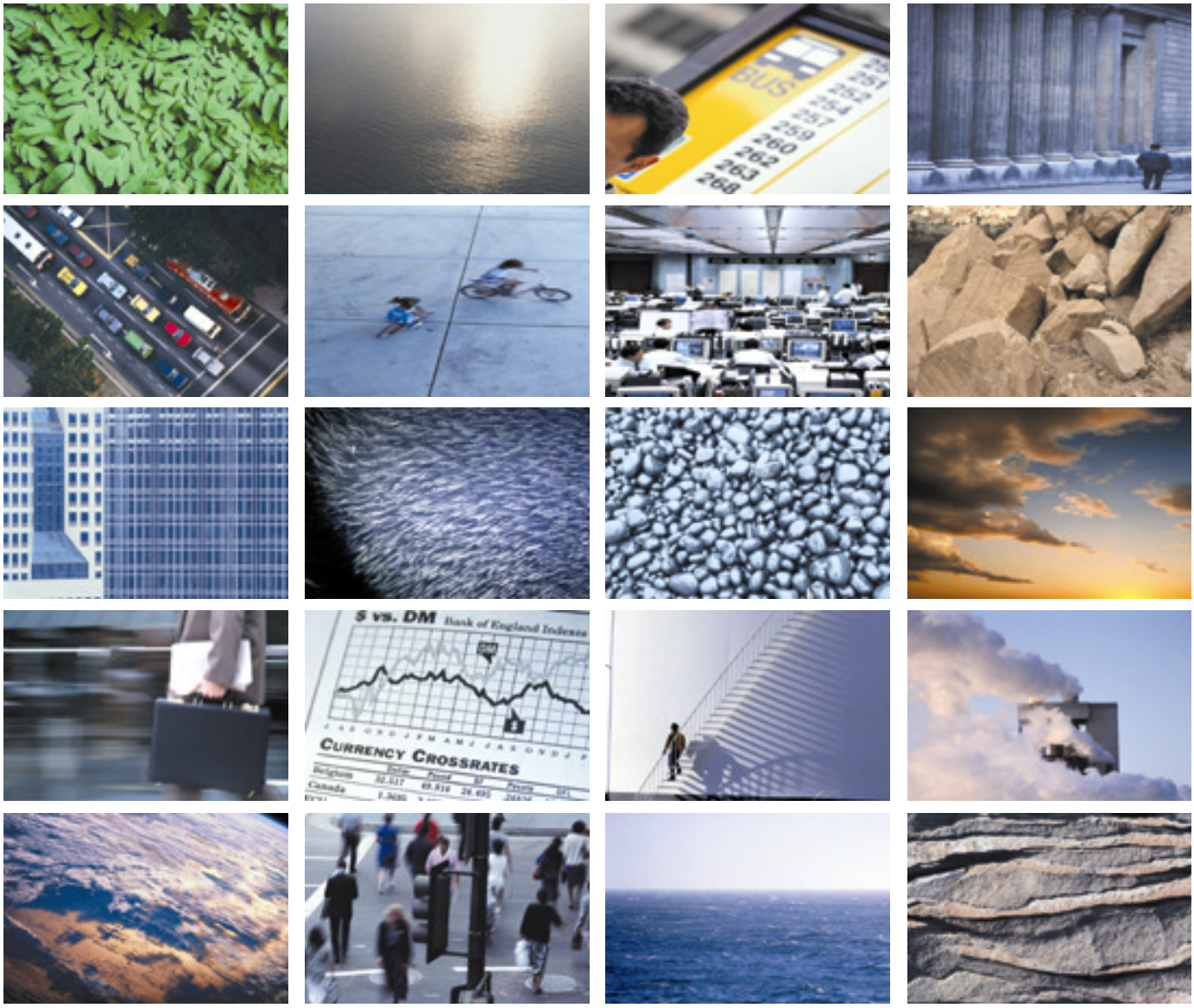

European Commission

Directorate-General Environment

Company GHG Emissions Reporting – a Study on Methods and Initiatives (ENV.G.2/ETU/2009/0073)

Revised Final Report

October 2010

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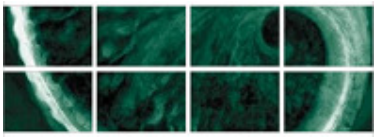

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Company GHG Emissions Reporting – a Study on Methods and Initiatives (ENV.G.2/ETU/2009/0073)

Revised Final Report

For and on behalf of Environmental Resources Management Limited.

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Date: 22nd October 2010

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Executive Summary

Introduction

Environmental Resources Management (ERM) UK Ltd has carried out the study on company GHG reporting methods and initiatives on behalf of the EC over the period February to July 2010. The study is a first step in a broader initiative to explore the need for and to eventually provide a common methodology for organisations to report their environmental performance. The objective of this EC study is to:

> ***"Identify and analyse the existing leading methodologies and initiatives in the field of company GHG reporting. The analysis will focus on getting a clear picture and comparison of the existing methodologies and initiatives in the EU and globally, and features that might be relevant for future policy development".***

Study Scope and Aims

Whilst the scope of this study is limited to reporting of GHG emissions by private companies, consideration has been given to GHG reporting methods and initiatives for the public sector and non-governmental organisations where relevant. It is noted that the EC are conducting a parallel separate study on reporting methods and initiatives for product carbon footprinting.

The EU ETS remains the primary policy instrument to reduce industrial CO_2 emissions in Europe. This analysis focuses on reporting methodologies and initiatives that exist outside of the EU ETS and usually cover a wider scope of greenhouse gases, sources of emissions and companies. The EU ETS covers approximately 40% of EU-27 scope 1 (direct) CO_2 emissions (being expanded to around 43% coverage in Phase III). The study analyses methodologies and initiatives often covering all six Kyoto greenhouse gases, and often covering all three reporting scopes (direct and indirect) and capturing also organisations not subject to EU ETS. These wider methodologies are often used by organisations to prepare reports in addition to their EU ETS reporting. The EU ETS is included in the analysis as a reference to clarify the key differences between this major policy instrument and other GHG reporting methodologies and initiatives helping to define the eventual areas where particular attention needs to be paid to ensure compatibility with the EU ETS.

Key questions which this research aims to address are:

- *Which are the current leading European and international methods and initiatives for company GHG reporting?*
- *What are the common features of these methods and initiatives and what inconsistencies or gaps exist?*
- *How well do existing methods and initiatives meet the needs of different sizes of company and different sectors?*

- *How can the EC best support common company GHG reporting methods, taking into account stakeholder experience?*
- *What are the strengths and limitations of existing GHG reporting methods and initiatives and how do these relate to possible future policy scenarios?*
- *What factors need to be considered to ensure comparability, ease of use and the correct balance of risks, costs and benefits in future company GHG reporting policy development?*

Study Methodology

The study has been conducted in three phases, as follows:

- Phase I: Analysis of Methodologies and Initiatives
- Phase II: Analysis of Risks and Benefits
- Phase III: Analysis of Possible Future Policy Scenarios

Delivery of the three study phases is split into seven main tasks. These tasks utilised a range of data sources including: desk-based research on methods and initiatives; discussion with regulatory bodies, sector associations and NGOs; telephone interviews with a range of private sector companies; questionnaire survey of methodology and initiative owners; examination of company websites and public reports; review of literature from key international sources; and, ERM expert inputs. This final study report incorporates feedback and comments arising from the stakeholder workshop that was held on 8th July 2010 at the EC's offices in Brussels.

It is noted that for the purposes of this study, method and initiatives are categorised as follows:

- A 'method' is a means of calculating a GHG emissions figure in tCO_2e and should provide guidance on choosing reporting boundaries and emission factors
- An 'initiative' defines the GHG report format and contents and may cover aspects such as public disclosure, target setting, emission reduction measures, assurance/verification requirements, benchmarking and league tables (and may also refer back to a specific 'method')

There is clearly some overlap between methods and initiatives.

Phase I Findings: Analysis of Methodologies and Initiatives

Based on the evidence that has been collected and analysed during Phase I of the study, the key conclusions are as follows:

- A total over 80 company GHG reporting methods and initiatives were identified as being currently in use globally, many being sector-specific adaptations of other methods.

- A total of 30 'major' GHG reporting methods and initiatives have been identified as being in common use in Europe and globally. These have been reviewed against a number of key features to understand their commonalities and differences. A representative shortlist of 9 leading methods and initiatives has been assessed in further detail against a set of criteria.
- Companies, investors, policy makers and other stakeholders may face a number of problems when using and comparing the multiplicity of company GHG reporting methods and initiatives in current use. In general, there is a failure to set minimum standards and the major schemes lack compatibility (between themselves and EU and MS policies) and comparability (between company reports). In particular current guidance on setting of reporting boundaries, choice of emission factors, treatment of offsets/renewables and inclusion of Scope 3 emissions is typically open to a wide degree of interpretation by the user (see Section 3.3 of this report). Most standards recommend independent assurance/verification of GHG reports but do not require this and do not clearly define materiality thresholds. However, around half of the major schemes do refer back to the principles of the WBCSD/WRI GHG Reporting Protocol, providing some consistency.
- Whilst the general protocols set out the overall principles of GHG reporting (in terms of setting boundaries, selecting emission factors, calculating emissions, verification/assurance, etc.) the guidance is not specific enough to meet the needs of some sectors. Therefore a number of sector-specific standards have been developed under the general protocols. There are few methods and initiatives which include streamlined guidance for SMEs.
- Only a few of the major methods and initiatives address GHG target setting (e.g. UK CRC league table; CDP leadership index) and most do not require information on GHG reduction measures or company GHG policy and GHG management systems.
- Each existing method and initiative has a number of strengths and weaknesses. It may be possible to draw upon a combination of best practice elements from leading existing methods in formulating any new/revised European company GHG reporting standards (see Section 4.4 of this report).

Phase II Findings: Analysis of Risks and Benefits

Based on the evidence that has been collected and analysed during Phase II of the study, the key conclusions are as follows:

- **Risks and Costs of GHG Reporting**

- A number of risks arising from failure to disclosure GHG emissions are repeatedly quoted such as: profit exposure; market value at risk; brand value at risk; stakeholder reputational risk; insurance/credit rating risks; and, investor relationships. There appears to be increasing recognition of the risks on non-disclosure, although the pressure on SMEs is significantly less than for larger companies.
- It is noted that the assessment is not comprehensive but is intended to give an overview of the range of data available. In particular, cost data on mandatory schemes such as the EU ETS should be treated with caution when

comparing with the costs of voluntary schemes since the scope and purpose of the schemes may be entirely different and the scope of data examined is limited.

- There is a very wide range of private sector costs quoted for GHG reporting ranging from €1,000 per annum (for a small company in the UK CRC) to €800,000 per annum (FTSE500 company highest cost quoted in CDP5 responses). In addition, verification and voluntary assurance costs per company range from €5,000 to €500,000 per annum. Data from the USEPA GHG Reporting Rule Impact Assessment indicates annual public sector costs of €1,300 per entity regulated, although verification costs are low in this scheme.
- There is evidence that the costs of GHG reporting are not linearly related to the size of the company or the magnitude of GHG emissions, although larger and more complex organisations will typically have higher reporting costs than small companies with few emission sources.
- Most cost estimates fail to fully account for company staff and management time and consultant costs to prepare and sign-off GHG reports. It is often difficult to separate out GHG reporting costs from wider environmental reporting costs. Overall, little detailed work has been done by stakeholders to quantify the costs of GHG reporting. To be useful, cost data needs to be split by reporting scheme type, company size and sector, including a breakdown of the total costs by task (e.g. data collection, reporting, assurance).

➢ **Benefits of GHG Reporting**

- Several of the benefits of GHG reporting arise from addressing the risks related to non-disclosure. These include reduced profit exposure; enhanced market value; increased brand value; improved stakeholder/customer reputation; reduced insurance premiums, and, improved credit ratings.
- Alignment of company GHG reporting with the leading methodologies allows companies to understand their GHG impacts and brings credibility to published results. The benefits of GHG reporting appear to vary according to the size of the company, sector and reporting scheme concerned (and are linked to the company's overall stance of the importance of tackling climate change issues). Benefits for SMEs appear to be of a lower order of magnitude than for larger companies, although further research is needed in this area.
- Based on feedback both from companies and methodology owners, GHG reporting is seen as a crucial first step in achieving benefits from GHG management processes. This first step allows companies to set meaningful internal GHG targets and demonstrate progress to stakeholders. Large-scale reduction in GHG emissions is often driven by mandatory schemes but leading voluntary schemes have also demonstrated significant progress on GHG abatement.
- There is limited data available to quantify the benefits of GHG reporting in monetary terms. Some anecdotal evidence is available on potential energy savings and market value gains. One study conservatively estimated that

participation in the CDP created €2.1 billion of added market value for the participants (an increase of 0.005%).

- Small companies, particularly those in non-energy intensive sectors, generally have less 'significant' emissions than large companies. The benefits of GHG reporting are often lower for SMEs than for larger companies (e.g. reputational benefits are less tangible). It is concluded that the balance of risks, costs and benefits of GHG reporting may depend strongly upon the size of the company, the sector and the relative magnitude of emissions.
- Assessment of benefits is an area requiring further work by methodology and initiative owners (wishing to promote their schemes), companies (wishing to develop a business case for GHG reporting) and policy makers (wishing to assess cost-effectiveness of different polices).

Phase III Findings: Analysis of Possible Future Policy Scenarios

Based on the evidence that has been collected and analysed during Phase III of the study, the key conclusions are as follows:

- It is clear that any possible future policy scenario must be complementary to the EU ETS. The EU ETS remains the primary policy instrument to reduce industrial CO2 emissions in Europe. However, the EU ETS covers approximately 40% of EU-27 GHG emissions and so the policy options must focus on reporting of the remaining non-EU ETS GHG emissions (and also non-CO_2 GHG emissions from EU ETS covered installations).
- There is an important link between GHG measurement and reporting and the wider GHG management cycle. Leading GHG reporting methods and initiatives enable companies to connect to the drivers for emissions reduction (i.e. cost, regulation, reputation and innovation).
- A number of key factors to consider in developing possible future policy options for GHG measurement and reporting have been identified. It is important to consider policy scenarios from the point of view of the various stakeholders groups (e.g. companies, investors, NGOs, policy makers and customers) bearing in mind the objective for which the Commission might intervene (i.e. to achieve economy wide GHG emission reductions beyond business as usual).
- A total of 8 possible future policy scenarios, ranging from 'business as usual (BAU)' through to 'voluntary support measures' and 'mandatory frameworks' have been set out at the high level. Each of these scenarios has been assessed against a range of criteria, enabling an assessment of their strengths and limitations.
- It is apparent that the BAU scenario (i.e. the continued multiplicity of voluntary GHG measurement and reporting schemes) does not score highly against several of the criteria. However, the leading methods and initiatives demonstrate best practice in key areas and any future European policy scenario must build upon this strong foundation.
- It is apparent that no one policy option scores highly against all of the criteria and that each option has a number of strengths and limitations. There

remain a number of areas of uncertainty, gaps in available data and areas for further research arising from assessment of the policy options. However, there are some key messages emerging from the analysis:

  - There is a significant risk of low uptake with any new voluntary European scheme. Whilst existing leading schemes have achieved good uptake in their target sectors (e.g. WBCSD/WRI GHG Protocol; CDP), their coverage is not economy-wide. To maximise participation rates, ensure a level playing field, minimise risks and maximise benefits, a mandatory approach may be implicated.
  - To ensure that the overall policy goal of maximising economy-wide GHG reductions is met, any new scheme must include strong measures aimed at setting company GHG reduction targets (measurement and reporting alone is not enough).
  - Further assessments would be required to fully understand the balance of risks and benefits for each policy option and the potential implications for various sectors and company sizes.
  - There is a possible risk to increase reporting burdens. Each of the policy scenarios has the potential to avert this risk. This would involve development of easy-to-use GHG reporting tools and streamlined guidance to help reduce GHG measurement and reporting burdens. However, it needs to be considered that there is likely to be a trade-off between the robustness/accuracy of the GHG reporting method and its ease of use.
  - Focusing on GHG reporting and mitigation might entail ignoring other environmental impacts (e.g. using biofuels to reduce emissions, without considering land use issues). On the other hand, reporting and managing GHG emissions might also have positive spillover effects on dealing with other environmental aspects in a company. No literature was identified to assess this issue. An analysis of implementation scenarios would be necessary, which goes beyond the scope of the current study. In case there is a risk of trade-offs between GHG reduction objectives and other environmental objectives, the application of sustainability criteria and life-cycle analysis can contribute to mitigate the risk.

- There may also be alternative policy options which would address the overall objective of reducing GHG emissions across the economy (such as carbon taxation and energy efficiency agreements) but these are outside the scope of this study.
- Further development and assessment of the policy options (outside the scope of this study) would be required to help ensure fully informed decision-making. This would allow refinement of the policy options and sub-options taking into account legal counsel, economic impact assessments and expert technical-policy advice.

Recommendations

Based on the evidence that has been collected and analysed during Phases I-III of the study, the recommendations for further work (which are outside the scope of this study) are as follows:

- To further canvass stakeholder opinion on the relative strengths and limitations of the various policy options for company GHG reporting.
- To conduct further research to monetise the costs and benefits of company GHG reporting under each policy scenario (i.e. perform a detailed cost-benefit analysis).
- To further examine and refine the policy options and sub-options taking into account technical, economic and legal expert advice.
- To further examine the links between company GHG reporting and GHG emission reduction (for various sectors and company sizes) to help ensure that any future policy measure maximises the potential GHG savings across the economy.
- To study the hypothetical risk of trade-offs between climate change and other environmental objectives and of positive spillover effects of GHG reporting and management on other environmental aspects through implementation scenarios.
- To conduct further stakeholder workshops and establish working groups to draft harmonised European company GHG reporting standards which draw upon the best practices of the current leading methodologies and initiatives.
- To allocate the required level of budgets and resources (which may be significant and on a scale equivalent to those required for the EU ETS development) and develop a detailed programme of work to address these areas, recognising that harmonisation of GHG reporting standards is likely to be a complex and iterative process involving a wide range of stakeholders over a period of several years.

Acknowledgements: *ERM would like to thank EC DG Environment and JRC staff for their input and support during this study. We would also like to thank the various stakeholders, companies and GHG reporting method/initiative owners who provided valuable input to this study.*

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1. Introduction

1.1 Study Background

Climate change represents one of the greatest environmental, social and economic threats facing the planet. Human activities that contribute to climate change include in particular the burning of fossil fuels, agriculture and land-use changes like deforestation. These cause emissions of carbon dioxide (CO_2), the main gas responsible for climate change, as well as of other greenhouse gases. To bring climate change to a halt, global greenhouse gas emissions must be reduced significantly.

The EU is responding to this challenge by setting ambitious goals and working towards their realisation. In its Communication "Limiting Global Climate Change to 2 degrees Celsius: The way ahead for 2020 and beyond" [(1)], it committed to cutting its greenhouse gas emissions by at least 20% independently of what other countries decide to do.

One of the instruments at the core of this response is the EU greenhouse gas Emission Trading System (EU ETS), covering more than 11 000 installations, in the sectors of energy, production and processing of ferrous metals, mineral industry, pulp from timber, paper and board above a capacity of 20 tonnes/day, and aviation. Companies have an obligation to monitor and report emissions of these installations.

There are 20.2 million active enterprises in the EU27's non-financial business economy, of this 99.8% are SMEs – and most of them are not covered by the EU ETS.

In its conclusions on the Sustainable Production and Consumption Action Plan[(2)] the Council of the European Union invited the European Commission to study the introduction of the carbon footprint of products in the existing EU environmental labelling instruments such as the Eco-label and energy labelling; and, taking into account Member States' experience, to start working as soon as possible on common voluntary methodologies facilitating the future establishment of carbon audits for organisations and the calculation of the carbon footprint of products.

There are several methodologies and initiatives for voluntary company GHG emission reporting, of which more and more companies make use. In several Member States (such as France with Grenelle 2 and the UK with the Climate Change Act) are developing mandatory systems for GHG reporting. The ultimate objective of all these initiatives is to ensure that companies measure and decrease their GHG emissions over time.

Given the different approaches used in these methodologies and initiatives, it is important for the Commission to prepare a sound analysis of these methodologies

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[(1)] COM(2007) 2 final, http://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=COM:2007:0002:FIN:EN:PDF

[(2)] Council conclusions on Sustainable Consumption and Production and Sustainable Industrial Policy Action Plan, 5 December 2008, http://register.consilium.europa.eu/pdf/en/08/st16/st16914.en08.pdf

and initiatives, which would be an adequate input for considering options in the area of carbon footprint of companies.

1.2 Report Structure

The report is structured as follows:

- *Executive Summary;*
- *Section 1 – Introduction* summarises the key aspects of the study background and the European GHG emissions and regulatory context. It also provide a brief introduction to GHG reporting methods and principles;
- *Section 2 – Study Methodology* sets out the approach to this work and the methods adopted for assembling, analysing and reviewing the information on GHG reporting methods and initiatives;
- *Section 3 – Identification of GHG Reporting Methods and Initiatives* describes the major methods for calculation of company GHG emissions in use across Europe and internationally and the associated GHG reporting initiatives;
- *Section 4 – Comparison of GHG Reporting Methods and Initiatives* presents an evaluation of the strengths and limitations of shortlisted major methods and initiatives and assesses each against a set of agreed criteria;
- *Section 5 – Assessment of Risks and Benefits of GHG Reporting* describes the major risks and benefits that may occur due to improved uptake of company GHG reporting methods and initiatives. Where possible the costs and benefits are quantified in monetary terms;
- *Section 6 – Future Scenario Development and Gap Analysis* brings together the main findings from the previous sections, and considers a range of possible future policy scenarios for company GHG reporting, including an identification of gaps in current reporting methods and initiatives;
- *Section 7 – Conclusions* summarises the key findings from the study; and,
- *Annexes* present more detailed background information and research findings used to support the main report sections.

Throughout this report GHG emissions are quantified in units of **tonnes of CO_2 equivalent (tCO_2e)**. The term 'direct carbon footprint' is also commonly used to describe company GHG emissions. Details of the general principles of company GHG reporting, terminology used, units of measurement and calculation methods can be found in Section 2 of this report.

1.3 The European GHG Emissions Context

This section provides a brief overview of European GHG emissions data to provide context for the subsequent report sections. The reader should refer to the European Environment Agency (EEA 2009) website for further detailed GHG emission data.

EU27 and EU15 Total Emissions

Based on 2007 data from the European Environment Agency (EEA 2009) total net GHG emissions for the EU27 countries including Land Use, Land Use Change and Forestry (LULUCF) were reported to be 4,638 million tCO_2e. This represents an 11.3% decrease on 1990 GHG emission levels. In 2007, CO_2 accounted for 81.3% of total net CO_2 equivalent GHG emissions. In 2007, the EU15 countries were responsible for 82% of total net EU-27 country GHG emissions. It is noted that EU27 emissions in 2007 excluding LULUCF were higher at 5,045 million tCO_2e since forestry and land use represents a net emissions sink for the EU27.

EU Kyoto Protocol Target

The Kyoto Protocol target for the EU15 countries is an 8% reduction on base year levels over the period 2008-2012 (the base year is 1990 for most countries and excludes LULUCF). In 2007 Kyoto Protocol emissions for the EU15 countries were 5.0% below the base year level (EEA 2009).

EU Emissions Trading Scheme (EU ETS)

In 2007, there were 11,186 installations participating in the EU ETS. Total EU ETS verified emissions for 2007 were 2,050 million tCO_2, representing around 44% of EU27 total net GHG emissions (Europa 2008).

Global GHG Emissions

Total GHG emissions in 2007 for the 41 developed nations listed in Annex I of the Kyoto Protocol were reported as 20.3 billion tCO_2e (including LULUCF), which is a 5.3% reduction compared to 1990 emission levels (UNFCCC 2009). Total net global GHG emissions for 2006 (including LULUCF) for all countries are estimated to be in the region of 30 billion tCO_2e (UNSD 2009).

Emissions per Capita

In 2007 the average EU27 GHG emissions per head of population (direct and indirect) was 10.2 tCO_2e/annum. The range of emission values for individual Member States is 5.3 to 26.9 tCO_2e/annum per capita (EEA 2009).

Summary

Based on available data, in 2007 the EU-27 countries were responsible for approximately 15% of total global GHG emissions and 23% of Kyoto Protocol Annex I country emissions. The figures below summarise EU27 GHG emissions split by main sector, country and GHG. It is noted that in Figure 1.1 LULUCF is excluded since LULUCF emissions are normally quantified at a Member State level, rather than apportioned to individual sectors. Figure 1.2 shows Member State net emissions including LULUCF.

There are many different ways of presenting and analyzing EU27 GHG emissions data and the reader should refer to the European Environment Agency (EEA 2009) website for further detailed GHG emission data.

