barrier to monitoring and reporting emissions, as monitoring and reporting is seen as good practice and therefore a business requirement of the company. Despite, many installations across Europe being covered by the EU ETS, SCA do not consider Compliance to be a strong driver, as they are monitoring and reporting their emissions across all their installations anyway.

No barriers to monitoring and reporting of emissions have been identified.

Setting emission reduction targets

Emission reduction targets are made at a corporate level and delivered at a business level. There is a very strong link between the data and target setting. SCA see that the targets have the additional benefit of future proofing the company, preparing the company for future carbon constraints (driven by cost or regulation). As a result, future **Compliance** is seen as a driver to setting targets.

Reputation is a key driver for SCA, who strive to meet the expectations of their customers. In addition to meeting their clients current requirements, SCA strive to be innovative sector leaders making **Innovation** another key driver for SCA.

Although there is a strong link between monitoring / reporting and setting of corporate emission reduction targets, SCA are firm that reporting of emissions would have been done without the ultimate goal of developing targets. For SCA, understanding of their emissions is an essential pre-requisite to good business order.

Achieving emission reductions

In 2008, SCA announced a demanding target of 20% reduction on 2005 CO2 levels by 2020. In setting this target, SCA established 2005 as their base year (2005 emissions were particularly low making the target all the more stringent). SCA have developed a corporate business plan of how they will achieve their demanding objectives and targets.

In 2008, SCA initiated a number of investments identified as delivering emission reductions, as set out in their strategy and have achieved a 2.6% reduction on 2005 emissions (in line with their strategy for meeting the 20% reduction target).

In line with SCA's position striving to be an innovative sector leaders, **Reputation** and **Innovation** are both drivers to achieving emission reductions.

The availability of appropriate and financially viable technologies to enable SCA to meet their emission reduction targets is seen as a potential barrier to SCA achieving

emission reductions, resulting in **Innovation** and **Cost** becoming a partial barrier to reductions.

Is there a direct link between monitoring / reporting using the GHG Protocol and setting emission reduction targets?

Emission reduction targets are made at a corporate level and delivered at a business level. There is a very strong link between monitoring and reporting and SCA setting their emission reduction target and accompanying business strategy for achieving their demanding objectives and targets. As a result, a link can be seen between use of the GHG Protocol and setting of emission reduction targets.

Is there a direct link between monitoring/reporting using the GHG Protocol and achieving emission reductions?

In 2008, SCA have achieved a 2.6% reduction on emissions against their 2005 base year and are in line to meet their corporate emission reduction target of 20% below 2005 levels by 2020. Given that SCA align to the GHG Protocol, a link can be seen between monitoring and reporting using the GHG protocol and emission reductions.

1. Overview of your corporate GHG management strategy & GHG cycle:
 - How long has the GHG strategy been in place? There is a tradition in the pulp and paper industry that company emissions are measured and reported. Reflecting this position, SCA have measured and reported their emissions since 2001.
 - At what levels / roles does responsibility for the strategy lie? GHG management / strategy is driven from the board.
 - Do you follow an established GHG management cycle (assess, report and manage)? Please provide detail of your GHG cycle. SCS follows the standard GHG management cycle.

2. Which GHG monitoring and reporting methodology do you currently employ: GHG Protocol
 - Why was this particular methodology chosen above others? Because of its status as the main recognised methodology.
 - How long have you employed this methodology? Emissions have been reported since 2001, SCA has aligned with GHG Protocol since 2008.
 - Are you happy with the way the chosen methodology has integrated with your GHG management strategy and cycle? If not, why not? Yes. SCA have managed GHG emissions since 2001.

3. Drivers for selecting the GHG methodology:
 - Which drivers were strongest in you choosing to use a GHG methodology (reputation, compliance, cost reduction and innovation)? The GHG Protocol was selected due to its status as the key recognised methodology. The strongest driver was Reputation.
 - Why were these drivers the strongest? Reputation - to be aligning with a recognised methodology.
 - Why were other drivers less strong? Cost and Innovation were less strong, as little cost impact and chance to be innovative by using methodology. Compliance was less strong, as SCA were already managing and in compliance with all of their regulatory requirements.
 - Are they likely to remain the strongest drivers for selecting the GHG methodology, or has that / will that change over time? Likely to remain the strongest drivers.

4. Drivers for monitoring and reporting emissions:
 - Which drivers were strongest in influencing the company's decision to monitor and report GHG emissions (reputation, compliance, cost reduction and innovation)? Reputation and Innovation were influential in Greenvale's decision to monitor and report.
 - Why were these drivers the strongest? Reputation is a key driver for SCA, who strive to meet the expectations of their customers. In addition to meeting their clients current requirements, SCA strive to be innovative sector leaders making Innovation another key driver for SCA.
 - Why were other drivers less strong? Cost is not viewed as a barrier to monitoring and reporting emissions, as monitoring and reporting is seen as good practice and therefore a business requirement of the company. Despite, many installations across Europe being covered by the EU ETS, SCA do not consider Compliance to be a strong driver, as they are monitoring and reporting their emissions across all their installations anyway
 - Is the strength of drivers for monitoring and reporting GHG emissions likely to remain the same, or is the strength of each driver likely to change over

time? Unknown. In the short term, the strength of drivers is likely to stay the same.