Figure 1.1 EU GHG Emissions Percentage Contribution by Sector for 2007 (EEA 2010)

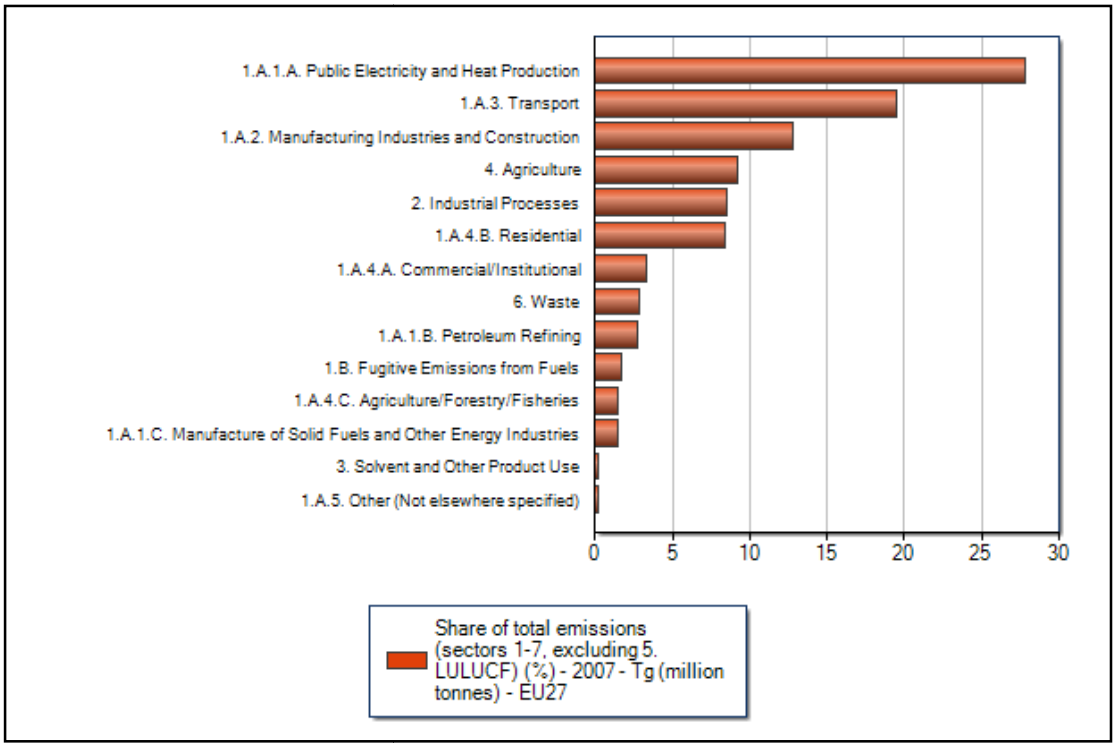


Figure 1.2 EU Net GHG Emissions Percentage Contribution by Country for 2007 (EEA 2010)

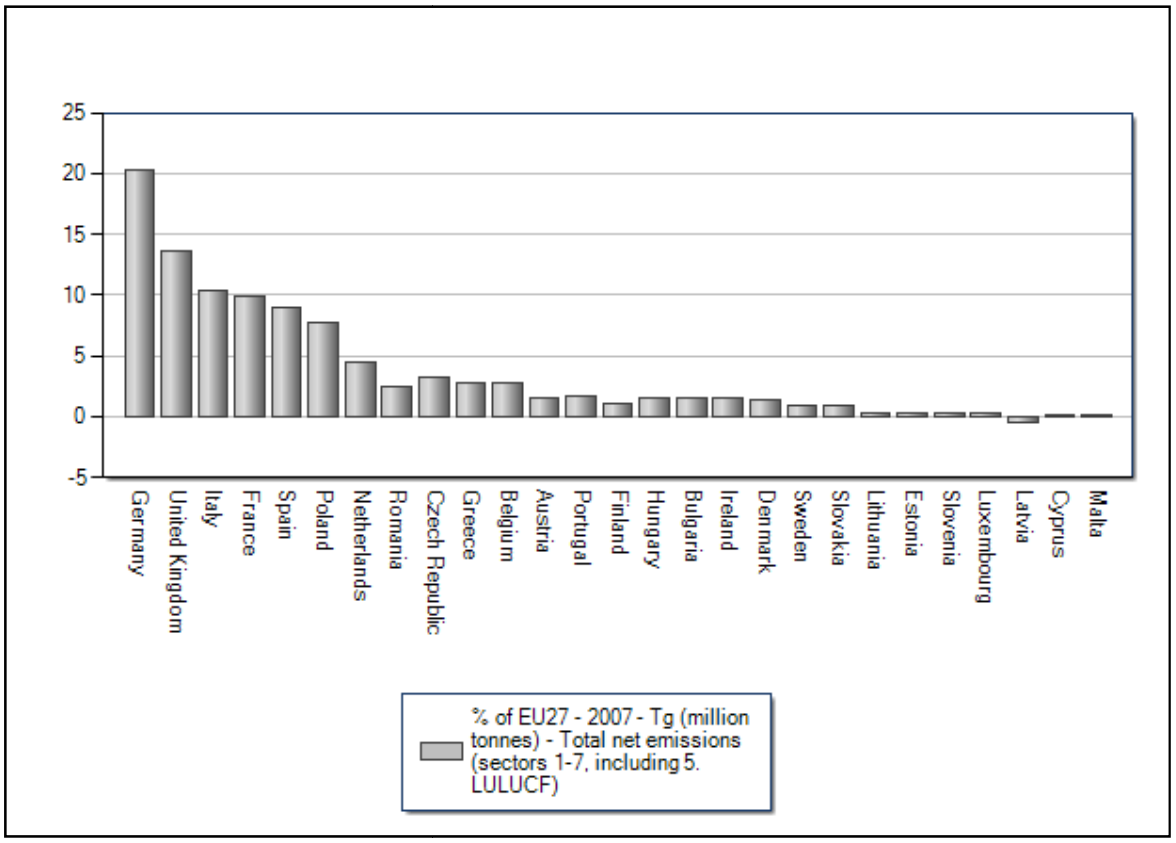
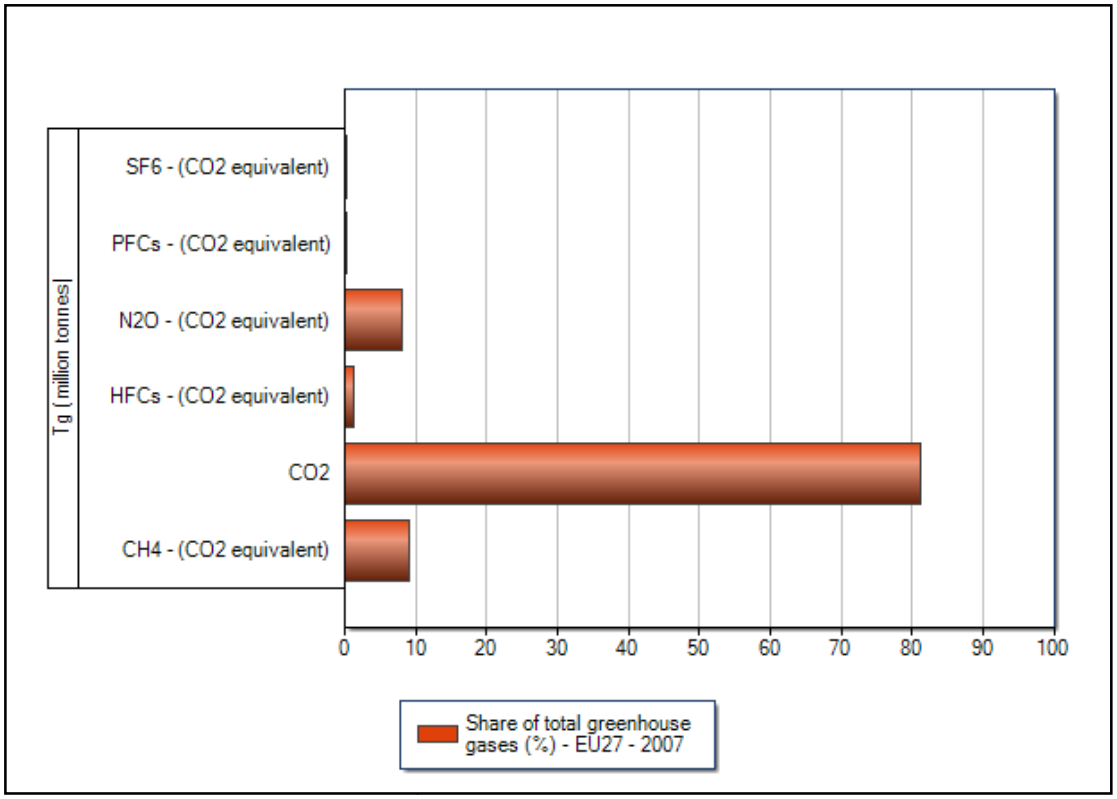


Figure 1.3 EU Net GHG Emissions Percentage Contribution by Gas for 2007 (EEA 2010)



Company Size and GHG Emissions

This study covers all types and sizes of company including ETS and non-ETS large, companies and small and medium-sized enterprises (SMEs). A specific issue to be assessed in this study is the contribution of SMEs to EU27 GHG emissions and their uptake of GHG reporting methods and initiatives. There are almost 20 million SMEs in the EU27 countries, compared to 40,000 large companies.

The GHG emissions arising from a company's activities are not necessarily correlated with its size. In addition to size, company emissions clearly depend on a wide range of factors such as the energy intensity of the activities carried out and the fuels, processes and technologies in use. In terms of magnitude of GHG emissions companies, one possible approach is to split companies into those which are energy intensive (e.g. oil & gas, cement, mining & metals, power and transport sectors) and those which are non-energy intensive (e.g. retail, financial, services and leisure sectors).

An examination of GHG emissions by company size and sector and uptake of GHG reporting is given in Sections 5 and 6 of this report.

Current European Regulation of GHG Emissions

Over the past two decades, the European Commission (EC) has implemented a number of policy measures which aim to monitor, report and reduce Member State GHG emissions. The most significant mandatory requirement in terms of company GHG reporting is the EU Emissions Trading Scheme (EU ETS). The over-arching European Climate Change Programme (ECCP) which was launched in the year 2000 is also under review by several ECCP II working groups.

There are also a number of country-specific national and local regulations which address climate change issues and company GHG emissions. Internationally, the need to take action to prevent climate change is addressed by the Kyoto Protocol, adopted in 1997 by the United Nations Framework Convention on Climate Change (UNFCCC).

An assessment of existing and possible future EC policy measures for GHG reporting is given in Sections 5 and 6 of this report.

1.4 Overview of GHG Reporting Methods

This section provides a brief introduction to common GHG reporting and calculation methods. The reader should refer to the WBCSD/WRI GHG Protocol Corporate Standard for further information on this subject.

Reporting of a company's greenhouse gas (GHG) emissions should normally cover the full basket-of-six GHGs recognized by the Kyoto Protocol, as shown in Table 2.1.

Table 1.1 'Basket-of-Six' Greenhouse Gases Covered by the Kyoto Protocol and Example Sources

Greenhouse Gas	Global Warming Potential [1] [2]	Example Sources
Carbon Dioxide (CO_2)	1	Combustion of fossil fuels; cement and steel manufacture.
Methane (CH_4)	21	Oil & gas extraction and processing; mining; landfills; agriculture, animal stock breeding, wastewater and sludge treatment.
Nitrous Oxide (N_2O)	310	Chemicals manufacture; agriculture; wastewater treatment; combustion processes.
Hydrofluorocarbons (HFCs) [3]	140 - 11,700	Refrigerant manufacture and use.
Perfluorocarbons (PFCs) [3]	6,500 - 9,200	Refrigerant manufacture and use; Al and Mg smelting.
Sulphur Hexafluoride (SF_6)	23,900	Aluminium and magnesium smelting; high voltage electrical switching equipment.

Notes:

[1] The values quoted are those used in Kyoto Protocol reporting as defined by the IPPC's second assessment report (1995). Global Warming Potential (GWP) is relative to CO_2 over a 100 year time horizon (i.e. one tonne of methane is equivalent to 21 tonnes of CO_2 in terms of climate change potential). Total GHG emissions are normally expressed as tonnes of CO_2 (or carbon) equivalent (abbreviated as tCO_2e). One tonne of carbon is equivalent to 3.67 tonnes of CO_2.

[2] In their fourth assessment report the Intergovernmental Panel on Climate Change (IPCC 2007) has reassessed the methane and nitrous oxide GWPs as 25 and 298 respectively. However, the previously published factors for methane and nitrous oxide of 21 and 310 respectively are still widely used. GWPs for other GHGs have also been reassessed by the IPCC (2007).

[3] HFCs and PFCs are generic terms for different groups of chlorinated organic compounds, each of which have a different global warming potential.

Each GHG has a Global Warming Potential (GWP) value assigned which is relative to carbon dioxide (i.e. the GWP of CO_2 = 1.0). The GWP represents the relative radiative forcing impact (i.e. potential contribution to climate change) of each GHG over a 100-year time horizon. According to the IPCC, GWPs typically have an uncertainty of ±35 percent.

An additional and important group of greenhouse gases for company GHG reporting are Hydrochlorofluorocarbons (HCFCs). HCFCs (like HFCs) are commonly used as refrigerants and have a high Global Warming Potential (GWP). For example, HCFC-22 has a 100 year GWP of 1,500 relative to CO_2 but is not covered by the Kyoto Protocol. Production of virgin HCFCs is being phased out by 2020 under the Montreal Protocol due to their high ozone depleting potential. Virgin HCFCs can no longer be used for the maintenance or servicing of refrigeration and air conditioning from 2010 (see Regulation EC 1005/2009). Companies across a range of sectors such as chemicals and retail continue to operate a large number of refrigeration and air conditioning systems which contain significant inventories of both HFCs and HCFCs. Therefore, due to the continued use (and leakage) of HCFCs, some reporting methods (e.g. US EPA) consider it to be good practice to include ***HCFCs*** in addition to the ***Kyoto basket-of-six GHGs*** in company GHG emissions reporting.

Total GHG emissions are normally reported in tonnes of CO_2 equivalent (tCO_2e). The term 'carbon footprint' is also commonly used to describe total GHG emissions in tCO_2e. One tonne of carbon (tC) is equivalent to 3.67 tonnes of CO_2 and this important distinction must be noted when examining company GHG reports. In Europe the metric tonne (1000 kg) is commonly used unit of mass for reporting GHG emissions and this should not be confused with the British long ton (1016 kg) or the US short ton (907 kg). It is also noted that total GHG emissions are not directly correlated to energy use since a company may have a number of non-energy GHG sources and the carbon content of their fuels may vary over time.

Figure 2.2 summarises the standard process for calculation of absolute GHG emissions using activity data, emission factors and GWP values.

Figure 1.4 Calculation of Total GHG Emissions

Companies normally report total GHG (carbon) emissions ($\mathbf{E_T}$) from their activities in tonnes of CO_2 equivalent. If the total number of different GHG species emitted is i, then the mass emission of each individual GHG in tonnes (M_i) is multiplied by its GWP value (GWP_i). The sum of this product for i = 1 to n gives the total emissions:

$$\mathbf{E_T = \sum (M_i * GWP_i)}$$ (total GHG emissions in tonnes of CO_2 equivalent)

The total mass emission of each individual GHG (M_i) in tonnes is normally calculated by multiplying activity data (A_y) for each operation (y) with the relevant emission factor (EF_y). For example, activity data may be measured in units of: tonnes of product for manufacturing; kilowatt hours for electricity consumed; and, kilometers travelled for freight. In this example, the relevant emission factor units would be: tonnes of GHG per tonne of product; tonnes of GHG per kilowatt hour of electricity supplied; and, tonnes of GHG per freight kilometer travelled respectively. The sum of this product for y = 1 to n gives the total emission of each GHG from all operations:

$$\mathbf{M_i = \sum (A_y * EF_y)}$$ (total emission of each GHG in tonnes)

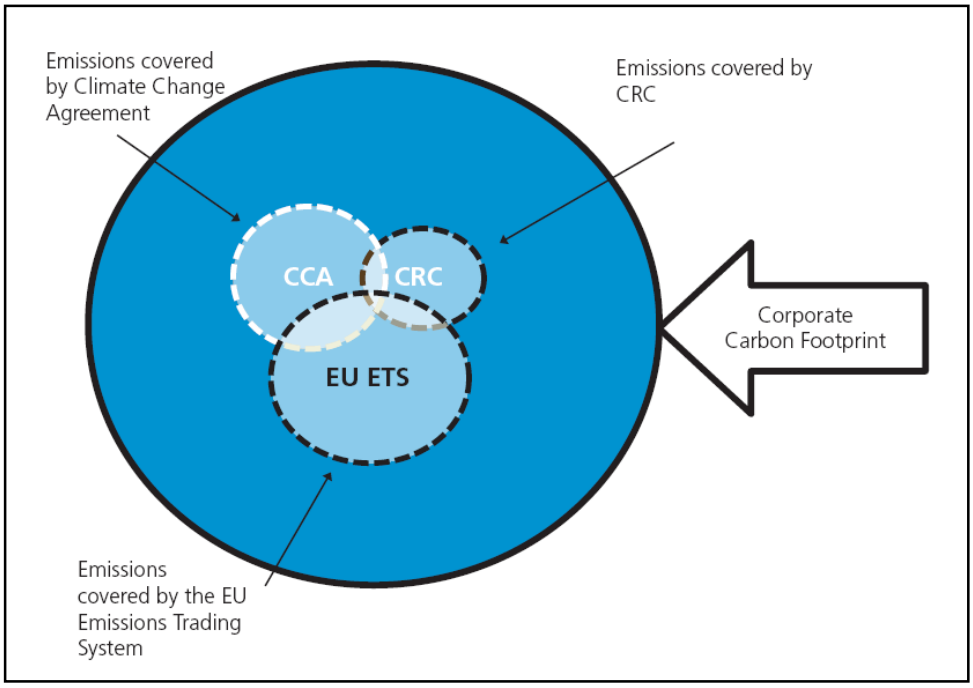
The reader is also reminded of the following points in relation to company GHG emissions calculation and reporting:

- Some grid electricity emission factors include transmission and distribution losses and factor in non-CO_2 GHG emissions from power generation, whilst other do not (the difference being up to 10%);
- Emission factors and activity use data for fuels can be quoted on a gross or net calorific basis (the difference being up to 10%);
- The majority of company GHG emission factor reflect the 'point of use' direct emissions, rather than the full 'life-cycle' direct plus indirect emissions;
- Activity data may be quoted in many different units such as kWh, MJ, BTU and tonnes oil equivalent. The user should ensure correct conversion when applying the appropriate emission factor;
- Short-cycle carbon emissions arising from the combustion or aerobic breakdown of biomass normally has a zero emission factor applied;

- Reported GHG emissions from air travel sometimes include an uplift factor (applied to the fuel emission factor) to account for indirect global warming impacts at high altitude;
- Renewable power has a zero emission factor assigned in some GHG reporting schemes, but in many schemes 'additionality' must be proved to claim a zero factor;
- The terms: materiality; uncertainty; accuracy; and, de-minims are used in various GHG reporting methods (either correctly or incorrectly). The reader should refer to the IPPC guidance on uncertainty for through guidance on these terms (IPCC 2001); and,
- The terms 'verification' and 'assurance' are used interchangeably in different contexts/regions. In Europe, 'verification' normally applies to a mandatory scheme, whilst 'assurance' normally applies to a voluntary scheme;

It is finally noted that a large energy-intensive company will typically have three or four distinct GHG reporting requirements (or scopes) under national and EC legislation and due to participation in voluntary schemes. Figure 2.3 gives an example in the UK context.

Figure 1.5 Different Company GHG Reporting Requirements – UK Example (DEFRA 2010)



1.5 Overview of Principles of Company GHG Reporting

This section provides a brief introduction to company GHG reporting principles. The reader should refer to the WBCSD/WRI GHG Protocol Corporate Standard for further information on this subject.

There are a number of other voluntary and mandatory GHG reporting methods and initiatives in use across Europe and internationally. Many large companies appear to be following the WBCSD/WRI GHG Protocol Corporate Standard which allows for complex operational boundaries and provides guidance on reporting principles. In general, these reporting methods and guidelines cover the following aspects:

1. **Envelope for GHG emissions** – there should be a clear definition of the boundaries of the emissions assessment (e.g. receipt of goods from suppliers to final sale to customers). There should be a clear statement of which emission sources (direct/indirect, upstream/downstream) are included;
2. **Basket of six GHGs** – the six main GHGs should be considered. The focus should not be solely on CO_2 and emissions of the other five GHGs should be quantified even if they are considered/assumed to be small in absolute mass terms as they have high global warming potentials (GWPs). Internationally accepted GWP factors should be used;
3. **Assessment methodology** – there are a range of options from direct measurement of emissions (accurate but not usually cost-effective) to estimation based on aggregate emission factors (cost-effective but less accurate). In general the most accurate assessment method available should be used (taking into account costs) with a view to minimising uncertainty;
4. **Activity data** – this is the first key parameter in assessing GHG emissions. The data must be readily available, verifiable and should be directly related to emissions (e.g. quantity of fuel consumed, freight vehicle mileage);
5. **Emission factors** – this is the second key parameter in assessing emissions. Emission factors vary according to the individual activity/process but a range of standard factors have been published (e.g. USEPA, WBCSD, IPCC) for common activities. Literature sources and operational data should be reviewed to determine the most representative set of emissions factors to be used;
6. **Verification/Assurance** – increasingly GHG emissions reports are coming under scrutiny from stakeholders and regulators. GHG reports should be transparent on issues such as calculation methods, boundaries and use of offsets. The assessment methodology should be robust enough to allow a company to produce a GHG emissions report that can be assured/verified by a third party; and,
7. **Transparency/Completeness –** GHG emissions calculation methods and reporting formats should be made transparent to allow stakeholders to understand their basis and to aid verification. Completeness must be ensured by applying materiality rules and making informed estimates for any incomplete or missing data.

8. **Uncertainty analysis** – GHG emissions estimates have an associated level of uncertainty (e.g. 95% confidence level) as emissions are not normally measured directly but are calculated from other factors. The level of uncertainty should be assessed where possible and steps taken to reduce the most significant uncertainties.

The WBCSD/WRI GHG Protocol Corporate Standard offers two distinct approaches for corporate reporting, as follows:

- **Control approach -** Under the control approach, a company accounts for 100 percent of the GHG emissions from operations over which it has control. It does not account for GHG emissions from operations in which it owns an interest but has no control.

- **Equity share approach -** Under the equity share approach, a company accounts for GHG emissions from operations according to its share of equity in the operation. The equity share reflects economic interest, which is the extent of rights a company has to the risks and rewards flowing from an operation.

In addition, the terms 'relevance', 'completeness', 'consistency' and 'degree of influence' are also used in defining GHG reporting boundaries. Under the WBCSD/WRI GHG Protocol Corporate Standard there are three reporting sub-categories for emissions:

- **Scope 1** (direct GHG emissions) should always be reported. These emissions occur due to fuel combustion in activities that a company directly controls.

- **Scope 2** (electricity/heat indirect GHG emissions) should always be reported. These emissions occur off-site at power stations due to import of electricity/heat by activities that the reporting company controls. They are not strictly 'direct' emissions in that they arise from third party installations but would normally be attributed to a company's operations as the end user of the electricity/heat.

- **Scope 3** (other indirect GHG emissions) is an optional reporting category. These emissions occur due to activities which are not directly controlled by the reporting company but are associated with and influenced by their activities. For example, this category includes employee business travel and staff commuting to/from work. Wider scope 3 emissions are related to the supply chain and final use/disposal of products sold by the reporting company (i.e. 'indirect' and involve a lesser degree of influence by the company), and would therefore normally be excluded from the 'direct' carbon footprint.

It is also noted that emission sources can be split into two main types:

- **Combustion related** – GHG emissions that are generated from the combustion of fossil fuels to generate heat and power (which is exported for use elsewhere); and,
- **Process related** – GHG emissions that are generated from a production process unit (this may include direct process heating) or the chemical/biological reaction of a feedstock or waste;

For further background on general reporting principles the reader should refer to the WRI/WBCSD GHG Protocol Corporate Standard (WBCSD 2009).

2. Study Scope and Methodology

2.1 Objectives and Scope of Work

The objective of this EC study is to:

> ***"Identify and analyse the existing leading methodologies and initiatives in the field of company GHG reporting. The analysis will focus on getting a clear picture and comparison of the existing methodologies and initiatives in the EU and globally, and features that might be relevant for future policy development".***

Whilst the scope of this study is limited to reporting of GHG emissions by private companies, consideration has been given to GHG reporting methods and initiatives for public sector organisations where relevant. It is noted that the EC are conducting a parallel separate study on reporting methods and initiatives for product carbon footprinting.

The EU ETS remains the primary policy instrument to reduce industrial CO_2 emissions in Europe. This analysis focuses on reporting methodologies and initiatives that exist outside of the EU ETS and usually cover a wider scope of greenhouse gases, sources of emissions and companies. The EU ETS covers approximately 40% of EU-27 scope 1 (direct) CO_2 emissions (being expanded to around 43% coverage in Phase III). The study analyses methodologies and initiatives often covering all six Kyoto greenhouse gases, and often covering all three reporting scopes (direct and indirect) and capturing also organisations not subject to EU ETS. These wider methodologies are often used by organisations to prepare reports in addition to their EU ETS reporting. The EU ETS is included in the analysis as a reference to clarify the key differences between this major policy instrument and other GHG reporting methodologies and initiatives helping to define the eventual areas where particular attention needs to be paid to ensure compatibility with the EU ETS.

Key questions which this research aims to address are:

- *Which are the current leading European and international methods and initiatives for company GHG reporting?*
- *What are the common features of these methods and initiatives and what inconsistencies or gaps exist?*
- *How well do existing methods and initiatives meet the needs of different sizes of company and different sectors?*
- *How can the EC best support common company GHG reporting methods, taking into account stakeholder experience?*
- *What are the strengths and limitations of existing GHG reporting methods and initiatives and how do these relate to possible future policy scenarios?*

- *What factors need to be considered to ensure comparability, ease of use and the correct balance of risks, costs and benefits in future company GHG reporting policy development?*

Globally there has been a huge growth in uptake of company GHG reporting in the last 5-10 years. Whilst it is recognized that there are many GHG reporting methods and initiatives in use across Europe and internationally, it is the intention of this study to focus on the methods/initiatives that are considered to be:

- 'Leading' or 'major' schemes in terms of number of companies using them, or tCO_2e emissions covered;
- Representative across economic sectors and Member States;
- Unique in terms of their coverage, methods or features; or,
- Have elements which can link reporting to achievement of GHG emissions reductions.

2.2 Drivers for the Study

Companies typically report their *absolute* GHG emissions annually in their sustainability reports. They also typically report emissions under mandatory schemes such as the EU Emissions Trading Scheme (EU ETS) and also through voluntary schemes such as the Carbon Disclosure Project (CDP). In addition reporting of *relative* GHG emissions (i.e. carbon intensity, typically measured per tonne of product or per € of turnover) is generally accepted as a useful additional sustainability metric in a number of sectors. However, key differences in reporting methods such as defining reporting boundaries, accounting for offsets and choice of emission factors can mask the underlying carbon intensity and make comparisons difficult. This lack of harmonization in company GHG reporting is both an internal and an external problem for companies, policy makers and stakeholders. For example:

- A multi-national company may struggle to choose and ensure the correct application of consistent reporting methods due to different approaches in use across its operating regions;
- There may be difficulties in adjusting the company emissions baseline to reflect business changes and in examining trends over time due to changes in reporting methods;
- Companies may also find that significant resources are required to meet multiple reporting requirements, each using a different method.
- For smaller companies the reporting requirements may be overly complex and resource-intensive; and,
- For policy makers and stakeholders it is often difficult to make like-for-like comparisons between companies in the same sector or region due to use of different reporting boundaries and emissions factors.

The uptake of company GHG reporting has increased rapidly over the last five years. Across Member States and internationally, a number of GHG reporting

standards and initiatives have been developed and refined. For example, the Global 500 (i.e. the top 500 companies globally, ranked by revenue) participation rate in the voluntary CDP initiative increased from around 40% in 2004 to 82% in 2008. In addition the mandatory EU ETS covers over 11,000 installations representing around 40% of Europe's total GHG emissions inventory (being expanded to around 43% coverage in Phase III). Increasingly there is evidence of multiple standards and problems in making comparisons due to significant differences in company GHG reporting methods within sectors, across Europe and internationally. There is also anecdotal evidence from ERM's experience of working in this area for several years that company GHG target-setting generally lags behind reporting initiatives and that uptake of reporting by small and medium-sized enterprises (SMEs) is generally low.

Hence, the European Commission has instigated this study into company GHG reporting methods to identify and analyse the existing leading methodologies and initiatives in the field of company GHG reporting. The analysis will focus on getting a clear picture and comparison of the existing methodologies and initiatives in the EU and globally, and features that might be relevant for future policy development. The final objective of all these initiatives is to ensure that companies measure **and decrease** their GHG emissions over time.

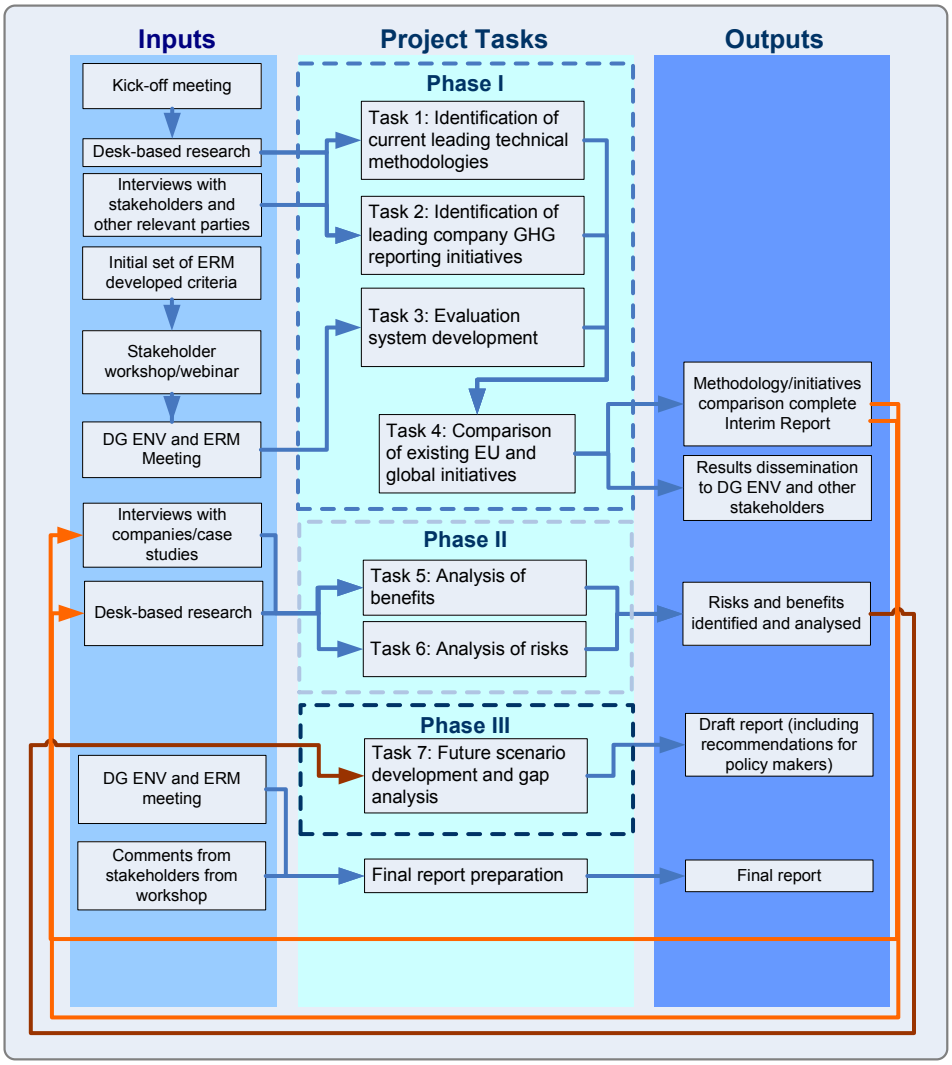
2.3 Study Methodology

The study has been broken down into three phases, as follows:

- Phase I: Analysis of Methodologies and Initiatives
- Phase II: Analysis of Risks and Benefits
- Phase III: Analysis of Possible Future Policy Scenarios

Delivery of the three study phases is split into and seven main tasks. The links between these phases/tasks and the key inputs and outputs are summarised in Figure 2.1.

Figure 2.1 Summary of Study Phases and Tasks indicating Key Inputs and Outputs



Further details of the methodology and data sources for the tasks are given below:

- ***Tasks 1 and 2 - Identification of current leading technical methodologies and company GHG reporting initiatives***

It is recognized that there are many GHG reporting methods and initiatives in use across Europe and internationally. The intention of this study to focus on the methods/initiatives that are considered to be:

- 'Leading' or 'major' schemes in terms of number of companies using them or tCO_2e emissions covered;
- Representative across economic sectors and Member States;
- Have unique features in terms of their coverage, methods or features;
- Show differences that lead to contrasting results and impacts; or,

- Have elements which can link GHG reporting to achievement of emissions reductions.

Under Tasks 1 and 2, methods and initiatives which potentially fit with this scope were identified using a range of information sources including literature review, web-based research, ERM expert input and discussion with regulatory bodies, methodology owners, NGOs and industry contacts.

It is noted that for the purposes of this study, method and initiatives are categorised as follows:

- A 'method' is a means of calculating a GHG emissions figure in tCO_2e and should provide guidance on choosing reporting boundaries and emission factors;
- An 'initiative' defines the GHG report format and contents and may cover aspects such as public disclosure, target setting, emission reduction measures, assurance/verification requirements, benchmarking and league tables (and may also refer back to a specific 'method'); and,
- There is clearly some overlap between methods and initiatives.

➢ ***Tasks 3 and 4 – Evaluation system development and comparison of existing EU and global initiatives***

In order to conduct a more detailed evaluation of the 'major' GHG reporting methods and initiatives a shortlist was selected from the schemes identified previously. The shortlist is intended to ensure coverage of:

- The most commonly referred to and widely recognised methods/initiatives (e.g. are the basis of other methods/initiatives);
- Different world regions (e.g. Europe, US, Asia-Pacific);
- Calculation methods versus reporting initiatives;
- Voluntary and mandatory schemes; and,
- Private and public sector.

A set of evaluation criteria was developed and agreed with the EC against which to assess the shortlisted methods/initiatives.

➢ ***Tasks 5 and 6 – Analysis of risks and benefits of GHG reporting***

Under Tasks 5 and 6 ERM an assessment and analysis of the risks and benefits presented by company GHG methodologies and initiatives was conducted. This will provide an evidence base to help support future policy development.

ERM proposes to draw upon the body of information collected through Tasks 1 to 4 and supplement this with additional case studies, stakeholder interviews and literature review. The analysis will be guided also by the ERM team's expertise and experience to document the risks and benefits (GHG and financial) of applying different company GHG calculation methods and participating in different GHG reporting initiatives.

In recognition of the variety of different drivers that lead to GHG emissions reductions in different geographical and organisational situations, we feel that a combination of comparative analysis informed by the interviews, and illustrative case studies again informed by the interviews and associated exchange of information and available evidence, will be an appropriate way in which to assess the effectiveness of different GHG reporting schemes in delivering emissions reductions and economic benefits.

- ***Task 7 – Future policy scenario development and gap analysis***

Task 7 of the study into company GHG reporting methods and initiatives is focused on the analysis of potential future policy scenarios and the associated gaps in current GHG reporting methods and initiatives. This will build upon the findings from Phases I and II (Tasks 1 to 6) of the study. The analysis will define a small number of future policy scenarios for company GHG measurement and reporting (e.g. voluntary measurement for internal management purposes, voluntary public reporting, mandatory reporting, minimum requirements, incentives based on reporting, etc.). Each scenario will then be tested against evidence from Phases I and II and examined to identify strengths and gaps, risks, costs and benefits to help inform the policy debate.

2.4 Stakeholder Interviews and Data Sources

The data collection process for this study involves discussions with methodology and initiative owners, case study interviews with a range of companies, ERM subject expert[3] inputs and literature reviews.

A Webinar was held during March 2010 to gain the input of leading GHG reporting method/initiative owners. This was followed-up with a number of stakeholder discussions, inputs by DG Environment and guidance from ERM subject experts in the different regions of interest. More detailed questionnaires were also sent to GHG reporting method/initiative owners during May 2010. This approach ensured efficient data collection, and captured a range of viewpoints to obtain information relevant to the comparison of GHG reporting methods and initiatives.

During May 2010 a number of private companies were selected for case study interviews to examine their approach to GHG reporting methods and initiatives and collect data on risks, costs and benefits. Further details of the interviews are given in Section 5 of this report.

A Stakeholder Workshop was held on the 8th July 2010 at the EC's offices in Brussels to present the draft study findings and seek stakeholder comment prior to finalising the study report. Over 50 representatives from business, industry, NGOs and government attended the workshop.

[3] ERM subject experts are ERM senior staff who are experienced in the interpretation and application of company GHG reporting methods and initiatives and have recently worked with a number of private companies, policy makers and sector associations on such issues across a number of geographic regions (EU and non-EU).

3. Identification of GHG Reporting Methods and Initiatives

3.1 Major Methods and Initiatives Identified

The 'leading' or 'major' GHG reporting methods and initiatives that have been identified for the purposes of this study are listed in Table 3.1. A total of 30 'major' methods and initiatives have been identified as being relevant to this study. It is noted that in addition to these over 50 other methods and initiatives (including sector-specific guides) were identified but were considered to be less relevant to this study (see Annex A for a list of these). This decision on relevance is based on the methods/initiatives being: similar to or based on those already listed; less widely adopted; in early stages of development; or, sector or country-specific adaptations.

Table 3.1 Major GHG Reporting Methods and Initiatives Identified for the Purposes of this Study

Global	Europe	North America	Asia-Pacific
• Carbon Disclosure Project (CDP)	• French Bilan Carbone	• US Regional Greenhouse Gas Initiative (RGGI)	• Japanese Voluntary ETS (J-VETS)
• WBCSD/WRI GHG Protocol Corporate Standard	• EU Emissions Trading Scheme (EU ETS)	• US Climate Registry (TCR) General Reporting Protocol	• Japanese GHG Reporting Scheme
• IPCC 2006 GHG Workbook	• UK Department for Environment, Food and Rural Affairs (DEFRA) Guidelines	• USEPA GHG Rule	• Australian Carbon Pollution Reduction Scheme (CPRS)
• ISO 14064: 2006 (Parts 1 and 3)	• UK Carbon Reduction Commitment (CRC)	• US Securities and Exchange Commission (SEC) Guidance	• Australian National Greenhouse and Energy Reporting (NGER) Scheme
• Climate Disclosure Standards Board (CDSB)	• UK Climate Change Levy Agreement (CCLA)	• Californian Climate Action Registry (CCAR)	
• Enterprise Carbon Accounting (ECA)[#]	• Dutch Energy Covenant	• US EPA Climate Leaders Inventory Guidance	
• International Local Government GHG Emissions Analysis Protocol (IEAP)	• The Carbon Trust Standard (CTS)	• Environment Canada GHG Emissions Reporting Program	
• Global Reporting Initiative (GRI)		• Chicago Climate Exchange (CCX)	
• API/IPIECA GHG Compendium*		• US GHG Protocol Public Sector Standard	
• WBCSD/WRI GHG Protocol Scope 3 Reporting Standard			

[#] Enterprise Carbon Accounting (ECA) is used to describe the broad set of approaches and software tools for GHG accounting at company, product and supply chain level. ECA will be analysed using examples where possible but it is noted that most ECA software and methods are proprietary in nature.

* The API/IPIECA GHG Compendium is chosen as an example of a 'major' adaptation of general GHG reporting methodologies to meet sector-specific needs. There are many other sector-specific Protocols and reporting initiatives in use across Europe and internationally which are not listed above.

3.2 Key Features of Major Methods and Initiatives

This section presents the key features of the major GHG reporting methods and initiatives that were identified during the research. Tables 3.3 to 3.7 summarise the major methods/initiatives against a number of data fields under five main headings. The data fields used (which are further explained in table footnotes where required) are shown in Table 3.2.

Table 3.2 Data Fields Captured for Major GHG Reporting Methods and Initiatives

Title and Reference	Summary of Method/Initiative	Coverage of Method/Initiative	Key Emissions Calculation Method Details	Key Reporting Requirement Details
• ID No. within this study	• Region Where in Use	• Year of Current Version	• Boundary definition principles	• Assurance/ verification required?
• Method/Initiative Title	• Method (M), Initiative (I) or Both (B)	• Main document length	• Emission factor source	• Frequency of reporting?
• Webpage Reference	• Main Focus	• Refers back to another method?	• GHGs covered	• Process for GHG target setting?
	• Brief Description	• Voluntary or Mandatory scheme?	• GWP basis	• GHG reduction measures?
	• Comments	• Covers Private Sector, Public Sector or Both?	• Covers Scope 1?	• GHG management policy and systems?
		• Sector specific guidance?	• Covers Scope 2?	• Benchmarking or ranking?
		• Threshold for Reporting	• Covers Scope 3?	• Public disclosure?
		• No. of organisations covered	• Treatment of carbon sinks/removals	• Financial incentives/ penalties?
		• Total emissions covered (tCO_2e)	• Materiality level	
		• Regulatory links	• Baseline guidance	

It is noted that Tables 3.3 to 3.7 are not intended to be a detailed summary of each method/initiative. There are 30 methods/initiatives and 36 data categories listed, giving a total of 1,080 data items. Some the data items were not applicable or were not easily identifiable from the information provided in the method/initiative owner protocols and associated documents/webpages. **For this reason, the reader should refer to the relevant method/initiative owner documents and associated webpages for further details before relying upon these tables.**

In addition, Table 3.8 provides an overview of some of the key features and statistics emerging from the review of the 30 methods and initiatives.

Table 3.3 Major GHG Reporting Methods and Initiatives - Overview

ID No. [1]	GHG Reporting Method/Initiative Title	Method (M), Initiative (I) or Both (B) [2]	Brief Description	Comments	Webpage Reference
1	Carbon Disclosure Project (CDP)	I	A proprietary reporting initiative that includes questions on emission data, GHG reduction initiatives and climate change risks and opportunities for each participating company. It does not prescribe a particular emissions calculation method but encourages use of the WBCSD/WRI GHG Protocol.	The leading company GHG reporting initiative - survey requests were sent to 5,000 participants including over 3,700 global companies in 2009. A CDP leadership index is also published by sector and region. CDP has three main programme streams: Investor (corporate reporting - this is the original CDP); Corporate Strategy - Supply Chain; and, Public Sector - Supply Chain. However, the main focus of CDP is large companies (FTSE Global Equity Index Series - Global 500). CDP has recently simplified the questionnaire for SMEs in their Supply Chain Programme which has been followed by good uptake in 2009.	https://www.cdproject.net/
2	WBCSD/WRI GHG Protocol Corporate Standard	M	A proprietary method which details principles and gives examples for boundary setting and choice of emission factors. Includes a number of tools and sector-specific guidance. It is the most widely used accounting protocol for GHG emission quantification, suitable for calculating carbon footprints for voluntary reporting. It is also the basis for a number of mandatory emission reporting systems.	First published in 2001, the GHG Protocol is used by the many large companies and forms the basis for many other methods and initiatives (e.g. CDP, Climate Registry). Whilst guiding principles are stated such as operational and equity control and coverage of scopes 1 to 3, the guidance is wide-ranging and remains open to interpretation on several emission factor and boundary issues. Includes separate toolsets for emissions intensive sectors such as iron and steel. A separate guide for small office-based organisations is available.	http://www.ghgprotocol.org/standards/corporate-standard
3	IPCC 2006 GHG Workbook	M	A comprehensive guide on calculation GHG emissions from different sources/sectors including detailed emission factors guidance. Guidance on uncertainty assessment is also given (IPCC 2001).	The leading source of process/default GHG emissions factors and estimation methods where measured data is not available. Country-specific emission factors (e.g. for grid electricity) should be used instead of IPCC default factors where available. The guidance is not a company GHG reporting method in itself (it was developed for national GHG inventories) but is referred to in other reporting methods for guidance on emission factors, GWP values and uncertainty assessment.	http://www.ipcc-nggip.iges.or.jp/public/2006gl/index.html

ID No. [1]	GHG Reporting Method/Initiative Title	Method (M), Initiative (I) or Both (B) [2]	Brief Description	Comments	Webpage Reference
4	ISO 14064: 2006 (Parts 1 and 3)	M	An international verifiable standard for company GHG reporting that can also be used by the public sector. Part 1 is entitled "Specification with guidance at the organization level for quantification and reporting of greenhouse gas emissions and removals". Part 3 is entitled "Specification with guidance for the validation and verification of greenhouse gas assertions".	Provides guidance on calculation (Part 1) and verification (Part 3). Part 2 focuses on project-level emissions and is not directly relevant to this study. Part 1 sets out specific requirements for some calculation and boundary issues but is open to interpretation on some aspects (e.g. materiality thresholds). Is compatible with the WBCSD/WRI GHG Protocol but provides limited guidance on what to report as this will be guided by jurisdictional requirements. In December 2007, WBCSD/WRI entered a memorandum of understanding (MoU) with ISO for the joint promotion of the ISO 14064 GHG standards (what to do) and WRI/WBCSD GHG Protocols (how to do it).	http://www.iso.org/iso/catalogue_detail?csnumber=38381
5	French Bilan Carbone	M	A proprietary reporting method that includes detailed guidance on boundaries, emission factors and treatment of life-cycle impacts. Provides a number of calculation tools and includes methods for local authorities and territories. These spreadsheets are only available to persons trained by ADEME (French Agency for the Environment and Energy Management).	This wide-ranging guidance can be applied to cover many sectors/reporting scenarios. It provides emission factors for a large number of GHG sources/activities but is open to interpretation on issues such as materiality, assurance/verification or reporting format. Refers to ISO 14064 and the WBCSD/WRI GHG Protocol for defining reporting boundaries of more complex organisations.	http://prod1-w2ademe.integra.fr/servlet/KBaseShow?sort=-1&cid=23674&m=3&catid=23675
6	US Regional Greenhouse Gas Initiative (RGGI)	B	Cap and trade ETS operating in ten Northeastern and Mid-Atlantic states (Connecticut, Delaware, Maine, New Hampshire, New Jersey, New York, Vermont, Massachusetts, Rhode Island and Maryland). Targets emissions from fossil fuel fired power plants with a capacity of 25 MW or more. Emission permit auctioning began in 2008 and the first three-year compliance period began in 2009. Similar US ETS schemes in development are: the Western Climate Initiative; the Midwest Greenhouse Gas Accord; and, the California Air Resources Board (CARB) Assembly Bill 32.	All ten states have committed to full auctioning/sale of the state's carbon budget. This overcomes the problem of opportunity cost associated with the EU ETS, which led to windfall profits for electricity generators. The rules for carbon budgeting, setting baselines, offsets and other mechanisms are complex. Since this is a 'model' rule it can be adapted by participating states and has significant flexibility built-in.	http://www.rggi.org/about/history/model_rule
7	US Climate Registry (TCR) General Reporting Protocol	B	The Climate Registry's protocols outline best practices in GHG reporting and the reporting requirements of the voluntary program. Each protocol is developed by achieving a consensus	The Registry follows the same principles as the WRI/WBCSD GHG Protocol and is compatible with this. It draws upon other sources such as ISO14064, USEPA and CCAR guidance. The Registry plans to	http://www.theclimateregistry.org/resources/protocols/

ID No. [1]	GHG Reporting Method/Initiative Title	Method (M), Initiative (I) or Both (B) [2]	Brief Description	Comments	Webpage Reference
			among industry, environmental and government stakeholders. Participants must report their 'basket of six' GHG emissions from their operations in Canada, the US and Mexico at the facility level. Similar to corporate reporting, the Registry strongly encourages government entities (local, county, state, provincial, etc.) to report at the highest organizational level possible (City, Province, or State).	develop sector-specific protocols to provide more detailed guidance for individual industry sectors. An organisation can join the Registry simply by completing a statement on intent and paying the relevant fees. The Registry represents a linking of several state-sponsored GHG emissions reporting efforts, including the California Climate Action Registry and the Eastern Climate Registry. Many participants of the ICLEI and the U.S. Conference of Mayors' Climate Initiative also participate in The Registry.	
8	USEPA GHG Rule	M	The mandatory rule requires reporting of GHG emissions from large sources and suppliers in the United States, and is intended to collect accurate and timely emissions data to inform future policy decisions. Under the rule, suppliers of fossil fuels or industrial GHGs, manufacturers of vehicles and engines, and facilities that emit 25,000 metric tons or more per year of GHG emissions are required to submit annual reports to EPA.	2010 is the first reporting year but there are some simplifying reporting requirements in place initially. Reporting requirements for 31 of the 42 emission sources have been finalised. At this time, EPA is not finalising the remaining source categories and are considering further comments and options. Some stakeholders supported a lower emission threshold of 10,000 metric tons CO2e to enable collection of emissions data for smaller sources. Notably the scheme covers HCFCs and other fluorinated gases (in addition to the Kyoto 'basket of six' GHGs).	http://epa.gov/climatechange/emissions/ghgrulemaking.html
9	EU Emissions Trading Scheme (EU ETS)	B	The EU ETS is the largest cap and trade ETS in the world. The Scheme covers CO2 emissions from the power sector (all fossil fuel generators over 20MW), oil refining, cement production, iron and steel manufacture, glass and ceramics, and paper and pulp production. Member States are required to develop a National Allocation Plan (NAP), setting targets for emissions from the relevant sectors and allocating allowances to installations for the relevant periods. All installations (representing about 40% of EU emissions) are thus set an absolute emission cap (6,600 millionCO2 in Phase I of the scheme). Allowances are freely tradable – installations may buy or sell allowances as required. Phase II of the EU ETS runs from 2008-201 and imposes tighter	The scheme focuses on CO2 emissions although N2O is also to be included in the third trading period (The Netherlands and Austria have included N2O emissions from nitric acid plants in the EU ETS for the period 2008-2012 on an "opt-in" basis). Aviation emissions are being brought into the scheme in 2012. The monitoring, reporting and verification (MRV) guidelines specify calculation methods, boundaries, baseline years and independent verification requirements. Each Member State NAP includes allowances for new entrants. The NAPs must be approved by the EC and must be in-line with overall emission reduction targets. There were concerns in Phase I about windfall profits for large electricity producers. As a result, EC guidance on the NAP process has been tightened in Phase II with use of more stringent overall caps and benchmarking	http://ec.europa.eu/environment/climat/emission/mrg_en.htm