5. Monitoring and reporting emissions:

- What part of the business does the monitoring and reporting of GHG emissions cover? All corporate emissions globally (including pulp and paper mills).
- Which GHG sources do the monitoring and reporting cover? Scope 1, 2 and some scope 3 emissions.
- What is your KPIs and baseline based upon? 2005 data.
- Which GHGs do you cover (CO₂ or basket of six GHG)? CO₂.
- Is the coverage of GHG data global or local in nature (is it installation specific, national or global)? Global data is collected (although data can be sorted by division, facility etc).
- How long have you been reporting (what is the maturity of your system)? Data has been collected since mid 2001. Full data aligning to the GHG Protocol has been collected since 2008.
- Do you have independent assurance? SCA use a third party certified system for collection of global data. In addition SCA have an external audit programme.
- Who is responsible for reporting? Data is submitted from each division into the internal 3rd party certified tool.
- Does the company have a steering group/board backing? Yes, the programme is driven by the board.

6. Drivers for reducing/not reducing emissions:

- Has the company reduced/is the company working to reduce GHG emissions? Yes, SCA has set reduction targets and is working to reduce emissions.
- Which drivers were strongest in influencing the company's decision to reduce/not to reduce GHG emissions (reputation, compliance, cost reduction and innovation)? Innovation and Reputation
- Why were these drivers the strongest? In line with SCA's position striving to be an innovative sector leaders, Reputation and Innovation are both drivers to achieving emission reductions.
- Why were other drivers less strong? Compliance, as the company is managing emissions for compliance purposes already. The availability of appropriate and financially viable technologies to enable SCA to meet their emission reduction targets is seen as a potential barrier to SCA achieving emission reductions, resulting in Cost becoming a partial barrier to reductions.
- Is the strength of drivers for reducing/not reducing GHG emissions likely to remain the same, or is the strength of each driver likely to change over time? Unknown. In the short term, the strength of drivers is likely to stay the same.
- Is the company likely to continue to reduce/not reduce GHG emissions? SCA's emission reduction target runs to 2020.
- What effect did the monitoring and reporting of GHGs have on the strengthening or weakening of the drivers to reduce/not reduce? There is a very strong link between monitoring and reporting and SCA setting their emission reduction target. As a result, a link can be seen between use of the GHG Protocol and setting of emission reduction targets.
- To what extent do you think the employment of GHG monitoring and reporting methodologies affected the identification and delivery of these emissions reductions? In 2008, SCA have achieved a 2.6% reduction on emissions against their 2005 base year and are in line to meet their corporate emission reduction target of 20% below 2005 levels by 2020. Given that SCA

align to the GHG Protocol, a link can be seen between monitoring and reporting using the GHG protocol and emission reductions.

7. Corporate emissions reductions (if reductions achieved):
 - What level of emissions reductions have you achieved, and over what period of time? In 2008, SCA have achieved a 2.6% reduction on emissions against their 2005 base year and are in line to meet their corporate emission reduction target of 20% below 2005 levels by 2020.
 - How frequently are emissions calculated (i.e. monthly, quarterly, annually)? At least annually.
 - How many years have emissions data been calculated for (since when)? Since 2001.
 - Have emission reduction targets been set? Yes.
8. Public disclosure / non disclosure of emission data:
 - Is your emissions data publically disclosed or reserved for internal reporting purposes only? Data is disclosed publically.
 - If data is disclosed, please state through which forum (website, CDP etc)? Website and CDP.
 - If data is not disclosed, please detail reasons for non-disclosure. N/A
9. Approach to mandatory / voluntary emissions reporting
 - Do you have a mix of both emissions that must be reported by law (mandatory reporting) and voluntary emission reporting? Yes
 - Are emissions required to be reported by law (i.e. emissions associated with installations covered by the EU ETS), treated differently to those reported voluntarily? No, except there are different reporting requirements in place.
 - Are the mandatory and voluntary emissions calculated and reported in the same way? Yes.
 - Are mandatory and voluntary emissions reducing? If reducing, is this happening at the same rate? SCA remain in compliance with all applicable regulations. The corporate target to reduce emissions by 20% from 2005 levels applies to corporate emissions. The strategy of how the reductions will be achieved sets our investments that will deliver reductions (renewable technology etc).
10. Access to and use of data:
 - If not in the public domain, would you be willing to share the company's emission data/information with ERM to use as part of this project? TBC. SCA to review interview summary and confirm whether they would like to take part in the Defra study confidentially or non-confidentially.