ID No. [1]	GHG Reporting Method/Initiative Title	Method (M), Initiative (I) or Both (B) [2]	Brief Description	Comments	Webpage Reference
			restrictions, as well as limited auctioning the allowances instead of distributing them freely.	for allocation is being introduced in Phase III.	
10	US Securities and Exchange Commission (SEC) Guidance	I	Provides guidance on how climate change considerations must to be addressed in the standard SEC disclosure process. This is not a calculation method and does not specify detailed GHG reporting procedures.	Provides guidance and examples of when climate change impacts may need to be disclosed as part of the standard SEC reporting process (e.g. impact of legislation and regulation and international accords, as well as indirect consequences of regulation or business trends and physical impacts of climate change). Allows participants to choose a relevant GHG reporting method such as WBCSD/WRI GHG Protocol.	http://www.sec.gov/rules/interp/2010/33-9106fr.pdf
11	Carbon Disclosure Standards Board (CDSB)	I	A principles-based global reporting framework for climate change-related disclosure to be used by companies in compiling their mainstream financial reports. This is not a calculation method and does not specify detailed GHG reporting procedures. CDSB does not aim to create a new standard. Through its collaborative approach, CDSB aims to support, harmonise and strengthen existing climate change-related reporting initiatives and standards by bringing together and enhancing best practices in the form of a single consistent global framework that can be used for disclosure in mainstream reports.	Specifies both what companies should consider reporting and how disclosures may be made useful for investors. Designed to elicit information of value to investors in gauging how climate change affects the economic performance and prospects of companies. References the WBCSD/WRI GHG Protocol methods. The CDP serves as the CDSB Secretariat.	http://www.cdsb-global.org/index.php?page=draft-reporting-framework
12	Japanese Voluntary ETS (J-VETS)	B	The purpose of this scheme is to foster the business operator's voluntary effort to reduce GHGs cost-effectively and to accumulate knowledge and experience regarding emissions trading. This scheme started in 2005 by the initiative of the Japan Ministry of the Environment. Guidance for calculating and verifying base year emissions was provided.	The first cycle of the scheme operated from April 2006 (registration period), with a one-year trading period during FY2007, and concluded of the first cycle in August 2008 (retiring of allowances). A total budget of 2.76 billion Yen was set aside to subsidise GHG reduction measures with a maximum allowance of 200 million Yen per site and a 33% subsidy rate. In the current trading cycle there are 500 businesses registered.	http://www.kyomecha.org/e/info04.html
13	Japanese GHG Reporting Scheme	I	The amended Climate change policy law states that from 2006, business operators that emit >3,000 tCO2/annum of GHGs and have more than 21 employees are obliged to report to the	The first reports under this initiative were made available in 2007 covering 2006 performance. The scheme requires company to provide information on GHG emission reduction plans and measures. New	http://www.kyomecha.org/e/info03.html

ID No. [1]	GHG Reporting Method/Initiative Title	Method (M), Initiative (I) or Both (B) [2]	Brief Description	Comments	Webpage Reference
			government. The government will compile the GHG report and publish a summary. A "Calculation and Reporting Manual" is available but its use is not mandatory.	reporting rules were introduced in 2010 for reporting of 2009 emissions.	
14	Australian Carbon Pollution Reduction Scheme (CPRS)	I	The government will set an annual cap on the total amount of carbon pollution that can be emitted under the scheme, within Australia. The cap will be gradually lowered, reducing the level of carbon pollution we produce each year. Companies or other groups within Australia that need to emit carbon will need to purchase permits (or may be issued with permits) that represent the right to emit a specific amount of carbon pollution. The total amount of permits issued overall cannot exceed the government-set cap. Businesses can trade permits among themselves if they find they have more than they need - or if they don't have enough – ensuring that abatement (reducing emissions) occurs at least cost. A similar ETS is being introduced in New Zealand.	Scheme has not yet commenced. The Government's proposed CPRS legislation was introduced into the Parliament for the third time on 2 February 2010.	http://www.climatechange.gov.au/government/initiatives/cprs.aspx
15	Australian National Greenhouse and Energy Reporting (NGER) Scheme	B	Under the National Greenhouse and Energy Reporting Act 2007, this establishes a national framework for corporations to report greenhouse gas emissions and energy consumption and production from 1 July 2008. The Act makes registration and reporting mandatory for corporations whose energy production, energy use or GHG emissions meet specified thresholds.	The first annual reporting period began on 1 July 2008. Corporations that meet an NGER threshold must report their GHG emissions, energy production and energy consumption. Australian, state and territory governments have agreed to a standard national approach, the National Greenhouse and Energy Reporting Streamlining Protocol. This initiative will reduce the red tape on business created by multiple and varying program reporting requirements. The Protocol also covers reporting requirements relating to intensity indicators, energy audits, action plans, energy savings, greenhouse gas reductions, and projections.	http://www.climatechange.gov.au/en/government/initiatives/national-greenhouse-energy-reporting.aspx
16	Enterprise Carbon Accounting (ECA)	M	This term is sometimes used to describe the broad set of approaches to GHG accounting at company level, and other times it is applied more specifically to accounting of the GHG impacts of full company supply chains, utilising hybrid input:output and LCA	Enterprise carbon accounting' is not a method in itself but is a term like 'corporate carbon footprinting' which is entering common use to collectively describe a number of methods to report GHG emissions. Increasingly proprietary software products are being developed to	http://www.groomenergy.com/carbon_consulting.html#research

ID No. [1]	GHG Reporting Method/Initiative Title	Method (M), Initiative (I) or Both (B) [2]	Brief Description	Comments	Webpage Reference
			techniques. The emerging guidelines being developed by the WBCSD GHG Protocol Supply Chain Initiative could be considered a form of 'Enterprise Carbon Accounting'.	perform ECA analysis. These products rely on a range of emission factor sources and calculation methods such as IPPC 2006 and the WBCSD/WRI GHG Protocol. The emission factors used tend to be life-cycle factors (as opposed to direct point-of-use emission factors).	
17	UK Department for Environment, Food and Rural Affairs (DEFRA) Guidelines	M	In September 2009, DEFRA, in partnership with the Department for Energy and Climate Change (DECC), published guidance for businesses and organisations on how to measure and report their GHG emissions. The latest guidance has been developed over a period of several years and includes UK-specific emission factors for fuels and electricity. The guidance is widely adopted by large UK companies and some UK-headquarted multi-national companies.	DEFRA has consulted on the guidance in 2009. The two policy options considered were: 1. Publish guidance on how to measure and report GHG emissions; and, 2. Mandate the reporting of GHG emissions. The preferred option is 1. The guidance is voluntary and is expected will meet the policy objectives. There is a need for evidence on the contribution that reporting makes to the UK achieving its climate change objectives before a decision is taken on the introduction of mandatory reporting. The guidance includes a streamlined version for use by SMEs.	http://www.defra.gov.uk/environment/business/reporting/
18	UK Carbon Reduction Commitment (CRC)	B	A mandatory emissions trading scheme targeting large commercial and public sector organisations using more than 6,000MWh of electricity through mandatory half hourly meters. Organisations will have to buy allowances for emissions at an auction, with the total number of allowances set by the Government. Revenue from the auction will be recycled to scheme participants according to performance league tables. The scheme baseline period began in 2010 and the capped phase will start in 2013.	The CRC Order specifies a full list of fuels types to be covered and emission factors to be used. The use of a league table with revenue recycling according to performance is a novel approach for a mandatory scheme in Europe. Government estimates indicate that around 20,000 public and private sector organisations will be required to participate in some way. The majority of these will simply be required to make an information disclosure once every few years that tells the administrator about their electricity usage. Around 5,000 organisations will be required to participate fully. This means they must not only record and monitor their CO2 emissions, but also purchase allowances equivalent to their emissions each year.	http://www.decc.gov.uk/en/content/cms/what_we_do/lc_uk/crc/user_guidance/user_guidance.aspx
19	UK Climate Change Levy Agreement (CCLA)	B	The Climate Change Levy (CCL) is a tax on energy delivered to non-domestic users in the United Kingdom. Companies which sign up to a CCL agreement (CCLA) receive an 80% reduction	The CCLA focuses primarily on energy use and energy efficiency rather than CO2 emissions and does not cover non-CO2 GHGs. Process CO2 emissions are covered for some sectors. The revenue generated from	http://www.decc.gov.uk/en/content/cms/what_we_do/change_energy/tackling_clima/ccas/ccas_guidance/ccas_gui

ID No. [1]	GHG Reporting Method/Initiative Title	Method (M), Initiative (I) or Both (B) [2]	Brief Description	Comments	Webpage Reference
			in the levy rate in return for meeting energy efficiency targets.	the Climate Change Levy on fossil fuels and electricity is recycled via a reduction in National Insurance contributions. Small operators can join together under a sector-specific "Umbrella Agreement" to minimise compliance risks and costs.	dance.aspx
20	Dutch Energy Covenant	I	On 6 July 1999, the Dutch government concluded the Energy Efficiency Benchmarking Covenant with industry. In it, the energy-intensive industry pledges to be among the world leaders in terms of energy efficiency for processing installations by no later than 2012. In exchange for this undertaking, the government has agreed not to impose any extra specific national measures governing energy conservation or CO2 reduction on the participating companies.	Companies must develop an energy efficiency plan and the covenant contains criteria governing the rate of investment. From 2008 onwards participants can also use flexible instruments such as emissions trading. The appropriate authority must evaluate and approve the energy efficiency plan which is then incorporated into the participant's environmental license.	http://www.benchmarking-energie.nl/index.php3
21	Californian Climate Action Registry (CCAR)	B	The California Climate Action Registry is a program of the Climate Action Reserve and serves as a voluntary GHG registry to promote action to reduce GHG emissions by organizations. As California Registry reporting is being transitioned to The Climate Registry, the California Registry's parent organization is heading in a new direction. The Climate Action Reserve is a national offsets program working to ensure integrity, transparency and financial value in the U.S. carbon market. The General Reporting Protocol and other guidance documents give worked examples and sector-specific methods for calculation emissions.	The California Registry has developed a number of protocols to assist members and verifiers in the process of calculating, reporting and verifying an emissions inventory. All members will use the General Reporting & Verification Protocols to complete their emissions inventories. The California Registry also offers industry-specific protocols to give further guidance to certain sectors. Currently, industry-specific protocols are available for the cement sector, power/utility sector, forest sector and local government operations. CARROT (Climate Action Registry Reporting Online Tool) has been developed to simplify calculation and data submission to the Registry.	http://www.climateregistry.org/tools.html
22	International Local Government GHG Emissions Analysis Protocol (IEAP)	I	Set of guidelines to assist local governments in quantifying the greenhouse gas emissions from both their internal operations and from the whole communities within their geopolitical boundaries. Emissions inventories should comprise two parallel analyses, one for local government operations and one for all emissions within the community, determined by the geopolitical boundaries of the jurisdiction.	Country/Regional Supplements are being developed in order to address some protocol issues in an appropriate local context. Currently a country supplement exists only for the U.S. The guidance draws heavily on the WBCSD/WRI GHG Protocol.	http://www.iclei.org/index.php?id=ghgprotocol

ID No. [1]	GHG Reporting Method/Initiative Title	Method (M), Initiative (I) or Both (B) [2]	Brief Description	Comments	Webpage Reference
23	Global Reporting Initiative (GRI)	I	The GRI is a voluntary corporate sustainability reporting initiative. The cornerstone of the framework is the Sustainability Reporting Guidelines. The third version of the Guidelines – known as the G3 Guidelines - was published in 2006. The environmental indicators section has specific indicators on GHG emissions and refers back to the WBCSD/WRI GHG Protocol for calculation methods. Indicators EN16 and EN17 cover direct and indirect GHG emissions.	Sector-specific GRI supplements provide some further guidance on reporting GHG emissions. GRI is planning to collaborate with WRI and CDP in the near future to look at ways of improving the transparency of GHG emissions reporting within sustainability reports.	http://www.globalreporting.org/ReportingFramework/ReportingFrameworkDownloads/
24	API/IPIECA GHG Compendium	M	Through the American Petroleum Institute (API) and the International Petroleum Industry Environmental Conservation Association (IPIECA), the oil and natural gas industry has provided a suite of tools for estimating GHG emissions. It includes API's updated 2009 compendium of emissions estimation methodologies, software for emissions estimation and inventorying, and guidelines (created by IPIECA) to assist in the accounting and reporting of emissions. This is a good example of an energy-intensive sector which has taken the WBCSD/WRI GHG Protocol and applied the principles to their industry to produce detailed guidance on boundaries and emission factors.	The guidelines provide detailed calculation methods and emission factors by split process operation that are tailored to the oil & gas industry. These techniques cover the calculation or estimation of emissions from the full range of industry operations – from exploration and production through refining, to the marketing and distribution of products. The methods can also be used for other industries which use fossil fuels. It is noted that International Association of Oil & Gas Producers (OGP) also produced a similar GHG Methodology in 1994. This method is in use by some oil & gas companies but a major update/revision to the method is planned (the 1994 version has been withdrawn from circulation). Other sectors such as mining, cement, metals and pulp & paper have developed parallel sector-specific methodologies based on the WBCSD/WRI GHG Protocol.	http://www.api.org/ehs/climate/new/index.cfm
25	The Carbon Trust Standard (CTS)	I	The Carbon Trust Standard (CTS) certification was created to provide a clear and robust definition of good practice and for use as an independent endorsement of an organisation's achievements in carbon reduction. Assessment against the Standard is undertaken by independent third-party assessors. It builds on other existing international Standards for the measurement of corporate carbon emissions, namely the WBCSD/WRI GHG Protocol and ISO14064 Part 1.	The CTS works with leading organisations to certify their performance in measuring, managing and reducing their GHG emissions. The CTS helps organisations to demonstrate commitment and action on climate change to the market place using a recognised CTS logo. To maintain use of the logo participants must meet defined emission reduction targets over a two-year certification cycle.	http://carbontruststandard.com/Aboutus/tabid/149/language/en-GB/Default.aspx

ID No. [1]	GHG Reporting Method/Initiative Title	Method (M), Initiative (I) or Both (B) [2]	Brief Description	Comments	Webpage Reference
26	US EPA Climate Leaders Inventory Guidance	I	Climate Leaders is an EPA industry-government partnership that works with companies to develop comprehensive climate change strategies. Partner companies commit to reducing their impact on the global environment by completing a corporate-wide inventory of their GHG emissions based on a quality management system, setting aggressive reduction goals, and annually reporting their progress to EPA. Through program participation, companies create a credible record of their accomplishments and receive EPA recognition as corporate environmental leaders.	The Climate Leaders GHG Inventory Guidance is a modification of the WRI/WBCSD GHG Protocol (by the EPA) that fits the needs of Climate Leaders more precisely.	http://www.epa.gov/stateply/resources/inventory-guidance.html
27	Environment Canada GHG Emissions Reporting Program	B	In March, 2004, the Government of Canada announced the introduction of mandatory reporting of GHG emissions by major emitters. By providing a more precise picture of the sources and amounts of Canada's GHG emissions, mandatory reporting should contribute to the development, implementation and evaluation of climate change and energy use policies and strategies. Unlike the National GHG Inventory which compiles GHG data at a national level, the GHG Emissions Reporting program applies only to the largest industrial GHG emitters in Canada. Reporters can submit their reports for each calendar year using the Electronic Data Reporting (EDR) system on the GHG Reporting Web site.	Note that the technical guidance document for 2010 reporting is currently not available, as it is under revision. Therefore much of the programme information is not easily accessible.	http://www.ec.gc.ca/pdb/ghg/ghg_home_e.cfm
28	Chicago Climate Exchange (CCX)	B	CCX is a cap and trade system whose Members make a legally binding emission reduction commitment. Members are allocated annual emission allowances in accordance with their emissions Baseline and the CCX Emission Reduction Schedule. Members who reduce beyond their targets have surplus allowances to sell or bank; those who do not meet the targets comply by purchasing a CCX Carbon Financial Instrument® (CFI®) contract. Each CFI contract	In Phase I (2003-2006), Members committed to reduce emissions a minimum of 1% per year, for a total reduction of 4% below Baseline. In Phase II (2007-2010), CCX Members commit to a reduction schedule that requires year 2010 emission reductions of 6% below Baseline at minimum. Emissions are quantified using continuous emission monitors (when available), or through use protocols developed by CCX and those developed by the WRI/WBCSD.	http://www.chicagoclimatex.com/content.jsf?id=72

ID No. [1]	GHG Reporting Method/Initiative Title	Method (M), Initiative (I) or Both (B) [2]	Brief Description	Comments	Webpage Reference
			represents 100 tCO2e.		
29	WBCSD/WRI GHG Protocol Scope 3 Reporting Standard	M	The new GHG Protocol Standard (part of the WBCSD/WRI Product and Supply Chain Initiative) will provide a method to calculate the GHG emissions associated with individual products and services across their full life cycles and of corporate value chains, taking into account impacts both upstream and downstream of the company's operations. The Scope 3 Standard focuses on the wider supply chain in terms of defining and quantifying indirect emissions arising from an organisation's activities and services.	It is recognised that the original WBCSD/WRI Corporate GHG Protocol gives limited guidance on scope 3 emissions and that organisations increasingly want to be able to calculate and report the GHG emissions from their wider supply chains using a verifiable standard. The WBCSD/WRI are also developing a Product GHG Accounting Standard in parallel to the Scope 3 Standard. The first drafts of the Standards were released for stakeholder review on November 11th 2009. Over sixty companies are involved in trials of the guidance and a number of stakeholder workshops are being held to finalise the Standard. The draft guidance sets out key principles to apply but is open to interpretation by the user.	http://www.ghgprotocol.org/first-drafts-of-product-and-scope-3-standards-released
30	US GHG Protocol Public Sector Standard	M	Building off 10 years of success in working with the corporate sector, WRI is now developing new accounting guidance for government operations - the US GHG Protocol Public Sector Standard. The Standard is intended as a flexible management tool enabling government agencies of all types to meet multiple reporting objectives. The initial focus of the Standard is government agencies in the US.	The Public Sector Standard will offer expanded guidance on how to address the unique organisational and structural characteristics of government agencies. This guidance emphasises the 'operational control' approach for inventories, and how to account for leased buildings and vehicle fleets. The Public Sector Standard is still at draft stage and is due to be finalised in 2010.	http://www.ghgprotocol.org/the-public-sector-works-with-ghg-protocol-to-develop-a-new-standard

Notes:

1. The method/initiative identification number (ID No.) assigned here is used throughout this report. Methods/initiatives are listed in no particular order in this table.
2. A 'method' (M) is a means of calculating a GHG emissions figure in tCO_2e and should provide guidance on choosing reporting boundaries and emission factors. An 'initiative' (I) defines the GHG report format and contents and may cover aspects such as public disclosure, target setting, emission reduction measures, assurance/verification requirements, benchmarking and league tables (and may also refer back to a prescribed 'method'). There are clearly some schemes which cover elements of both methods and initiatives (B).

Table 3.4 Major GHG Reporting Methods and Initiatives - Coverage

ID No.	GHG Reporting Method/Initiative Title	Region Where in Use [1]	Year of Current Version [2]	Main document length	Refers back to another method?	Voluntary or Mandatory scheme?	Covers Private Sector, Public Sector or Both?	Sector specific guidance? [3]
1	Carbon Disclosure Project (CDP)	Global	2010 guidance and questionnaire	61 page guidance document and 13 page questionnaire	Yes - WBCSD/WRI GHG Protocol	Voluntary	Both	No
2	WBCSD/WRI GHG Protocol Corporate Standard	Global	2004 (revised edition)	116 pages	No - Proprietary method	Voluntary	Private sector	Yes - key sectors are covered under separate guidance documents
3	IPCC 2006 GHG Workbook	Global	2006	5 large volumes, 100+ pages each	No - Proprietary method	Voluntary	Designed for national inventories	Yes - key sectors are covered under separate sections
4	ISO 14064: 2006 (Parts 1 and 3)	Global	2006	20 pages (part 1), 28 pages (part 3)	Is compatible with WBCSD/WRI GHG Protocol	Voluntary	Both	No
5	French Bilan Carbone	France	2007 (version 5.0)	113 pages	Compatible with WBCSD/WRI GHG Protocol and ISO14064	Voluntary (mandatory from 2011)	Both	Yes - key sectors are covered with the main guidance
6	US Regional Greenhouse Gas Initiative (RGGI)	US	2008 (revised model rule)	135 pages	Proprietary method that refers to a range of other guidance documents	Mandatory	Private sector	Guidance is given for emission-intensive sectors
7	US Climate Registry (TCR) General Reporting Protocol	US	2008 (version 1.1)	228 pages	Yes - WBCSD/WRI GHG Protocol and others	Voluntary	Both	In development
8	USEPA GHG Rule	US	2009	261 pages	Yes - WBCSD/WRI GHG Protocol, IPCC 2006 and others	Mandatory	Both - provided threshold is reached	Yes - covers 41 industrial sources
9	EU Emissions Trading Scheme (EU ETS)	EU	2007 MRV (2007/589/EC) plus amendments	85 pages	No - Proprietary method	Mandatory	Both - provided threshold is reached	Yes - emission factor guidance for covered sectors
10	US Securities and Exchange Commission (SEC)	US	2010	8 pages	Yes - WBCSD/WRI GHG Protocol	Mandatory	Private (publically traded)	No

ID No.	GHG Reporting Method/Initiative Title	Region Where in Use [1]	Year of Current Version [2]	Main document length	Refers back to another method?	Voluntary or Mandatory scheme?	Covers Private Sector, Public Sector or Both?	Sector specific guidance? [3]
	Guidance							
11	Climate Disclosure Standards Board (CDSB)	Global	2009 (draft for comment)	72 pages	Yes - WBCSD/WRI GHG Protocol and ISO 14064-1	Voluntary	Private (companies preparing financial statements under IFRSs)	No
12	Japanese Voluntary ETS (J-VETS)	Japan	FY2009 cycle	n/a	No data	Voluntary	Private sector	No data available
13	Japanese GHG Reporting Scheme	Japan	2006	No data	Data not available	Mandatory	Private sector	No data available
14	Australian Carbon Pollution Reduction Scheme (CPRS)	Australia	Scheme commences July 2011	Comprises 11 bills, the first of which is 559 pages (initial version)	Yes - Australian NGER	Mandatory - not in force yet	Both	Minimal
15	Australian National Greenhouse and Energy Reporting (NGER) Scheme	Australia	2008 (Reporting Guidelines)	52 pages (Reporting Guidelines); 375 pages (Technical Guidelines)	No - uses OSCAR (proprietary tool)	Mandatory	Private (Controlling corporations only)	No
16	Enterprise Carbon Accounting (ECA)	Global	n/a	n/a	n/a	Voluntary	Private sector	Sector-specific tools are available
17	UK Department for Environment, Food and Rural Affairs (DEFRA) Guidelines	UK	2009	75 pages	No - Proprietary method	Voluntary (mandatory from 2011)	Both	No
18	UK Carbon Reduction Commitment (CRC)	UK	2010 (Version 1)	99 pages	No - Proprietary method	Mandatory	Both	No
19	UK Climate Change Levy Agreement (CCLA)	UK	2001 plus amendments	Approx. 30 CCLA guidance documents	No - Proprietary method	Voluntary	Private	Agreements are split into sectors
20	Dutch Energy	Netherlands	2002	No data available	No	Voluntary	Private	No data available

ID No.	GHG Reporting Method/Initiative Title	Region Where in Use [1]	Year of Current Version [2]	Main document length	Refers back to another method?	Voluntary or Mandatory scheme?	Covers Private Sector, Public Sector or Both?	Sector specific guidance? [3]
	Covenant							
21	Californian Climate Action Registry (CCAR)	US	2009 (version 3.1)	132 pages	Yes - CCAR is based on the WBCSD/WRI GHG Protocol	Voluntary	Both	Yes for energy-intensive sectors
22	International Local Government GHG Emissions Analysis Protocol (IEAP)	Global	2009	56 pages	Follows principles of the WBCSD/WRI GHG Protocol	Voluntary	Public	No
23	Global Reporting Initiative (GRI)	Global	2006 (third version)	38 pages	Yes - WBCSD/WRI GHG Protocol and IPPC GHG Workbook	Voluntary	Both	Yes
24	API/IPIECA GHG Compendium	Global	2009 (third release)	807 pages	Proprietary method for calculation, refers to WBCSD/WRI GHG protocol for boundary setting	Voluntary	Private	Yes – oil & gas sector specific
25	The Carbon Trust Standard (CTS)	UK	2009	24 pages	Yes - WBCSD/WRI GHG Protocol and ISO14064	Voluntary	Both	No
26	US EPA Climate Leaders Inventory Guidance	US	2005	99 pages (Design Principles)	Yes - WBCSD/WRI GHG Protocol	Voluntary	Private sector	Yes
27	Environment Canada GHG Emissions Reporting Program	Canada	2009 (under revision)	Under revision	Yes - WBCSD/WRI GHG Protocol	Voluntary	Private sector	No
28	Chicago Climate Exchange (CCX)	US	2009	Over 10 protocol/project guidance documents, each ~30 pages	Yes - WBCSD/WRI GHG Protocol	Voluntary	Private sector	Yes - guidance given for different offset project types
29	WBCSD/WRI GHG Protocol Scope 3 Reporting Standard	Global	2009 (draft)	93 pages	No - Proprietary method	Voluntary	Both	None developed to date

ID No.	GHG Reporting Method/Initiative Title	Region Where in Use [1]	Year of Current Version [2]	Main document length	Refers back to another method?	Voluntary or Mandatory scheme?	Covers Private Sector, Public Sector or Both?	Sector specific guidance? [3]
30	US GHG Protocol Public Sector Standard	US	2010 - draft	143 pages	Yes - WBCSD/WRI GHG Protocol	Voluntary	Public sector	Yes - government agencies

Notes:

1. This column indicates the main world region/country where the method/initiative is commonly in use and/or originates from. It may also be used less commonly in other regions or by companies which have operations in that region but are headquarted elsewhere in the world.
2. This column indicates the year that the current version of the method/initiative was published or introduced.
3. This column indicates if the method/initiative provides and specific guidance for individual industry sectors that is different to or more extensive than the general guidance.

Table 3.5 Major GHG Reporting Methods and Initiatives - Uptake

ID No.	GHG Reporting Method/Initiative Title	Main Focus [(1)]	Threshold for Reporting	No. of organisations covered	Total emissions covered (tCO_2e)	Regulatory links
1	Carbon Disclosure Project (CDP)	large companies	None	CDP sends requests to 5,000 organisations per year. In 2009 the responding organisations included: c.2500 companies; 675 institutional investors; and,c.50 large corporate and government purchasers.	Global 500 reporting companies account for around 11.5% of total global emissions on the basis of direct (Scope 1) emissions. In 2009 CDP disclosed emissions are 3.6 billion tCO_2e.	Forms the basis of several other voluntary leadership schemes
2	WBCSD/WRI GHG Protocol Corporate Standard	large companies	None specified	Nearly all Fortune 500 companies use the Protocol. WBCSD/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.	In 2009 CDP disclosed emissions are 3.6 billion tCO_2e, the majority of which are calculated using the GHG Protocol	Forms the basis of several mandatory schemes
3	IPCC 2006 GHG Workbook	national inventories/ industrial processes	None specified	Used by all UNFCCC parties	Used by all UNFCCC parties	Kyoto Protocol reporting requires use of IPCC methods
4	ISO 14064: 2006 (Parts 1 and 3)	large organisations	None specified	Since the publication of ISO 14064, the standard has been adopted at a rate of one major GHG initiative every six weeks.	No data available	Adopted by many jurisdictions worldwide
5	French Bilan Carbone	large companies	500 employees	Over the last 4 years nearly 4,000 businesses, governments and communities have used Bilan Carbone (95% of carbon footprints were made by companies). Around 1,000 consultancy companies have been trained in the method.	No data available	Under Bill Grenelle II any French company with more than 500 employees is required to calculate a carbon footprint using the Bilan Carbone method (the proposed threshold was originally 250 employees but now exempts many SMEs).

ID No.	GHG Reporting Method/Initiative Title	Main Focus [1]	Threshold for Reporting	No. of organisations covered	Total emissions covered (tCO_2e)	Regulatory links
6	US Regional Greenhouse Gas Initiative (RGGI)	energy intensive companies	25 MW (approx. 35,700 tCO_2e/annum)	Power plants regulated under state RGGI programs account for approximately 95% of the region's total electric generation sector CO2 emissions.	Current members of the RGGI Memorandum of Understanding committed to a regional cap of 170 million tCO_2e to 2014. This cap will be reduced by 2.5% per year to 2018.	Each Participating State's RGGI CO2 Budget Trading Program is based upon its own statutory and/or regulatory authority
7	US Climate Registry (TCR) General Reporting Protocol	large companies/government bodies	None	There were 388 members (mostly large corporations) at the start of 2010	No summary data readily available	It is anticipated that any mandatory state-level GHG reporting will be linked with The Registry.
8	USEPA GHG Rule	large private and public sector organisations	25,000 tCO_2e/annum	6,400 entities are covered	Total emissions of 7,430 million tCO_2e/annum are covered	In response to the FY2008 Consolidated Appropriations Act (H.R. 2764; Public Law 110–161), EPA has issued the Final Mandatory Reporting of GHGs Rule
9	EU Emissions Trading Scheme (EU ETS)	energy intensive companies	20 MW (approx. 28,560 tCO_2e/annum) or production tonnage for some sectors	In 2007 there were 11,186 installations participating in the EU ETS	Verified EU ETS emissions for the EU27 were 2,050 million tCO_2 in 2007	EU ETS Directive 2003/87/EC
10	US Securities and Exchange Commission (SEC) Guidance	companies required to file a disclosure document with the SEC	None specified	All companies required to file a disclosure document with the SEC	No data available	Related to GHG. U.S. Securities Act Rule 408 and Exchange Act Rule 12b–20 require a registrant to disclose certain non-financial, material information.
11	Climate Disclosure Standards Board (CDSB)	large companies	None specified	Not applicable - still in draft	No data available	Not applicable
12	Japanese Voluntary ETS (J-VETS)	private sector	No data available	In the current cycle there are 500 businesses registered.	No data available	Not applicable
13	Japanese GHG	SMEs and large companies	Companies with >21 employees	Covers 14,840 facilities and	650 million tCO_2e per year (about 50% of Japan's	Act on Promotion of Global Warming Countermeasures; Act on

ID No.	GHG Reporting Method/Initiative Title	Main Focus [1]	Threshold for Reporting	No. of organisations covered	Total emissions covered (tCO_2e)	Regulatory links
	Reporting Scheme		and >3000 tCO_2e/annum for any GHG	1,450 transportation companies	emissions)	Rational Use of Energy
14	Australian Carbon Pollution Reduction Scheme (CPRS)	large companies	25,000 tCO_2e/annum of direct (scope 1) emissions	Estimated to be 1,000 entities	Estimated to be 75% of Australian national GHG emissions	The CPRS is seen as a key measure to reduce Australia's GHG emissions under their Kyoto Protocol obligations
15	Australian National Greenhouse and Energy Reporting (NGER) Scheme	large companies	Facilities: 25,000 tCO_2e/annum or >100 Terajoules	1,000 Controlling corporations and their subsidiary companies	No data available	National Greenhouse and Energy Reporting Act 2007
16	Enterprise Carbon Accounting (ECA)	private sector	Not applicable	Not applicable	Not applicable	Not applicable
17	UK Department for Environment, Food and Rural Affairs (DEFRA) Guidelines	private and public sector	Not applicable	No data available	No data available	The UK Climate Change Act requires the Government to introduce regulations requiring the mandatory reporting of GHG emissions under the Companies Act 2006 by 6th April 2012.
18	UK Carbon Reduction Commitment (CRC)	large non-energy intensive organisations	6000 MWh electricity/annum (approx. 3,240 tCO_2e/annum)with half-hourly meters installed	5,000	The CRC is designed to reduce carbon emissions in large non-energy intensive organisations by 1.2 million tonnes of carbon per year by 2020.	The draft CRC Order which was laid in Parliament on 19 January 2010
19	UK Climate Change Levy Agreement (CCLA)	energy-intensive industry	Covers IPPC installations	Covers 52 sectors and 9,000 installations	20.3 milliontCO_2 per year emissions were saved in total compared to sector baselines	Finance Act 2000; UK Climate Change Programme
20	Dutch Energy Covenant	energy-intensive industry	0.5 Petajoules per year	84% of energy intensive enterprises have signed the covenant	Projected reduction of approximately 5.7 million tCO_2 by 2012	Part of programme to meet Kyoto Protocol commitments

ID No.	GHG Reporting Method/Initiative Title	Main Focus [1]	Threshold for Reporting	No. of organisations covered	Total emissions covered (tCO_2e)	Regulatory links
21	Californian Climate Action Registry (CCAR)	private and public sector	25,000 tCO_2e/annum	Over 300 private and public sector organisations	No data available	Bill SB1771 and SB527
22	International Local Government GHG Emissions Analysis Protocol (IEAP)	Local governments	None specified	No data available	No data available	Links with local authority climate change programmes
23	Global Reporting Initiative (GRI)	large companies	None specified	No data available	No data available	The GRI is a large multi-stakeholder network
24	API/IPIECA GHG Compendium	oil &gas producers	None specified	No data available	No data available	Methodologies required by local regulations take precedence over API recommended methods
25	The Carbon Trust Standard (CTS)	private sector	None specified	Approximately 250 organisations have gained CTS certification	No data available	None
26	US EPA Climate Leaders Inventory Guidance	private sector	None specified	193 Climate Leaders Partner companies and 91 Small Business Network Members.	The combined U.S. annual GHG emissions of Climate Leaders Partners represent more than 8% of total annual U.S. GHG emissions	None
27	Environment Canada GHG Emissions Reporting Program	large, industrial GHG emitters	50,000 tCO_2e/annum (recently lowered from 100,000 tCO_2e/annum)	350 (2008)	263 million tCO_2e	Canadian Environmental Protection Act, 1999 (Canada) and the Climate Change Emissions Management Act (Alberta).
28	Chicago Climate Exchange (CCX)	private sector	None specified	There are currently 92 CCX Members	The total CCX baseline for 2010 is 681 million tCO_2e	CCX is an implementation platform for public policy and is complementary to emerging local, state, regional and US national policy on climate change.
29	WBCSD/WRI GHG Protocol Scope 3	private sector	None specified	Not applicable - in development	Not applicable - in development	None

ID No.	GHG Reporting Method/Initiative Title	Main Focus [1]	Threshold for Reporting	No. of organisations covered	Total emissions covered (tCO_2e)	Regulatory links
	Reporting Standard					
30	US GHG Protocol Public Sector Standard	public sector	None specified	No data available	No data available	Backed by US Environmental Protection Agency (EPA) and the US Department of Energy (DOE)

Notes:

1. This column indicates the main focus of the method/initiative in terms of which sectors and sizes of organisation are the main participants. Other sectors and sizes of organisation may also use the standard but to a lesser degree of uptake.

Table 3.6 Major GHG Reporting Methods and Initiatives - Calculation Methods

ID No.	GHG Reporting Method/Initiative Title	Boundary definition principles [1]	Emission factor source	GHGs covered	GWP basis [2]	Covers Scope 1?	Covers Scope 2?	Covers Scope 3?	Treatment of carbon sinks/removals	Materiality level	Baseline guidance
1	Carbon Disclosure Project (CDP)	Refers to WBCSD/WRI GHG Protocol	Refers to IPCC 2006	Kyoto 'basket of six'	Refers to IPCC second and fourth assessment report	Yes	Yes	Yes - disclosure of scope 3 emissions is encouraged	Sinks/removals are allowed but should be transparently reported	Refers to the AA1000 Standard	Basic guidance given
2	WBCSD/WRI GHG Protocol Corporate Standard	Operational or equity control basis	Tools provide electricity, fuel and process emission factors from various sources	Kyoto 'basket of six'	Not specified	Yes	Yes	Yes - optional - limited guidance provided	Provides limited guidance	A 5% materiality threshold is suggested	Guidance provided on selection and re-calculation of base year
3	IPCC 2006 GHG Workbook	National/territorial boundary	Proprietary methods	Kyoto 'basket of six'	IPCC second assessment report	Yes	Yes	Yes - within national boundary	Provides detailed methods	Provides guidance on assessing/reducing uncertainty	Provides guidance on base year and re-calculation
4	ISO 14064: 2006 (Parts 1 and 3)	Uses the 'facilities' building blocks approach. Includes a descriptive diagram. Adds 'financial boundaries' as an option for consolidating data.	Minimal guidance provided	Kyoto 'basket of six'	IPCC second assessment report	Yes	Yes	Yes - but is not specific	No guidance given	Limited guidance - open to interpretation by the verifier	Provides guidance on base year and re-calculation
5	French Bilan Carbone	Guiding principles and examples given for many sectors/activities	Various proprietary sources used	Kyoto 'basket of six'	IPCC 2001	Yes	Yes	Yes - covers a wide range of Scope 3/life cycle emissions	Sinks are excluded	Limited guidance provided	Limited guidance provided

ID No.	GHG Reporting Method/Initiative Title	Boundary definition principles [1]	Emission factor source	GHGs covered	GWP basis [2]	Covers Scope 1?	Covers Scope 2?	Covers Scope 3?	Treatment of carbon sinks/removals	Materiality level	Baseline guidance
6	US Regional Greenhouse Gas Initiative (RGGI)	Installation level direct emissions	Proprietary methods are specified	CO_2 plus CH_4 and SF_6 offsets	IPCC 2001	Yes	No	No	Landfill gas capture, SF_6 reduction and forestry offsets are allowed	Not well defined but typically 10% accuracy is required for metering	Detailed guidance is given but can be modified by participating states
7	US Climate Registry (TCR) General Reporting Protocol	Entity-wide direct and indirect GHG emissions according to the guidance provided by The Climate Registry. Choice of operational or equity control approach.	Uses a range of USEPA and IPPC factors. The Registry updates emission factors annually.	Kyoto 'basket of six'	IPCC second assessment report	Yes	Yes	Yes - optional - limited guidance given	Allows sinks/removals - reporting of these is optional	The Registry sets a threshold of 5%	Members may choose any year to begin reporting historical data
8	USEPA GHG Rule	Entity-level boundary defined under any U.S. Federal, State or local law that applies to it	Site measured factors for fuels to be used, EF formula provided for process GHG sources	Kyoto 'basket of six' and other fluorinated gases		Yes	No	No	Specifies methods for accounting for sinks/removals	Meters must be accurate to within 5%	First reporting year is 2010. Guidance is given for offset baselines
9	EU Emissions Trading Scheme (EU ETS)	Installation-level boundary based on meeting combustion capacity or production thresholds	Site measured factors for fuels to be used, EF formula provided for process GHG sources, IPCC 2006 for default values	CO_2, N_2O plus PFC in future	IPCC second assessment report	Yes	No	No	The "Linking Directive" allows operators to use a certain amount of Kyoto certificates from flexible mechanism projects in order to meet their emissions allocation quota.	2% for most installations (5% for others)	NAP process defines baseline for allocation purposes
10	US Securities and	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a

ID No.	GHG Reporting Method/Initiative Title	Boundary definition principles [1]	Emission factor source	GHGs covered	GWP basis [2]	Covers Scope 1?	Covers Scope 2?	Covers Scope 3?	Treatment of carbon sinks/removals	Materiality level	Baseline guidance
	Exchange Commission (SEC) Guidance										
11	Climate Disclosure Standards Board (CDSB)	Financial control boundary to match the group of companies for which consolidated financial statements are prepared	Refers to WBCSD/WRI GHG Protocol	Kyoto 'basket of six'	Not specified	Yes	Yes	Yes - encouraged	Encouraged to disclose use of offsetting, green energy, etc.	Likely to follow WBCSD/WRI GHG Protocol guidance	Outlines principles and examples
12	Japanese Voluntary ETS (J-VETS)	Facility-level boundary	No data available	Kyoto 'basket of six'	No data available	Yes	No	No	Allows sinks/removals against verified baseline	No data available	Average of 2003-2005
13	Japanese GHG Reporting Scheme	No data available	No data available	Kyoto 'basket of six'		Yes	Yes	Yes - move from Facility to Enterprise and Franchise Chain accounting	No data available	No data available	No data available
14	Australian Carbon Pollution Reduction Scheme (CPRS)	Refers to the NGER for calculation methods	Refers to the NGER	Kyoto 'basket of six'	IPPC second assessment report	Yes	No	No	No data available	No data available	No data available
15	Australian National Greenhouse and Energy Reporting (NGER) Scheme	Facilities under the operational control of the registered corporation - some additional guidance given	Department of Climate Change - factors provided in OSCAR tool	Kyoto 'basket of six'	IPPC second assessment report	Yes	Yes	No (not mandatory to report)	Companies can report net emissions after offsets/removals	Incidental emissions can be estimated (<2% aggregate or <0.5% per source)	Refers to WBCSD/WRI GHG Protocol
16	Enterprise Carbon Accounting (ECA)	Often the WBCSD/WRI GHG Protocol/Supply Chain Initiative and PAS2050 guidelines	A wide range of EF sources are used	Kyoto 'basket of six'	Commonly IPPC second assessment report or IPCC 2001	Yes	Yes	Yes - variable coverage of supply chain emissions	Yes - allows for sinks/removals	Requirement to minimise uncertainty in quantification as far as is	Refers to WBCSD/WRI GHG Protocol

ID No.	GHG Reporting Method/Initiative Title	Boundary definition principles [1]	Emission factor source	GHGs covered	GWP basis [2]	Covers Scope 1?	Covers Scope 2?	Covers Scope 3?	Treatment of carbon sinks/removals	Materiality level	Baseline guidance
		are followed for boundaries								practicable and avoid calculation errors.	
17	UK Department for Environment, Food and Rural Affairs (DEFRA) Guidelines	Recommends a financial control approach	Range of proprietary EF sources used	Kyoto 'basket of six' plus HCFCs	IPPC second assessment report	Yes	Yes	Yes - limited coverage (e.g. waste, standard supply chain factors)	Limited allowance for renewables	Refers to The AA1000 AccountAbility Principles Standard 2008	Guidance provided on selection and re-calculation of base year
18	UK Carbon Reduction Commitment (CRC)	All on site fuels, process CO_2 and imported electricity/heat paid for directly - applies a financial control boundary	taken from DEFRA guidelines and updated periodically	CO_2	n/a	Y - Process CO2	Yes	Not covered	No allowance made	90% of emissions must be accounted for	
19	UK Climate Change Levy Agreement (CCLA)	IPPC installation boundary	DEFRA 2001 factors	CO_2	n/a	Yes	Yes	No	Renewable energy and CHP crediting allowed	Refers to United Kingdom Accreditation Service (UKAS) guidelines	Detailed guidance given by sector
20	Dutch Energy Covenant	Installation-level boundary	No data available	CO_2	n/a	Yes	Yes	No	No data available	No data available	Baseline against the best 10% of global operators in their sector
21	Californian Climate Action Registry (CCAR)	Uses either management control or equity control boundaries	Various sources	Kyoto 'basket of six' plus HCFCs	IPPC second assessment report	Yes	Yes	Yes - optional	Guidance is given on several types of sink/removal	GHG inventories must be within the materiality threshold of 5% of the verifier's	Guidance provided on selection and re-calculation of base year

ID No.	GHG Reporting Method/Initiative Title	Boundary definition principles [1]	Emission factor source	GHGs covered	GWP basis [2]	Covers Scope 1?	Covers Scope 2?	Covers Scope 3?	Treatment of carbon sinks/removals	Materiality level	Baseline guidance
										estimate of total emissions.	
22	International Local Government GHG Emissions Analysis Protocol (IEAP)	Guidance given on organisational and geopolitical boundary setting	A number of sources are suggested but are not mandatory to use	Kyoto 'basket of six'	IPCC Second Assessment Report	Yes	Yes	Yes - optional	Limited guidance is given	Not specified	Not specified
23	Global Reporting Initiative (GRI)	Refers to WBCSD/WRI GHG Protocol	Refers to WBCSD/WRI GHG Protocol and IPPC 2001	Kyoto 'basket of six'	Refers to WBCSD/WRI GHG Protocol and IPPC 2001	Yes	Yes	Yes - optional	No guidance given	No guidance given	No guidance given
24	API/IPIECA GHG Compendium	Refers to WBCSD/WRI GHG Protocol	Proprietary data	Kyoto 'basket of six'	IPCC Second Assessment Report	Yes	Yes	No	Allows for renewable energy and CCS	Separate detailed guidance on uncertainty assessment is provided	No guidance given
25	The Carbon Trust Standard (CTS)	Operational control principle	DEFRA 2010	Kyoto 'basket of six'	IPCC Second Assessment Report	Yes	Yes	Yes - optional	Offsets are not counted towards meeting the Standard	No guidance given	Basic guidance given
26	US EPA Climate Leaders Inventory Guidance	Generally follows WBCSD/WRI GHG Protocol	Various proprietary US sources	Kyoto 'basket of six'	IPCC Second Assessment Report	Yes	Yes	Yes - optional	Detailed guidance given	Left to verifier's judgment	Detailed guidance given
27	Environment Canada GHG Emissions Reporting Program	Operational control principle	Various including regional fuel factors, USEPA and IPCC 2006	Kyoto 'basket of six'	IPPC second assessment report	Yes	No	No	No data available	No data available	No data available
28	Chicago Climate Exchange (CCX)	Operational control principle	Various including	Kyoto 'basket	IPPC second assessment	Yes	Yes - optional	Yes - optional	CCX has developed guidance for	Meter accuracy	Baseline is Member's average

ID No.	GHG Reporting Method/Initiative Title	Boundary definition principles [1]	Emission factor source	GHGs covered	GWP basis [2]	Covers Scope 1?	Covers Scope 2?	Covers Scope 3?	Treatment of carbon sinks/removals	Materiality level	Baseline guidance
			USEPA	of six'	report				offsets covering a range of project types	should be 5%	emissions during the 1998 - 2001 period (Phase II Baseline may be the single year 2000).
29	WBCSD/WRI GHG Protocol Scope 3 Reporting Standard	Mapping of value chain and prioritising relevant emissions	Various EF sources mentioned - user can choose	Kyoto 'basket of six'	No specified	No	No	Yes - detailed guidance	Guidance given	Guidance given - no threshold set	To be developed
30	US GHG Protocol Public Sector Standard	Operational control principle	Various including IPCC 2006	Kyoto 'basket of six'	IPPC second assessment report	Yes	Yes	Yes - optional	Detailed guidance given	Rule of thumb 5% threshold mentioned	Guidance given on baseline year and significant changes

Notes:

1. The principles for boundary definition are complex and most standard devote large sections of the guidance to this important issues. The reader should refer to the method/initiative guidance documents for further details.

2. The IPPC second assessment report was published in 1995 and is the basis of the Kyoto Protocol GWP values. The most recent IPPC fourth assessment report was published in 2007 and gave updated GWP values.

Table 3.7 Major GHG Reporting Methods and Initiatives - Reporting Requirements

ID No.	GHG Reporting Method/Initiative Title	Assurance/ verification required? (1)	Frequency of reporting?	Process for GHG target setting?	GHG reduction measures?	GHG management policy and systems?	Benchmarking or ranking?	Public disclosure?	Financial incentives/ penalties?
1	Carbon Disclosure Project (CDP)	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.	Annually	Encourages reporting of targets and performance against these	Asks key questions on reduction measures	Asks key questions on policy and systems	Reporting of emission intensity is encouraged, leadership is published based on scoring scheme	Yes - full company responses and league table are published	No
2	WBCSD/WRI GHG Protocol Corporate Standard	Provides basic guidance	Annually	Includes guidance on setting a GHG target.	Not covered	Not covered	Not covered	Provides basic guidance	No
3	IPCC 2006 GHG Workbook	UNFCCC requirements apply	Annually	No	No	No	Not covered	UNFCCC requirements	No
4	ISO 14064: 2006 (Parts 1 and 3)	Part 3 specifies requirements	Annually	No	No	Provides guidance on GHG inventory quality management and uncertainty assessment	Not covered	Focuses reporting on needs of users	No
5	French Bilan Carbone	Not prescribed	At least every 5 years	No	No	No	Limited benchmark examples provided	Not required	No
6	US Regional Greenhouse Gas Initiative (RGGI)	A verification report and certification statement signed by an independent	Annually	Yes - State carbon budgets	Takes account of reduction measures but	Not specified	Not covered	Yes - by state	Current price of allowances is low (€2-4/tCO_2). Proceeds will be

ID No.	GHG Reporting Method/Initiative Title	Assurance/ verification required? (1)	Frequency of reporting?	Process for GHG target setting?	GHG reduction measures?	GHG management policy and systems?	Benchmarking or ranking?	Public disclosure?	Financial incentives/ penalties?
		verifier is required			no early action crediting				used to promote energy conservation and renewable energy. There are penalties for non-compliance.
7	US Climate Registry (TCR) General Reporting Protocol	Participants must verify their emissions through a Verification Body accredited by ANSI. Participants with emissions of less than 1,000 tCO2e/annum can used simplified verification methods.	Annually	Optional to report	Optional to report	Optional to report	Provides brief guidance	Yes - participants must report total emissions through the Climate Registry Information System (CRIS).	No
8	USEPA GHG Rule	Independent certification of fuel measurement equipment is required. EPA does not require third party verification but participants must keep records to allow EPA to verify if required.	Annually	Not covered	Not covered	Provides guidance on GHG data quality management	Not covered	EPA will publish certain emissions data within confidentiality limits	No
9	EU Emissions Trading Scheme (EU ETS)	Operator must submit a monitoring plan and annual reports must be verified by a independent accredited verifier	Annually	NAP process defines allocations by installation	No requirement to report reduction measures but may be covered by	MRV plan must cover data quality, uncertainty assessment and meter	Not covered	Yes - via CITL	Current EU ETS allowances are trading at around €15/tCO2 but are expected to rise in future years. Penalties are in

ID No.	GHG Reporting Method/Initiative Title	Assurance/ verification required? [1]	Frequency of reporting?	Process for GHG target setting?	GHG reduction measures?	GHG management policy and systems?	Benchmarking or ranking?	Public disclosure?	Financial incentives/ penalties?
		using a risk assessment approach.			MRV report and trading of allowances can be viewed on the CITL	calibration			place for non-conformance.
10	US Securities and Exchange Commission (SEC) Guidance	Not required for GHG emissions	Annually	No	No - but participants need to disclose key climate change related risks and opportunities	No - but participants need to disclose key climate change related risks and opportunities	No	As required for standard SEC disclosures - not specific to GHG emissions	No penalties or incentives related to GHG emissions
11	Climate Disclosure Standards Board (CDSB)	No	Annually	Encourages reporting of targets and performance against these	Not required	Encourage disclosure of management processes for GHGs	Not required	Encouraged	n/a
12	Japanese Voluntary ETS (J-VETS)	Base year emissions were independently verified by the end of October 2005	Annually	No data available	Companies must provide detailed information on their GHG reduction measures in their application	No data available	No data available	No data available	Subsidy level is 33% of cost of GHG reduction measures
13	Japanese GHG Reporting Scheme	Not required	Annually	No data available	Must include an outline of the increase/decrease of emissions	No data available	No data available	Yes-results publically announced	If no reporting or false reporting, fine of approx. US $2,000

ID No.	GHG Reporting Method/Initiative Title	Assurance/ verification required? (1)	Frequency of reporting?	Process for GHG target setting?	GHG reduction measures?	GHG management policy and systems?	Benchmarking or ranking?	Public disclosure?	Financial incentives/ penalties?
14	Australian Carbon Pollution Reduction Scheme (CPRS)	If >125,000 tCO2e/annum, emissions report must be audited	Annually	No data available	No data available	No data available	No data available	Reporting via NGER	The administrative penalty for failure to surrender sufficient allowances is 110% of the average auction price
15	Australian National Greenhouse and Energy Reporting (NGER) Scheme	Yes - NGER Auditor Registration Instrument under development	Annually	No data available	No data available	No data available	No data available	Register published, but not emissions	No data available
16	Enterprise Carbon Accounting (ECA)	n/a	Typically annual	n/a	n/a	n/a	n/a	Not required	n/a
17	UK Department for Environment, Food and Rural Affairs (DEFRA) Guidelines	Supports independent assurance	Annually	Provides some guidance and examples	No guidance given	Suggests establishing a quality management system for GHG data	Suggests reporting of emissions intensity	Recommends public disclosure	No
18	UK Carbon Reduction Commitment (CRC)	UK Environment Agency will conduct third party audits of 20% of participants every year	Annually	No	No	No	One league table will be used for all participants. Three metrics are used to calculate the score and level of revenue recycling	Yes - league table	During the introductory phase, allowances will be sold at a fixed price of £12 per tonne of CO_2. There are financial penalties for non-reporting.
19	UK Climate Change Levy Agreement	Yes - refers to United Kingdom	Milestones every 2	Yes - sector agreements	Does not require	Data quality management	Benchmarks are used to define	Government publishes overall	Yes - removal of levy discount for

ID No.	GHG Reporting Method/Initiative Title	Assurance/ verification required? (1)	Frequency of reporting?	Process for GHG target setting?	GHG reduction measures?	GHG management policy and systems?	Benchmarking or ranking?	Public disclosure?	Financial incentives/ penalties?
	(CCLA)	Accreditation Service (UKAS) guidelines	years		reporting of measures	systems must be in place	sector targets	progress reports	non-compliance
20	Dutch Energy Covenant	No data available	Annually	Benchmarked against top 10% of companies in sector	No data available	No data available	Benchmarked against top 10% of companies in sector	Government publishes overall progress reports	Participants are exempt from any additional energy/GHG reduction policies
21	Californian Climate Action Registry (CCAR)	Independent verification is required	Annually	No guidance provided	Not required	Verifier requires information on GHG management systems	No guidance provided	Public disclosure is a requirement of membership	No
22	International Local Government GHG Emissions Analysis Protocol (IEAP)	Not specified	Annually	Not specified	Not required	Not specified	Not specified	The intention is for public reporting	No
23	Global Reporting Initiative (GRI)	No guidance given	Annually	Not specified	Indicator EN18 covers initiatives to reduce GHG emissions and reductions achieved.	Not specified	Not specified	The intention is for improved public sustainability reporting	No
24	API/IPIECA GHG Compendium	No guidance given	Annually	No guidance given	Separate guidance on GHG reduction measures is provided	Not specified	Not specified	Not specified	No
25	The Carbon Trust	Third-party verification every	Every two	Negotiable	Basic guidance	Basic guidance	Basic guidance	Yes - basic data	No

ID No.	GHG Reporting Method/Initiative Title	Assurance/ verification required? (1)	Frequency of reporting?	Process for GHG target setting?	GHG reduction measures?	GHG management policy and systems?	Benchmarking or ranking?	Public disclosure?	Financial incentives/ penalties?
	Standard (CTS)	two years	years	targets	given	given	given	published	
26	US EPA Climate Leaders Inventory Guidance	Independent verification recommended	Annually	Detailed guidance given	Participants must set GHG emissions reduction goals over the next 5 to 10 years	Detailed guidance given	Guidance given	Yes - participation, reduction pledge, and accomplishments achieved	No
27	Environment Canada GHG Emissions Reporting Program	No data available	Annually	No data available	No data available	No data available	No data available	Yes - via Environment Canada	Financial penalties for failure to report or material mis-statement of emissions
28	Chicago Climate Exchange (CCX)	Emissions are reported annually, and are subject to external audit and verification by FINRA.	Annually	6% target by 2010 is mandatory for Members	Detailed guidance given	Guidance given	Minimal guidance given	Yes - CCX trade data and individual Member reports are published	Yes - Members who have a shortfall must purchase CCX allowances.
29	WBCSD/WRI GHG Protocol Scope 3 Reporting Standard	Uses the term 'Assurance' and gives detailed guidance	Annually	To be developed	To be developed	To be developed	No guidance given	Yes - recommended	No
30	US GHG Protocol Public Sector Standard	Verification is recommended	Annually	Detailed guidance given	Guidance given	Guidance given	Minimal guidance given	Yes - recommended	No

Notes:

1. The terms ‘verification’ and ‘assurance’ are used interchangeably in different contexts/regions. In Europe, ‘verification’ normally applies to a mandatory scheme, whilst ‘assurance’ normally applies to a voluntary scheme.

Table 3.8 Overview of Key Features and Statistics for the Major Methods and Initiatives

Feature	Methods/Initiatives with this feature	Number with this feature (%)
• Methodological basis linked to WBCSD/WRI GHG Protocol	• CDP, ISO 14064, Bilan Carbone, US Climate Registry, USEPA GHG Rule, CDSB, California CAR, ICLEI, GRI, API, Carbon Trust, USEPA Climate Leaders, Environment Canada, Chicago CCX	14/29 (48%)
• Sources of emission factors quoted	- IPPC 2006 (CDP, Climate Registry, EU ETS, Environment Canada, GHG Protocol) - GHG Protocol (DEFRA) - US Regional GHG Initiative - AU Department of Climate Change (AU NGER) - DEFRA 2010 (UK CCLA, CRC, Carbon Trust) - API/IPIECA (Oil & gas sector) - Company monitoring/calculation (ISO 14064, EU ETS) - Various sources (GHG Protocol, GHG Protocol Scope 3, US GHG Public Sector, Bilan Carbone, California CAR, ICLEI, Climate Leaders, Environment Canada, Chicago CCX)	14/30 (47%)
• Sector specific guidance provided	• Iron & Steel (GHG Protocol, USEPA Climate Leaders) • Cement (California CAR, USEPA Climate Leaders) • Power (California CAR) • Forestry (California CAR) • Local government (California CAR, US GHG Public Sector, ICLEI) • Oil & gas (API/IPIECA) • Guidance covering many sectors: GHG Protocol (12 sectors), IPPC 2006, Bilan Carbone, USEPA GHG Rule, Climate Registry, ECA, UK CCLA, GRI, USEPA Climate Leaders	13/30 (43%)
• SME specific guidance provided	• USEPA Climate Leaders, DEFRA guidance, CDP Supply Chain	3/30 (10%)
• Relative flexibility in standards (i.e. level of user interpretation allowed)	• Low (typically mandatory schemes with well defined minimum standards) - US RGGI, EU ETS, UK CRC, AU CPRS, UK CCLA, Chicago CCX, J-VETS • Medium (typically voluntary schemes with flexibility but some limits on user interpretation) - GHG Protocol, ISO 14064, CDSB, SEC, ICLEI, API, GHG Protocol Scope 3, US GHG Public Sector, DEFRA Guidance, California CAR, Carbon Trust, USEPA Climate Leaders, Environment Canada, Bilan Carbone, Climate Registry, USEPA GHG Rule, NL Covenant, IPPC, AU NGER, Japan GHG • Medium to High (typically voluntary reporting schemes with flexibility for a reasonable degree of user interpretation)- CDP, GRI, ECA	7/30 (23%) 20/30 (67%) 3/30 (10%)
• Is verification/ assurance required?	• Required - ISO 14064, US RGGI, Climate Registry, EU ETS, J-VETS, AU CPRS, AU NGER, UK CRC, UK CCLA, California, Carbon Trust • Recommended - GHG Protocol, DEFRA, USEPA GHG Rule	11/30 (37%) 3/30 (10%)
• Public disclosure is required/ recommended	• CDP, US RGGI, Climate Registry, USEPA GHG Rule, EU ETS, Japan GHG, AU CPRS, AU NGER, UK CRC, UK CCLA, NL Covenant, California CAR, ICLEI, GRI, API, Carbon Trust, USEPA Climate Leaders, Environment Canada, Chicago CCX	19/30 (63%)
• Sets GHG reduction targets	• Required - US RGGI, EU ETS, J-VETS, Japan GHG, UK CCLA, NL Covenant, Climate Leaders, Chicago CCX, AU CPRS, UK CRC • Recommended - GHG Protocol, CDP, DEFRA, API, Carbon Trust, US GHG	11/30 (37%) 7/30 (23%)

Feature	Methods/Initiatives with this feature	Number with this feature (%)
	Public Sector, Climate Registry	
• Provides incentives	• Reputational - Leadership index (CDP, USEPA Climate Leaders) - League table (UK CRC) - Public Disclosure (19/30 including CDP, USEPA Climate Leaders and UK CRC require/recommend this) • Reporting pressure - Investor request (CDP, SEC, CDSB, Chicago CCX, EU ETS, UK CRC) - Legislation/ mandatory (8/30 including EU ETS and UK CRC, 2 more may become mandatory) - Voluntary to avoid legislation (Dutch Energy Covenant, UK Climate Change Levy Agreement) • Financial - Cost of carbon (US RGGI, EU ETS, UK CRC, Chicago CCX) - Penalties (EU ETS, Japan GHG, AU CPRS, UK CRC, UK CCLA, Environment Canada) - Tax reductions/recycling (UK CCLA, UK CRC)	19/30 (63%) 10/30 (33%) 8/30 (27%)
• Other notable features	- Protocols developed in consensus with industry, environmental and governmental stakeholders (US Climate Registry) - League table with revenue recycling (UK CRC) - Climate Change levy on energy to non-domestic users (UK CCLA) - Sector agreements for target setting to receive levy rebate (UK CCLA) - Pledge with energy intensive sectors on energy efficiency in exchange for no regulation (NL Energy Covenant). Measurement by benchmarking to top 10% performers - Electronic submission (California CAR, CDP, Environment Canada)	n/a

3.3 Observations about Major Methods and Initiatives

The tables presented above support a number of initial observations about common tendencies, trends and issues relevant to the major GHG reporting methods and initiatives, and their application.

➢ ***Complexity and Ease of Use***

- Many of the calculation methods are complex and require significant technical knowledge to understand and apply the principles. Often they are presented in long guidance documents which are time-consuming to read and difficult for the non-technical reader to understand. Typically the standards involve over 100 pages of documentation and contain a number of associated documents, software tools, guiding principles, nuances, exceptions and worked examples. Even the 'simplified' guidance which has been prepared by some organisations (e.g. the UK DEFRA Guidelines, 75 pages) requires significant time and resources to implement;

- Some sectors have unique GHG emission sources (e.g. mine methane leakage; methane from landfilling of waste; adipic acid manufacture N_2O emissions; aluminium sector PFC emissions; cement kiln CO_2 emissions) which have led to the development of specific reporting guidance and use of tailored calculation methods and non-standard emission factors. These unique emission sources which are specific to some sectors generally require a separate approach to the main methodologies which tend to be more generic;
- The level of complexity in GHG reporting is reaching a level approaching that of financial reporting.
- There is a lack of readily available summaries of each method/initiative and/or limited statistical data on coverage and uptake. It is difficult and time consuming to review and compare each method/initiative. For users it is sometimes difficult to determine which method or initiative would best meet their needs; and,
- Important issues of coverage and key calculation and reporting requirements are often not clearly stated or are hidden within the main document (e.g. which GWPs are used? is verification required?).

➢ ***Variability***

- Multiple methods are in use across different regions and jurisdictions with different interpretations in use. This is a significant problem for companies and regulators in terms of harmonization, simplification and ease of use [(4)];
- There are a large number of schemes, many of which have similar names, are linked in some way or overlap in terms of geographical/sector coverage. There is clearly a lot of interest in GHG reporting and several stakeholders started to act more or less the same time, leading to multiple approaches being developed;
- Voluntary methods are open to varying degrees of interpretation by the user whilst mandatory methods tend to be much more prescriptive. An example of this can be seen on the issue of boundary setting. Voluntary methods such as the WBCSD/WRI GHG Protocol, and voluntary reporting schemes such as CDP, allow the user to select the boundary based on a number of options (e.g. operational or financial control; equity share), to ensure maximum flexibility. By way of contrast, mandatory schemes and their associated calculation methods, such as those for the UK Carbon Reduction Commitment and the schemes linked to trading of emissions allowances or permits (e.g. EU ETS; JVETS), define quite precisely the boundary, to ensure consistency in reporting between organisations covered by the scheme;
- The level of verification/assurance required varies significantly between methods/initiatives. A total of 11 out of the 30 methods/initiatives

[(4)] The ICAEW, Carbon Disclosure Standards Board, ACCA and CIPFA have joined forces with other accountancy institutes from around the world to urge political leaders to produce a single carbon reporting standard. The institutes submitted an open letter to the attendees of the Copenhagen global climate change summit to produce a single set of standards for climate change related disclosures. (http://www.accountancyage.com/accountancyage/news/2254517/calls-global-standard-carbon)

reviewed require some form of verification, assurance or audit. These tend to be the mandatory schemes, although the voluntary schemes in USA also have a significant focus on verification/assurance. Another 3 out of the 30 methods/initiatives simply recommend (but do not require) verification/assurance;

- Most methods/initiatives cover scope 1 and 2 emissions. There is a large degree of variation in the coverage of Scope 3 emissions. For example, the treatment of sub-contracted operations, franchises, business travel and waste-related emissions varies significantly across methods and limited guidance is given. For exactly this reason, the WBCSD/WRI GHG Protocol has recently developed detailed (draft) guidance on Scope 3 reporting;
- There is significant variation between methods in terms of defining reporting boundaries although the WBCSD/WRI GHG Protocol appears to be referred to most commonly. For example, the inclusion/exclusion of emission sources such as sub-contracted activities, franchises, leased assets and the treatment of renewables, land-use and carbon offsets varies considerably between methods;
- Many methods and initiatives are adaptations of other leading methods and schemes. For example, around half of the 30 major methods for company-wide reporting refer to the WBCSD/WRI GHG Protocol, which itself makes reference to other calculation methods (e.g. IPCC emission factors). Equally, many of the methods for installation-level accounting and reporting bear similarities to the EU ETS;
- Treatment of carbon sinks and removals is highly variable across the methods and initiatives. Guidance on the GHG impacts at a company/organisation level related to Land Use, Land Use Change and Forestry (LULUCF) is particularly poorly developed; and,
- The lack of standardisation on key issues such as boundary setting, choice of emission factors, allowance for offsets, etc. means that comparison of GHG reports from different companies, regions and sectors is difficult. Whilst it is unlikely that market distortions have been introduced as a result, it means that users of publicly reported data (e.g. investors and other stakeholders) can have less confidence in the comparability of that data than they might otherwise have, thus limiting their ability to use the data to inform investments or other decisions. The lack of standardisation also leads inevitably to an additional level of complexity (and cost) for organisations that find themselves subject to numerous different reporting requirements.

➢ ***Coverage of Emissions***

- Coverage of GHG emissions reporting by each method/initiative is highly variable in terms of reporting thresholds, GHGs covered, sectors included, source of emission factors, etc. Whilst the majority of schemes and methods reviewed (24 out of the 30 reviewed) cover the basket of six Kyoto gases, others specifically focus on CO_2 only (e.g. UK CRC) or have

begun with a focus solely on CO_2 but are now expanding to cover some non-CO_2 GHGs (e.g. EU ETS);

- Most GHG calculation methods and reporting initiatives are aimed at covering emissions sources for energy-intensive operations, typically found in large private sector companies (e.g. the EU ETS MRV guidelines and the WBCSD/WRI GHG Protocol). Simple guidance for SMEs is rare;
- Most methods and initiatives have been updated and expanded to cover new sectors and emission sources (particularly scope 3) in the last few years and continue to evolve in line with changing reporting practices and business and regulatory needs. This may cause problems for companies in terms of updating baselines and adapting existing internal reporting systems to incorporate new guidance; and,
- A number of calculation tools are available in different formats to cover different sectors and emission sources. Methodologies such as the WBCSD/WRI GHG Protocol and US Climate Registry General Reporting Protocol make available Excel tools to support the accounting and reporting process for a range of emissions-intensive sectors.
- In addition to this, stand-alone proprietary GHG management software has been developed by a significant number of software vendors to facilitate the process of corporate GHG data management and reporting across a wide range of facilities, regions, sectors and GHG emission sources. However, these software tools are often complex and lack transparency. A particular issue of coverage is how they treat scope 3 emissions and what emission factors are applied (often product-based LCA factors are used which may not be appropriate for company GHG reporting).

➢ ***Gaps***

- Few methods or initiatives provide incentives such as benchmarks, league tables and financial penalties/rewards. Only those mandatory ETS schemes with auction of allowances have the potential to provide substantial financial incentives/penalties;
- There is a lack of clear statement of a 'mandatory minimum' GHG reporting requirements in most of the voluntary methods and initiatives. Instead, the guidance is often 'aspirational' in tone and explains the principles to apply with examples and references to other sources;
- In the attempt to ensure high uptake and adaptability to cover different situations, most voluntary methods and initiatives have shied away from being prescriptive on key issues or have put complex arrangements in place to ensure adaptability; and,
- Few methods or initiatives link reporting to target setting or require information on GHG reduction measures or company GHG policy and management systems.

The above issues are considered further in Sections 4, 5 and 6 of this report.

4. Comparison of GHG Reporting Methods and Initiatives

4.1 Shortlist of Methods and Initiatives

A total of 30 'major' GHG reporting methods and initiatives have been identified during Tasks 1 and 2 of the study. In order to conduct a more detailed assessment of the methods and initiatives against a set of agreed criteria (Tasks 3 and 4), a shortlist needs to be chosen from the schemes identified.

The shortlist of methods and initiatives is intended to avoid duplication (e.g. similar schemes are excluded) and to cover as far as possible:

- A spread of both calculation methods and reporting initiatives;
- The most widely adopted/recognised (based on the number of companies using them, emissions and sectors covered);
- The most commonly referred to (e.g. methods and initiatives referred to or used as the basis for other methods/initiatives);
- Experience from around the world (e.g. not just EU but also leading schemes globally and in other world regions);
- Voluntary and mandatory schemes which provide experience relevant to a range of possible policy options and scenarios; and,
- Methods and initiatives covering large and small companies/organizations in both the private and public sectors.

The choices for the shortlist were discussed with DG Environment and the agreed shortlist of nine methods/initiatives is shown in Table 4.1 (see Annex B for the basis of inclusion/exclusion from the shortlist). It is noted that the shortlist:

- covers seven schemes which are pure reporting 'methods';
- includes one pure reporting 'initiative' (CDP);
- covers two schemes which are 'both' methods and initiatives (Bilan Carbone and UK CRC);
- includes the UK CRC which is a mandatory scheme whilst the remaining shortlisted schemes are voluntary;
- includes methods/initiatives which have unique features such as a leadership index and which address emerging issues such as detailed Scope 3 guidance; and,
- represents methods/initiatives that cover a range of sectors and SMEs in addition to large companies.

The EU ETS is part of European Union law therefore any other initiatives have to be adjusted to it or need to be complementary. This is why the EU ETS is not included in the comparison.

Table 4.1 Shortlist of GHG Reporting Methods and Initiatives for Comparison Exercise

Global	Europe	Rest of World
• 1. Carbon Disclosure Project (CDP) *(voluntary; widely adopted)*	• 5. French Bilan Carbone *(voluntary; widely recognised)*	• 26. US EPA Climate Leaders Inventory Guidance *(non-European; voluntary; provides incentives)*
• 2. WBCSD/WRI GHG Protocol Corporate Standard *(voluntary; widely recognised; basis for other standards*)	• 17. DEFRA Company GHG Guidance (widely recognised; sets minimum standards)	• 30. US GHG Protocol Public Sector Standard *(public sector; voluntary; adapted from existing methods)*
• 4. ISO 14064: 2006 (Parts 1 and 3) *(voluntary; verifiable international standard)*	• 18. UK Carbon Reduction Commitment (CRC) *(mandatory; covers smaller emitters)*	
• 29. WBCSD/WRI GHG Protocol Scope 3 Reporting Standard (*voluntary; covers Scope 3 in detail*)		

4.2 Development of Evaluation System and Criteria

A set of criteria to allow assessment of the shortlisted GHG reporting methods and initiatives was developed for discussion with DG Environment. In addition feedback from methodology and initiative owners was sought via a Webinar to help refine the criteria. The chosen criteria are shown in Table 4.2.

A total of 6 main categories and 23 individual criteria were chosen. This gives a total of 230 individual assessments to be completed (10 methods/initiatives * 23 criteria). The criteria headings are as follows:

1. Uptake Rate
2. Reliability and Robustness
3. Compatibility and Comparability
4. Ease of Use
5. Incentives for Use
6. GHG Abatement Potential

In order to allow assessment of shortlisted methods and initiatives using these criteria, a simple grading scale combined with colour coding was applied as shown in Figure 4.1.

Figure 4.1 Grading Scale for Assessment of Shortlisted Methods/Initiatives Against Criteria

Grading scale for assessment against criteria
Low (red) = does not meet criteria based on available data
Medium (amber) = partially meets criteria based on available data
High (green) = fully meets criteria based on available data

The aim of the grading system is to help identify strengths and limitations of existing major GHG reporting methods and initiatives. The colour scheme helps to identify common trends in terms of key features and gaps. The overall grades (total across 9 shortlisted methods/initiatives) help to identify areas to focus on for future development of methods and initiatives. No weighting of the individual criteria grades or criteria headings has been applied in calculating an overall grade. In making the assessments, a number of current best practice examples were referred to as shown in Table 4.3

Table 4.2 Criteria for Assessment of Shortlisted Methods and Initiatives

Category	Criteria	Evidence Required
1. Uptake Rate	**1a.** Is the method/initiative widely recognised by stakeholders?	• Sponsorship/backing by business leaders, NGOs and policy makers
	1b. Is the method/initiative widely used currently?	• Current number of participants; type of company/sectors involved; emissions coverage
	1c. What is the maximum feasible uptake rate?	• Features of the method or initiative which enhance or detract from increasing the wider uptake rate (i.e. features which limit the global uptake beyond the target audience)
	1d. Are resources in place to promote increased uptake?	• Current and planned investment in method or initiative; regular updating; promotion/marketing
2. Reliability and Robustness	**2a.** Sets out principles of reporting?	• Clear guidance on transparent reporting; defines boundary and calculation principles (e.g. treatment of offsets; Scope 3); avoids double-counting
	2b. Sets minimum standards?	• Uses the word 'shall' to define minimum requirements; specifies detailed calculation rules; reduces gaming potential; specifies best practices
	2c. Are results are verifiable?	• Methods and guidance are well documented allowing reproducible and verifiable calculation of GHG emissions; guidance on materiality and uncertainty assessment is provided
	2d. Uses recognised data sources?	• Emission factors and GWP values are from reputable sources; activity and other input data required is commonly available within companies
3. Compatibility and Comparability	**3a.** Is the method or initiative applicable across a wide range of sectors?	• Guidance can accommodate needs of a range of sectors; can be adapted to covers public and private sector and NGOs
	3b. Aligns with EU and Member State policies?	• Method or initiative supported by or compatible with existing European and Member State policies/initiatives
	3c. Compatible with other major methods and initiatives?	• Supported by or compatible with other 'major' methods and initiatives; key differences from other methods/initiatives are explained
	3d. Allows comparison between participants?	• Allows meaningful comparison of similar organisations; generates a body of useful data for investors, customers, policy makers and regulators
4. Ease of Use	**4a.** Is the method widely available and free of charge to use?	• Method freely available on a recognised website
	4b. Are software tools available to simplify calculations?	• Spreadsheet/software tools provided; includes emission factors and range of reporting formats (e.g. EU ETS, CDP)
	4c. Is there an associated established platform for reporting?	• Links to recognised reporting platform (e.g. CITL, EPER)
	4d. Is there specific, simple guidance for SMEs and key sectors?	• Streamlined guidance provided for SMEs and sector-specific tools available
5. Incentives for Use	**5a.** Does the method or initiative link with reputational drivers?	• Method or initiative has features to help demonstrate leadership and commitment
	5b. Is there provision for financial rewards and penalties?	• System in place to provide meaningful recognition of achievements and sanctions for underperformance
	5c. Does the method or initiative link to regulatory requirements?	• Method or initiative helps participants to meet regulatory commitments
	5d. Minimises competitive distortions?	• Aligns with methods and initiatives used outside Europe; sets common standards that are scalable to different company sizes
6. GHG Abatement Potential	**6a.** Is there are process for setting GHG emission reduction targets?	• Detailed guidance given on target setting and reporting progress
	6b. Is guidance on baselines, projections and benchmarking provided?	• Process for defining base year, future projections and benchmarks in place
	6c. Do the reporting requirements link to implementation of GHG reduction measures?	• Method or initiative requires reporting on implementation

Table 4.3 Best Practice Examples for Assessment of Shortlisted Methods and Initiatives

Category	Criteria	Current Best Practice Examples
1. Uptake Rate	**1a.** Is the method/initiative widely recognised by stakeholders?	• CDP investor support; Bilan Carbon policy maker backing
	1b. Is the method/initiative widely used currently?	• WBCSD/WRI GHG Protocol uptake levels
	1c. What is the maximum feasible uptake rate?	• WBCSD/WRI GHG Protocol flexibility & comprehensive coverage of sources/sectors
	1d. Are resources in place to promote increased uptake?	• CDP and WBCSD/WRI GHG Protocol promotion programmes
2. Reliability and Robustness	**2a.** Sets out principles of reporting?	• WBCSD/WRI GHG Protocol guidance
	2b. Sets minimum standards?	• ISO10464; DEFRA GHG guidance; USEPA Climate Leaders Index
	2c. Are results are verifiable?	• ISO10464; DEFRA GHG guidance; USEPA Climate Leaders Index
	2d. Uses recognised data sources?	• DEFRA GHG guidance; USEPA Climate Leaders Index
3. Compatibility and Comparability	**3a.** Is the method or initiative applicable across a wide range of sectors?	• WBCSD/WRI GHG sector-specific guidance and supply chain (Scope 3) guidance
	3b. Aligns with EU and Member State policies?	• DEFRA GHG guidance; Bilan Carbone process
	3c. Compatible with other major methods and initiatives?	• WBCSD/WRI GHG Protocol reference standard for compatibility
	3d. Allows comparison between participants?	• CDP leadership index; USEPA climate leaders index, UK CRC league table
4. Ease of Use	**4a.** Is the method widely available and free of charge to use?	• WBCSD/WRI GHG Protocol; DEFRA GHG guidance
	4b. Are software tools available to simplify calculations?	• WBCSD/WRI GHG Protocol and USEPA Climate Leaders Index toolsets
	4c. Is there an associated established platform for reporting?	• CDP website; USEPA Climate Leaders Index
	4d. Is there specific, simple guidance for SMEs and key sectors?	• DEFRA and USEPA Climate Leaders Index guidance for SMEs
5. Incentives for Use	**5a.** Does the method or initiative link with reputational drivers?	• CDP leadership index; UK CRC league table
	5b. Is there provision for financial rewards and penalties?	• UK CRC revenue recycling
	5c. Does the method or initiative link to regulatory requirements?	• UK CRC and Bilan Carbone regulatory alignment
	5d. Minimises competitive distortions?	• WBCSD/WRI GHG Protocol and CDP global coverage
6. GHG Abatement Potential	**6a.** Is there are process for setting GHG emission reduction targets?	• UK CRC; USEPA Climate Leaders Index
	6b. Is guidance on baselines, projections and benchmarking provided?	• UK CRC; USEPA Climate Leaders Index
	6c. Do the reporting requirements link to implementation of GHG reduction measures?	• UK CRC; USEPA Climate Leaders Index

4.3 Assessment of Methods and Initiatives

In assessing the shortlisted methods and initiatives against the agreed criteria, a range of data sources were used in arriving at individual criteria grades. These data sources included:

- Review of the shortlisted method and initiative standards/guidance documents, supplements, websites and associated software tools;
- Review of leading company websites across a range of sectors to understand the implementation issues for each method/initiative;
- Review of literature sources and NGO reports which compare and contrast methods and report on their uptake; and,
- Input from ERM subject experts covering the different geographic regions of interest.

The results of the assessment are summarised in Tables 4.4 to 4.9. Table 4.10 summarises the key strengths and limitations of the shortlisted methods and initiatives. Table 4.11 and Figures 4.2 to 4.7 indicate the overall evaluation for the 10 shortlisted methods and initiatives against the individual criteria. A relative low, medium and high grading scale is used as described previously in Figure 4.1. It is noted that the 'ideal' method or initiative would in theory score highly on all aspects. Whilst it is unrealistic to expect a single scheme to achieve this, it may be possible to achieve using a combination of best practice elements from the different major methods/initiatives.

Table 4.4 Assessment of Shortlisted Methods/Initiatives Against Criteria – 1. Uptake Rate

Criteria / Method/Initiative Title	1. Uptake Rate			
	1a. Is the method/initiative widely recognised by stakeholders?	**1b.** Is the method/initiative widely used currently?	**1c.** What is the maximum feasible uptake rate?	**1d.** Are resources in place to promote increased uptake?
1. Carbon Disclosure Project (CDP)	Widely recognised by Investors, Global 500 and major listed companies. Seen as the leading reporting initiative for large companies based in Europe and worldwide.	Widely used - CDP sends requests to 5,000 organisations per year. In 2009 the responding organisations included: c.2500 companies; 675 institutional investors; and,c.50 large corporate and government purchasers. The CDP is the most widely used global GHG reporting initiative at this time.	Further uptake is limited as the scheme is suited to large stock-exchange listed companies. However, the CDP supply chain initiative may help to increase uptake by SME's.	CDP has considerable resources in place to promote uptake. There is a wide range of information available on the website, high number of reports published, high number of seminar/conferences held, high number of press releases and high-profile media coverage.
2. WBCSD/WRI GHG Protocol Corporate Standard	Widely recognised by regulators and companies as the most widely used reference standard for other calculation methods/initiatives.	The standard is widely used across the EC and world-wide by large and medium-sized companies (nearly all Fortune 500 companies use the Protocol). The Protocol appears to have a higher uptake rate than the other major standards (i.e. uptake is at least as wide as the CDP)	A high uptake rate is feasible since the principles within the standard can be applied to any type of organisation. Companies can apply the guidance flexibly to a wide range of sectors, business operations and emission sources.	WRI/WBCSD has considerable resources in place to promote uptake. There is a wide range of information available on the website, high number of reports published, high number of seminar/conferences held, high number of press releases and high-profile media coverage.
4. ISO 14064: 2006 (Parts 1 and 3)	Many companies and regulators are only aware of ISO14064 at an overview level. Recognition of the benefits of attaining the standard is increasing.	Data on uptake by companies is not readily available. There is no central database for registrations. Anecdotal evidence indicates limited uptake to date.	Further uptake is limited as the standard is suited to medium and large-sized companies due to costs of verification and auditing against the standard.	A reasonable level of resources are in place to promote uptake at this time. There is a limited range of information available on the website, limited number of reports published and seminar/conferences held, limited number of press releases and less high-profile media coverage.
29. WBCSD/WRI GHG Protocol Scope 3 Reporting Standard	Developed in response to stakeholder demand for 'Scope 3' guidance. High level of interest from leading companies and regulators. Awareness amongst wider stakeholder groups is gradually increasing.	The standard is new and is being trialed by more than 70 companies - whilst initial feedback is good it's success longer term remains to be proven.	A high uptake rate is feasible since the principles within the standard can be applied to any type of organisation.	A reasonable level of resources are in place to promote uptake at this time (this may increase with time as this is a new initiative). There is a limited range of information available on the website, limited number of reports published and seminar/conferences held, limited number of press releases and less high-profile media coverage.
5. French Bilan Carbone	Strong backing from French government and businesses. Widely recognised throughout EC as a major method.	Uptake in France is high but is relatively low in other Member States. The standard is currently less widely used that other standards such as the WBCSD/WRI GHG Protocol. Over the last 4 years nearly 4,000 organisations have used Bilan Carbone and 1,000 Consultants have been trained in its use.	A high uptake rate is feasible since the principles within the standard can be applied to any type of organisation.	A reasonable level of resources are in place to promote uptake at this time (focused on French companies). There is a limited range of information available on the website, limited number of reports published and seminar/conferences held, limited number of press releases and less high-profile media coverage.

Criteria / Method/Initiative Title	1. Uptake Rate			
	1a. Is the method/initiative widely recognised by stakeholders?	**1b.** Is the method/initiative widely used currently?	**1c.** What is the maximum feasible uptake rate?	**1d.** Are resources in place to promote increased uptake?
18. UK Carbon Reduction Commitment (CRC)	An innovative UK scheme for rewarding GHG performance of non-energy intensive companies. Recognised by businesses as a potential model to drive savings with reputational benefits.	The standard is new and participation is mandatory for 5,000 non-energy intensive companies in the UK. Not used in other Member States.	Uptake is high amongst the target sectors due to the penalties and incentives in place. Further uptake is limited without modification of the method since it is focused on non-energy intensive companies.	Uptake is mandatory for participants meeting the thresholds. Resources are in place to ensure compliance (focused on UK companies). There is a wide range of information available on the website, high number of reports published, high number of seminar/conferences held, high number of press releases and high-profile media coverage.
17. DEFRA Company GHG Guidance	Widely supported by UK based policy makers and businesses. Increasing recognition by other Member States as a reference standard for government guidance on reporting.	The standard is in use by many large UK companies and multi-nationals which are headquarted in the UK. Outside the UK the standard is occasionally referred to.	Further uptake is limited without modifications to the method since it is focused on UK based companies and is not comprehensive in terms of guidance boundary setting and emission factors (refers back to WBCSD/WRI GHG Protocol for more detailed guidance).	A reasonable level of resources are in place to promote uptake at this time (focused on UK companies). There is a limited range of information available on the website, limited number of reports published and seminar/conferences held, limited number of press releases and less high-profile media coverage.
26. US EPA Climate Leaders Inventory Guidance	Supported by US business leaders, policy makers and NGOs. Limited backing outside the US.	The standard is in use by several large US companies and multi-nationals which are headquarted in the US. Outside the US the standard is rarely used. The initiative currently covers 193 Climate Leaders Partner companies and 91 Small Business Network Members.	Uptake limited without modifications to the method since it is focused on large energy-intensive companies based in the US.	A reasonable level of resources are in place to promote uptake at this time (focused on US companies). There is a limited range of information available on the website, limited number of reports published and seminar/conferences held, limited number of press releases and less high-profile media coverage.
30. US GHG Protocol Public Sector Standard	New standard being developed by WBCSD/WRI. Supported by US policy makers and NGOs but limited backing outside the US to date.	This is a new standard which focuses on the public sector. Uptake is yet to be proven but initial feedback on the standard is good. Likely to be used only by the larger public sector organisations.	Uptake limited without modifications to the method since it is focused on large public sector organisations.	A reasonable level of resources are in place to promote uptake at this time (this may increase with time as this is a new initiative). There is a limited range of information available on the website, limited number of reports published and seminar/conferences held, limited number of press releases and less high-profile media coverage.

Table 4.5 Assessment of Shortlisted Methods/Initiatives Against Criteria – 2. Reliability and Robustness

Criteria / Method/Initiative Title	2. Reliability and Robustness			
	2a. Sets out principles of reporting?	**2b.** Sets minimum standards?	**2c.** Are results verifiable?	**2d.** Uses recognised data sources?
1. Carbon Disclosure Project (CDP)	Guidance is given on what companies should report, both in terms of emissions and qualitative data. The CDP recommends the WBCSD/WRI GHG Protocol for calculation of emissions and is not a stand-alone method.	Guidance on completing the questionnaire is given but is not mandatory. Incomplete submissions (e.g. omitting Scope 3) are allowed.	Independent verification is not required but is recommended. Published company emissions data is not audited by CDP. Since stakeholders rely upon the published data then a lack of minimum standards on verification is a limitation for this initiative.	Refers to WBCSD/WRI GHG Protocol. Relies upon participants existing GHG reporting processes.
2. WBCSD/WRI GHG Protocol Corporate Standard	The standard is the original source of guidance on GHG reporting principles such as boundary setting, completeness and accuracy. It does not cover uncertainty analysis in detail but refers to IPCC on this issue.	Provides guidance on best practices. Provides detailed examples to aid choices on boundaries, emission factors, etc. but does not mandate these as minimum requirements.	Independent verification is not required but is recommended. Basic guidance on quality control, materiality and uncertainty is given.	Proprietary standard - refers to other sources such as IPCC and IEA for emissions factors
4. ISO 14064: 2006 (Parts 1 and 3)	The principles of reporting are set out with reference to the WBCSD/WRI GHG Protocol. Detailed guidance on key calculation and reporting issues is not provided.	Sets minimum standards for accuracy and completeness of GHG reporting but also allows flexibility on issues such as boundary setting.	Accreditation to the standard requires independent verification. Materiality decisions are made by the verifier and limited guidance is given.	Refers to WBCSD/WRI GHG Protocol. Relies upon participants existing GHG reporting processes.
29. WBCSD/WRI GHG Protocol Scope 3 Reporting Standard	The standard is a new source of detailed guidance on Scope 3 GHG reporting principles such as boundary setting, completeness and accuracy.	Provides guidance on best practices. Provides detailed examples to aid choices on boundaries, emission factors, etc. but does not mandate these as minimum requirements.	Independent verification is not required but is recommended. Basic guidance on quality control, materiality and uncertainty is given.	Proprietary standard - refers to other sources such as IPCC and IEA for emissions factors
5. French Bilan Carbone	The standard is a comprehensive source of guidance on GHG reporting principles and gives several worked examples. It refers to other standards such as the WBCSD/WRI GHG Protocol.	Provides guidance on best practices. Provides detailed examples to aid choices on boundaries, emission factors, etc. but does not mandate these as minimum requirements.	Independent verification is not required but is recommended. Basic guidance on quality control, materiality and uncertainty is given.	Proprietary standard - refers to other sources such as IPCC and IEA for emissions factors
18. UK Carbon Reduction Commitment (CRC)	The CRC guidance sets out the detailed principles and standards to be applied by participants.	Defines clearly which emission sources must be reported and what emission factors apply.	Self-certification is used with annual auditing of 20% of participants via third party verifiers who are appointed by the regulator. This represents a streamlined verification process for non-energy intensive companies.	Proprietary standard - provides default emissions factors based on DEFRA Guidance but applies to UK only
17. DEFRA Company GHG Guidance	The DEFRA guidance sets out the principles to be applied but detailed guidance on key calculation and reporting issues is not provided. It refers to the WBCSD/WRI GHG Protocol for further guidance.	Provides guidance on best practices. Provides limited examples to aid choices on boundaries. Sets minimum standard for choice of emission factors.	Independent verification is not required but is recommended. DEFRA provides emission factors to be used which simplifies verification.	Proprietary standard - provides default emissions factors based on DEFRA Guidance but applies to UK only

Criteria Method/Initiative Title	2. Reliability and Robustness			
	2a. Sets out principles of reporting?	**2b.** Sets minimum standards?	**2c.** Are results verifiable?	**2d.** Uses recognised data sources?
26. US EPA Climate Leaders Inventory Guidance	The guidance sets out the principles to be applied including sector-specific issues. It refers to the WBCSD/WRI GHG Protocol.	Provides guidance on best practices. Provides detailed examples to aid choices on boundaries, emission factors, etc. but does not mandate these as minimum requirements.	Independent verification is not required but is recommended. Basic guidance on quality control, materiality and uncertainty is given.	Refers to WBCSD/WRI GHG Protocol. Relies upon participants existing GHG reporting processes.
30. US GHG Protocol Public Sector Standard	The standard is a new source of detailed guidance on public sector GHG reporting principles such as boundary setting, completeness and accuracy. However, it is open to interpretation on many aspects.	Provides guidance on best practices. Provides detailed examples to aid choices on boundaries, emission factors, etc. but does not mandate these as minimum requirements.	Independent verification is not required but is recommended. Basic guidance on quality control, materiality and uncertainty is given.	Proprietary standard - refers to other sources such as IPCC and IEA for emissions factors

Table 4.6 Assessment of Shortlisted Methods/Initiatives Against Criteria – 3. Compatibility and Comparability

Criteria / Method/Initiative Title	3. Compatibility and Comparability			
	3a. Is the method or initiative applicable across a wide range of sectors?	**3b.** Aligns with EU and Member State policies?	**3c.** Compatible with other major methods and initiatives?	**3d.** Allows comparison between participants?
1. Carbon Disclosure Project (CDP)	Covers a wide range of sectors including non-energy intensive companies. The CDP questionnaire does not exclude any particular sectors, although the CDP leadership index focuses on key sectors.	Voluntary private sector initiative - minimal alignment with policy measures although does ask questions on company response to regulatory pressures and refers to DEFRA GHG guidance.	A stand-alone corporate GHG emissions and climate change risk disclosure platform. Recommends use of WBCSD/WRI GHG Protocol but otherwise not strongly linked with other methods/initiatives.	A leadership index by sector is provided and companies are encouraged to report emissions intensity metrics. However, the degree of flexibility in the reporting requirements prevents accurate comparisons between similar companies.
2. WBCSD/WRI GHG Protocol Corporate Standard	Covers a wide range of sectors including detailed sector-specific guidance for emissions-intensive companies. The method does not exclude any particular sectors.	Voluntary private sector initiative - minimal alignment with policy measures although some Member States refer to the standard (e.g. DEFRA)	Compatible with several other initiatives and typically referenced as the leading GHG emissions calculation standard. Can be used as the basis for reporting under other voluntary schemes such as CDP.	The standard sets out reporting principles but is open to interpretation on boundary setting and choice of emission factors. There may be differences in how two similar companies apply the standard which inhibits meaningful comparison.
4. ISO 14064: 2006 (Parts 1 and 3)	Is generic in nature, covering a wide range of sectors. The standard does not exclude any particular sectors.	Is referred to as a recognised standard in a number of Member States' climate change policies (e.g. UK Climate Change Programme; French Grenelle II)	Compatible with several other methods/initiatives and typically referenced as a means of demonstrating quality assurance on GHG reporting. Can be used as the basis for reporting under other voluntary schemes such as CDP.	ISO14064 is designed to provide an internationally recognisable GHG reporting standard to which companies can gain accreditation and therefore allows some comparison to be made in that a number of minimum standards are set (e.g. verification). However, the degree of flexibility inhibits true comparison between similar companies.
29. WBCSD/WRI GHG Protocol Scope 3 Reporting Standard	Is generic in nature, covering a wide range of sectors. The method does not exclude any particular sectors and covers 16 key Scope 3 sub-categories.	Voluntary private sector initiative - minimal alignment with policy measures although does address Member States' concerns about assessing supply chain impacts rather than just direct emissions.	Provides a new approach to Scope 3 emissions reporting which is likely to be adopted in future by other methods/initiatives. It has limited compatibility with other major methods as most of these do not cover Scope 3 in detail at this time.	The standard sets out Scope 3 reporting principles but is open to interpretation. There may be significant differences in how two similar companies apply the standard which inhibits meaningful comparison.
5. French Bilan Carbone	Is generic in nature, covering a wide range of sectors. The method does not exclude any particular sectors. Emission factors are given for a range of energy-intensive sectors.	Aligns with French policy measures. Not adopted widely outside France.	Compatible with several other methods/initiatives although less widely recognised by other methods/initiatives than the WBCSD/WRI GHG Protocol. Can be used as the basis for reporting under other voluntary schemes such as CDP.	The standard sets out reporting principles but is open to interpretation on boundary setting and choice of emission factors. There may be differences in how two similar companies apply the standard which inhibits meaningful comparison.
18. UK Carbon Reduction Commitment (CRC)	Covers a range of non-energy intensive sectors. Is not well suited to energy-intensive sectors. Does not cover non-CO_2 GHG emissions at this time.	A key UK policy measure to reduce GHG emissions from non energy-intensive sectors. Not applied outside the UK.	Limited to emissions from electricity and fossil-fuels only (does not include process CO_2 emissions or Scope 3). As such, it is not fully compatible with other major methods/initiatives.	The standard provides a league table and reports annual progress against targets allowing meaningful comparison between companies. However, crediting for early action (i.e. improved league table position for savings made in the baseline period) and a wide variation in sizes/sectors for participants with little contextual data

Criteria Method/Initiative Title	3. Compatibility and Comparability			
	3a. Is the method or initiative applicable across a wide range of sectors?	**3b.** Aligns with EU and Member State policies?	**3c.** Compatible with other major methods and initiatives?	**3d.** Allows comparison between participants?
				provided inhibits true comparisons.
17. DEFRA Company GHG Guidance	Is generic in nature, covering a wide range of sectors. The method does not exclude any particular sectors and includes SME guidance.	A key UK policy guidance document for company GHG reporting . Not widely applied outside the UK.	Compatible with several other methods/initiatives although less widely recognised by other methods/initiatives than the WBCSD/WRI GHG Protocol. Can be used as the basis for reporting under other voluntary schemes such as CDP.	The standard sets out reporting principles and defines emission factors but is open to interpretation on boundary setting. There may be differences in how two similar companies apply the standard which inhibits meaningful comparison.
26. US EPA Climate Leaders Inventory Guidance	Is generic in nature, covering a wide range of sectors. The method does not exclude any particular sectors and includes SME guidance.	Voluntary US initiative - minimal alignment with EC policy measures.	A stand-alone corporate GHG emissions and climate change leadership disclosure platform. Inventory guidance is aligned with WBCSD/WRI GHG Protocol but otherwise not linked with other methods/initiatives.	The standard provides a leadership index and reports annual progress against targets allowing meaningful comparison between companies. However, true comparison is limited by a lack of minimum standards (e.g. flexibility on boundary setting).
30. US GHG Protocol Public Sector Standard	Is generic in nature and focuses on public sector emission sources and regional reporting. Is not particularly suited to energy-intensive sectors.	Voluntary initiative - minimal alignment with EC policy measures although does address Member State requirements for improved public sector reporting.	Compatible with several other methods/initiatives although focuses on public sector and regional GHG inventories.	The standard sets out public sector reporting principles but is open to interpretation. There may be differences in how two similar organisations defined their boundaries which inhibits meaningful comparison.

Table 4.7 Assessment of Shortlisted Methods/Initiatives Against Criteria – 4. Ease of Use

Criteria / Method/Initiative Title	4. Ease of Use			
	4a. Is the method widely available and free of charge to use?	**4b.** Are software tools available to simplify calculations?	**4c.** Is there an associated established platform for reporting?	**4d.** Is there specific, simple guidance for SMEs and key sectors?
1. Carbon Disclosure Project (CDP)	Yes - website provides standard and associated documents free of charge	Questionnaire provided in Word/Excel electronic format but no calculation tools are provided.	The full text of company GHG disclosures are available at the CDP website.	CDP has recently simplified the questionnaire for SMEs in the Supply Chain Programme which has been followed by good uptake in 2009. The main CDP reporting method/initiative is considered too complex and time-consuming for a large number of SMEs to easily apply in full.
2. WBCSD/WRI GHG Protocol Corporate Standard	Yes - website provides standard and associated documents free of charge	A range of calculation tools in Excel are provided, including sector-specific tools	No - WBCSD/WRI do not provide a reporting platform but the method is used by participants in several other reporting platforms (e.g. CDP).	No guidance is currently available for SMEs. The reporting method/initiative is considered too complex and time-consuming for an SME to easily apply without simplified guidance being provided.
4. ISO 14064: 2006 (Parts 1 and 3)	Method is widely available on ISO and affiliate websites but must be purchased (parts 1 and 3 documents total price is typically €250).	No calculation tools are provided and it is unlikely that ISO would develop such tools as the standard relies on other references such as WBCSD/WRI GHG Protocol	No - ISO do not provide a reporting platform but the use of the standard is reported in several other platforms (e.g. CDP).	No guidance is currently available for SMEs. The reporting method/initiative is considered too complex and time-consuming for an SME to easily apply without simplified guidance being provided.
29. WBCSD/WRI GHG Protocol Scope 3 Reporting Standard	Yes - website provides standard and associated documents free of charge.	No calculation tools are provided at this time although it is expected that the WBCSD/WRI will develop such tools over time as uptake increases.	No - WBCSD/WRI do not provide a reporting platform but the method is likely to be used by participants in several other reporting platforms (e.g. CDP).	No guidance is currently available for SMEs. The reporting method/initiative is considered too complex and time-consuming for an SME to easily apply without simplified guidance being provided.
5. French Bilan Carbone	Yes - website provides standard and main documents free of charge. For full documents and tools users must attend training sessions run by ADEME which may involve some costs.	ADEME grants authorisation to use the Bilan Carbone method free of charge by providing spreadsheets and user manuals to all organisation that have followed their training programmes in the method.	No - ADEME do not provide a reporting platform but the use of the standard is reported in several other platforms (e.g. CDP). Its use is require under the French Grenelle II law, although no dedicated reporting platform is in place at this time.	Guidance can be applied flexibly and a limited number of examples that are applicable to SMEs are given.
18. UK Carbon Reduction Commitment (CRC)	Yes - DEFRA/DECC website provides standard and associated documents free of charge	Reporting forms are provided via the CRC website. Emissions are calculated from energy use data. Stand-alone tools are not available.	Yes - DEFRA/DECC are in the process of establishing a CRC reporting platform with secure web access for participants.	The CRC will capture a limited number of SMEs. Guidance based on reporting of energy use is given which can also be applied by SMEs and emissions/league tables are calculated centrally by DEFRA/DECC.
17. DEFRA Company GHG Guidance	Yes - DEFRA/DECC website provides standard and associated documents free of charge	A simple Excel tool is provided containing emission factors for a wide range of sources but this has limited functionality.	No - DEFRA do not provide a reporting platform but the method is likely to be used by participants in several other reporting platforms (e.g. CDP).	Guidance specific to SMEs, including simplified reporting requirements is provided.
26. US EPA Climate Leaders Inventory Guidance	Yes - USEPA website provides standard and associated documents free of charge	A range of calculation tools in Excel are provided, including sector-specific tools	Yes - USEPA provide a dedicated climate leaders reporting website	Yes - specific guidance for small businesses is provided.

Criteria / Method/Initiative Title	4. Ease of Use			
	4a. Is the method widely available and free of charge to use?	**4b.** Are software tools available to simplify calculations?	**4c.** Is there an associated established platform for reporting?	**4d.** Is there specific, simple guidance for SMEs and key sectors?
30. US GHG Protocol Public Sector Standard	Yes - website provides standard and associated documents free of charge	No calculation tools are provided at this time although they may be developed over time as uptake increases.	No - WBCSD/WRI do not provide a reporting platform but the method is likely to be used by participants in several other reporting platforms (e.g. Member States' public sector emissions reporting).	No guidance is currently available for SMEs as they are not a target sector for the guidance. The reporting method/initiative is considered too complex and time-consuming for an SME to easily apply without simplified guidance being provided.

Table 4.8 Assessment of Shortlisted Methods/Initiatives Against Criteria – 5. Incentives for Use

Criteria / Method/Initiative Title	5. Incentives for Use			
	5a. Does the method or initiative link with reputational drivers?	**5b.** Is there provision for financial rewards and penalties?	**5c.** Does the method or initiative link to regulatory requirements?	**5d.** Minimises competitive distortions?
1. Carbon Disclosure Project (CDP)	The CDP is widely recognised by stakeholders and has strong links to corporate social responsibility (CSR) and investment drivers.	Voluntary scheme - no provision is made for financial rewards or penalties.	Voluntary scheme - not aligned with Member State regulatory requirements.	The CDP is used by leading companies across Europe and world-wide. The Leadership index is sector-specific and the full text of company responses is published. Limited use by SMEs could potentially lead to competitive distortions (there is a reputational benefit but only the largest SMEs would have the resources to participate).
2. WBCSD/WRI GHG Protocol Corporate Standard	Application of the standard is seen to be a corporate social responsibility (CSR) boost and is widely recognised by stakeholders.	Voluntary scheme - no provision is made for financial rewards or penalties.	Not directly aligned with Member State regulatory requirements but is referred to by some Member State policies (e.g. UK Climate Change Programme; French Grenelle II).	The standard is used by large companies in Europe and the rest of the world helping to minimise competitive distortions. Limited use by SMEs could potentially lead to competitive distortions (there is a reputational benefit but only the largest SMEs would have the resources to participate).
4. ISO 14064: 2006 (Parts 1 and 3)	Accreditation to the standard is increasingly seen to be a corporate social responsibility (CSR) boost.	Voluntary scheme - no provision is made for financial rewards or penalties.	Not directly aligned with Member State regulatory requirements but is referred to by some Member State policies (e.g. UK Climate Change Programme; French Grenelle II).	The standard is most commonly used by large companies headquarted in Europe or the US with lower uptake in other parts of the world. May lead to a small competitive advantage (reputational) for participants c.f. non-participants who compete in the same markets.
29. WBCSD/WRI GHG Protocol Scope 3 Reporting Standard	Application of the standard is likely to increasingly be seen to be a corporate social responsibility (CSR) boost due to concerns over supply chain emissions.	Voluntary scheme - no provision is made for financial rewards or penalties	Voluntary scheme - not aligned with Member State regulatory requirements.	The standard is likely to be used by large companies headquarted in Europe or the US with lower uptake in other parts of the world. May lead to a small competitive advantage (reputational) for participants c.f. non-participants who compete in the same markets.
5. French Bilan Carbone	Application of the standard is seen to be a corporate social responsibility (CSR) boost and is recognised by some but not all Member States.	Voluntary scheme - no provision is made for financial rewards or penalties.	Aligned with future planned French regulatory requirements but use not required by other Member States. Allows reports aligned with EU ETS MRV guidance to be generated.	The standard is most commonly used by large companies based in France with low uptake in other parts of the world. May lead to a small competitive advantage (reputational) for participants c.f. non-participants who compete in the same markets.
18. UK Carbon Reduction Commitment (CRC)	Achievement of a high league table position is seen to be a corporate social responsibility (CSR) boost but applies to UK companies only.	Financial rewards and penalties are provided depending on performance in league table	Aligned with UK regulatory requirements but use not required by other Member States. There is no link with the EU ETS.	League table applies to all participants. Only applies to UK based companies. May lead to a competitive advantage (reputational & cost due to revenue recycling - based on league table position) for participants c.f. non-participants competing in the same markets.

Criteria / Method/Initiative Title	5. Incentives for Use			
	5a. Does the method or initiative link with reputational drivers?	**5b.** Is there provision for financial rewards and penalties?	**5c.** Does the method or initiative link to regulatory requirements?	**5d.** Minimises competitive distortions?
17. DEFRA Company GHG Guidance	Application of the standard is seen to be a corporate social responsibility (CSR) boost and is recognised by some but not all Member States.	Voluntary scheme - no provision is made for financial rewards or penalties.	Aligned with future UK regulatory requirements (mandatory reporting from 2012) but use not required by other Member States.	The standard is most commonly used by large companies headquarted in the UK with low uptake in other parts of the world. May lead to a small competitive advantage (reputational) for participants c.f. non-participants who compete in the same markets.
26. US EPA Climate Leaders Inventory Guidance	Achievement of a high leadership score is seen to be a corporate social responsibility (CSR) boost but applies largely to US based companies.	Voluntary scheme - no provision is made for financial rewards or penalties.	Voluntary scheme - not aligned with Member State regulatory requirements.	Leadership score reduces distortions amongst participants. Most commonly used by large US based companies with low uptake in other parts of the world. May lead to a small competitive advantage (reputational) for participants c.f. non-participants who compete in the same markets.
30. US GHG Protocol Public Sector Standard	Application of the standard is seen to be a key social responsibility requirement for public sector bodies in future.	Voluntary scheme - no provision is made for financial rewards or penalties.	Not directly aligned with Member State regulatory requirements. May be helpful in the future in the context of some Member State climate change policies.	Public sector focus - competitive aspects less relevant than in private sector. Less suitable for smaller public sector organisations. May lead to a small advantages (reputational) for participants c.f. non-participants who operate in the public sector.

Table 4.9 Assessment of Shortlisted Methods/Initiatives Against Criteria – 6. GHG Abatement Potential

Criteria / Method/Initiative Title	6. GHG Abatement Potential		
	6a. Is there are process for setting GHG emission reduction targets?	**6b.** Is guidance on baselines, projections and benchmarking provided?	**6c.** Do the reporting requirements link to implementation of GHG reduction measures?
1. Carbon Disclosure Project (CDP)	Guidance is given on disclosure of key performance indicators and progress against GHG reduction targets.	Minimal guidance is given on baselines and benchmarking. No guidance is given on making projections.	Requires disclosure of GHG reduction measures and corporate climate change programmes/policies
2. WBCSD/WRI GHG Protocol Corporate Standard	Basic guidance is given on setting a target and tracking performance.	Minimal guidance is given on baselines and benchmarking. No guidance is given on making projections.	No disclosure of GHG reduction measures or climate change policies/programmes required.
4. ISO 14064: 2006 (Parts 1 and 3)	Basic guidance is given on setting a target and tracking performance.	Minimal guidance is given on baselines and benchmarking. No guidance is given on making projections.	No disclosure of GHG reduction measures or climate change policies/programmes required.
29. WBCSD/WRI GHG Protocol Scope 3 Reporting Standard	Basic guidance is given on setting a target and tracking performance.	Minimal guidance is given on baselines and benchmarking. No guidance is given on making projections.	No disclosure of GHG reduction measures or climate change policies/programmes required.
5. French Bilan Carbone	Basic guidance is given on setting a target and tracking performance.	Minimal guidance is given on baselines and benchmarking. No guidance is given on making projections.	No disclosure of GHG reduction measures or climate change policies/programmes required.
18. UK Carbon Reduction Commitment (CRC)	Guidance is given on target setting in order to improve league table position and revenue recycling depends on performance. Guidance is also provided on early action crediting for GHG savings made in the baseline period (links with the Carbon Trust Standard which includes GHG reduction targets).	Limited guidance is provided on baselines and benchmarking. No guidance is given on making projections.	Limited disclosure of GHG reduction measures or climate change policies/programmes required – some data remains confidential in publication of the league table. However, clear financial incentive for GHG reduction is provided. This is reinforced by the additional credit given to demonstrated reductions of carbon emissions in the baseline period (part of the CRC's 'Early Action Metric').
17. DEFRA Company GHG Guidance	Limited guidance is given on target setting and tracking of performance.	Minimal guidance is given on baselines and benchmarking. No guidance is given on making projections.	No disclosure of GHG reduction measures or climate change policies/programmes required.
26. US EPA Climate Leaders Inventory Guidance	Detailed guidance is provided on target setting and tracking of performance. Participants must sign up to the agreed targets to remain in the scheme.	Detailed guidance is provided on baselines. There is limited guidance on benchmarking. No guidance is given on making projections.	Requires limited disclosure of GHG reduction measures and related policies/programmes.
30. US GHG Protocol Public Sector Standard	Limited guidance is given on target setting and tracking of performance.	Minimal guidance is given on baselines and benchmarking. No guidance is given on making projections.	No disclosure of GHG reduction measures or climate change policies/programmes required.

Table 4.10 Summary of Key Strengths and Limitations of Shortlisted Methods/Initiatives

Method/Initiative Title	Summary of unique features and key strengths	Summary of key limitations and areas for development
1. Carbon Disclosure Project (CDP)	Linked with Investor requirements; provides a sector-specific leadership index which provides some comparability between participants; widely recognised by stakeholders; high uptake amongst target companies; full disclosure of company questionnaires.	Open to interpretation in terms of boundaries and emission factors; basic guidance on target setting; SMEs only covered via supply chain initiative; relies on other methods for emissions calculation; not linked with policy requirements; does not set minimum standards or require verification; guidance on materiality, benchmarking and estimation of incomplete data is not provided.
2. WBCSD/WRI GHG Protocol Corporate Standard	Seen as the original/leading standard for GHG emissions calculation; comprehensive but flexible approach; provides sector-specific guidance; widely recognised by stakeholders; high uptake amongst large companies.	Open to interpretation in terms of boundaries and emission factors; basic guidance on target setting; does not provide specific guidance for SMEs; Scope 3 guidance is limited; not directly linked with policy requirements; does not set minimum standards or require verification; guidance on materiality, benchmarking and estimation of incomplete data is limited; does not ensure comparability between participants.
4. ISO 14064: 2006 (Parts 1 and 3)	Seen as the leading accreditation standard for voluntary GHG emissions reporting; sets out key principles but refers to other methods for detail; aligns with other environmental management standards.	Open to interpretation in terms of boundaries and emission factors; not a stand-alone document; does not provide for target setting; Scope 3 guidance is limited; uptake is currently limited; no specific guidance provided for SMEs; guidance on materiality and estimation of incomplete data is limited; does not ensure comparability between participants.
29. WBCSD/WRI GHG Protocol Scope 3 Reporting Standard	Addresses policy maker concerns regarding wider Scope 3 emissions in detail; provides a new approach to assessing supply chain GHG impacts; build upon existing GHG Protocol.	Open to interpretation in terms of boundaries and emission factors; does not provide specific guidance for SMEs; not directly linked with policy requirements; does not set minimum standards or require verification; guidance on materiality, benchmarking and estimation of incomplete data is limited; does not ensure comparability between participants.
5. French Bilan Carbone	Seen as a comprehensive standard that can be applied to organisation (public or private sector), region or product; covers Scope 3 emissions in some detail; provides a stand-alone technical document; builds open existing standards.	Open to interpretation in terms of boundaries and emission factors; does not provide specific guidance for SMEs; does not set minimum standards or require verification; does not ensure comparability; guidance on materiality, benchmarking and estimation of incomplete data is limited; does not ensure comparability between participants.
18. UK Carbon Reduction Commitment (CRC)	Defines boundaries and emissions factors; seen as a leading mandatory GHG reporting model for non-energy intensive companies; provides league tables and financial rewards which provides some comparability between participants; includes a streamlined verification process; disclosure of non-confidential performance data via the CRC database.	Limited to UK operations; only covers static emission sources (mobile sources excluded); simple approach based on energy use is not comprehensive; would require significant modification for SMEs and energy-intensive sectors.
17. DEFRA Company GHG Guidance	Seen as a leading voluntary GHG reporting standard by UK headquarted companies across a range of sectors; sites out standard emission factors to be used and rules for reporting of renewable power emissions; provides guidance for SMEs.	Open to interpretation in terms of reporting boundaries; limited to UK headquarted operations; limited Scope 3 guidance; simple approach which refers back to WBCSD/WRI Protocol for boundary setting issues; no financial incentives for use; guidance on materiality, benchmarking and estimation of incomplete data is limited; ensures only limited comparability between participants (specifies emission factors)
26. US EPA Climate Leaders Inventory Guidance	Seen as a leading voluntary GHG reporting standard in the US for a range of sectors; provides a leadership index and target setting process which provides some comparability between participants; provides guidance for SMEs.	Open to interpretation in terms of boundaries and emission factors; limited to US based companies at this time; limited Scope 3 guidance; refers back to WBCSD/WRI Protocol for boundary setting issues and other sources for emission factors; no financial incentives for use; guidance on materiality, benchmarking and estimation of incomplete data is limited.
30. US GHG Protocol Public Sector Standard	Seen as a leading standard for future public sector reporting; covers Scope 3 emissions (including sub-contracted services); provides guidance on organisation and regional/city GHG reporting; builds upon GHG Protocol.	Open to interpretation in terms of boundaries and emission factors; focus on public sector/regional emissions limits applicability for private sector companies; open to interpretation on boundary setting and choice of emission factors; no financial incentives for use; guidance on materiality, benchmarking and estimation of incomplete data is limited; does not ensure comparability between participants.

Table 4.11 Overall Evaluation of Shortlisted Methods/Initiatives Against Individual Criteria

Category	Criteria	Criteria Grading
1. Uptake Rate	**1a.** Is the method/initiative widely recognised by stakeholders?	**High**
	1b. Is the method/initiative widely used currently?	**Low**
	1c. What is the maximum feasible uptake rate?	**Medium**
	1d. Are resources in place to promote increased uptake?	**High**
2. Reliability and Robustness	**2a.** Sets out principles of reporting?	**High**
	2b. Sets minimum standards?	**High**
	2c. Are results are verifiable?	**Medium**
	2d. Uses recognised data sources?	**High**
3. Compatibility and Comparability	**3a.** Is the method or initiative applicable across a wide range of sectors?	**High**
	3b. Aligns with EU and Member State policies?	**Medium**
	3c. Compatible with other major methods and initiatives?	**Medium**
	3d. Allows comparison between participants?	**Medium**
4. Ease of Use	**4a.** Is the method widely available and free of charge to use?	**High**
	4b. Are software tools available to simplify calculations?	**Low**
	4c. Is there an associated established platform for reporting?	**Medium**
	4d. Is there specific, simple guidance for SMEs and key sectors?	**Low**
5. Incentives for Use	**5a.** Does the method or initiative link with reputational drivers?	**Medium**
	5b. Is there provision for financial rewards and penalties?	**Low**
	5c. Does the method or initiative link to regulatory requirements?	**Low**
	5d. Minimises competitive distortions?	**Medium**
6. GHG Abatement Potential	**6a.** Is there are process for setting GHG emission reduction targets?	**Low**
	6b. Is guidance on baselines, projections and benchmarking provided?	**Low**
	6c. Do the reporting requirements link to implementation of GHG reduction measures?	**Low**

Figure 4.2 Overall Evaluation of Shortlisted Methods/Initiatives Against Criteria 1 – Uptake Rate

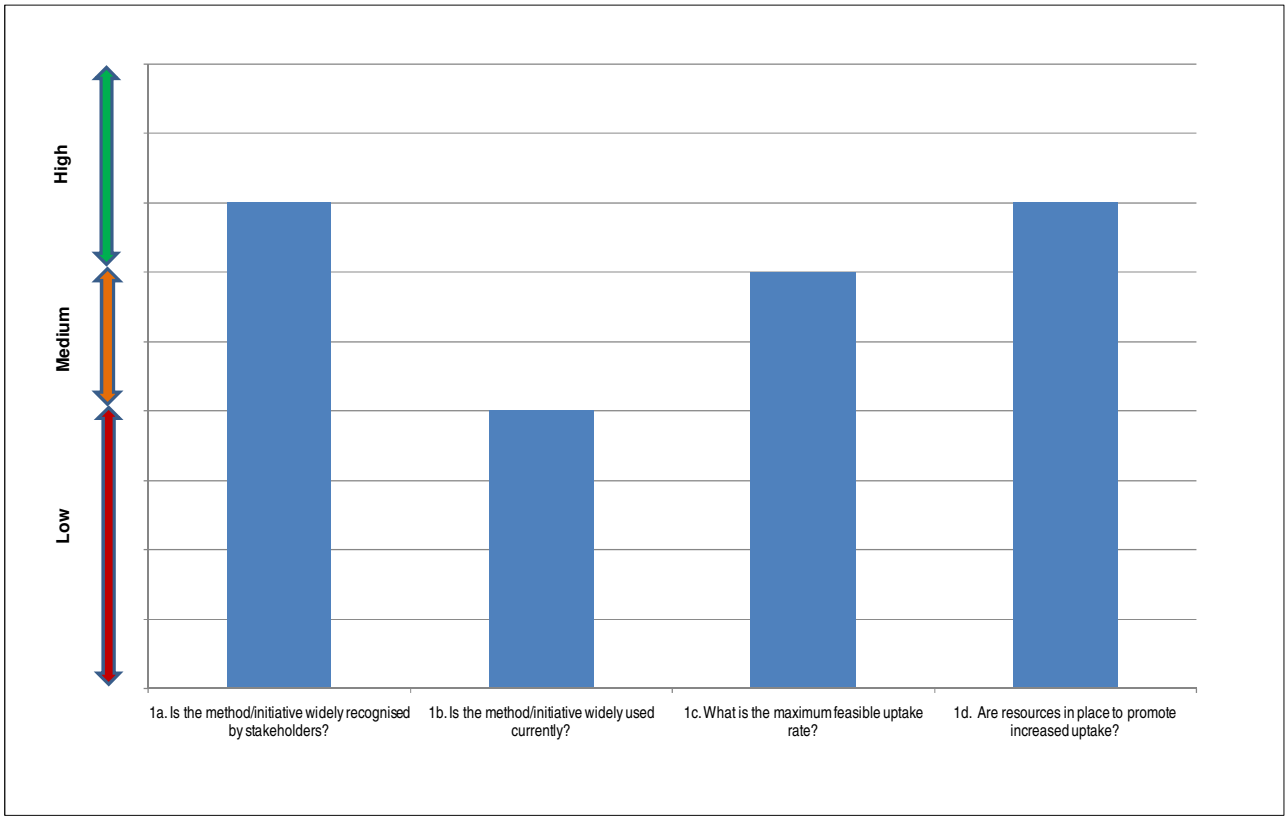


Figure 4.3 Overall Evaluation of Shortlisted Methods/Initiatives Against Criteria 2 – Reliability and Robustness

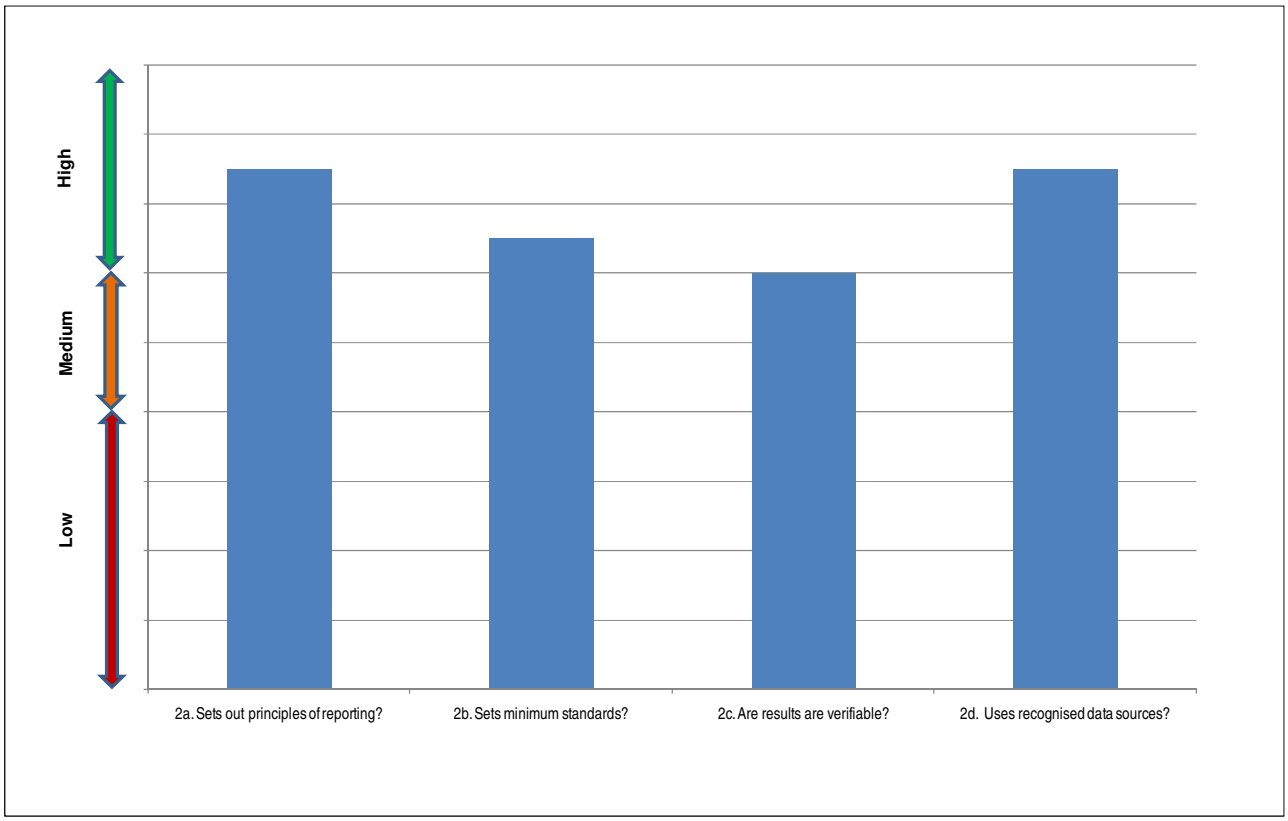


Figure 4.4 Overall Evaluation of Shortlisted Methods/Initiatives Against Criteria 3 – Compatibility and Comparability

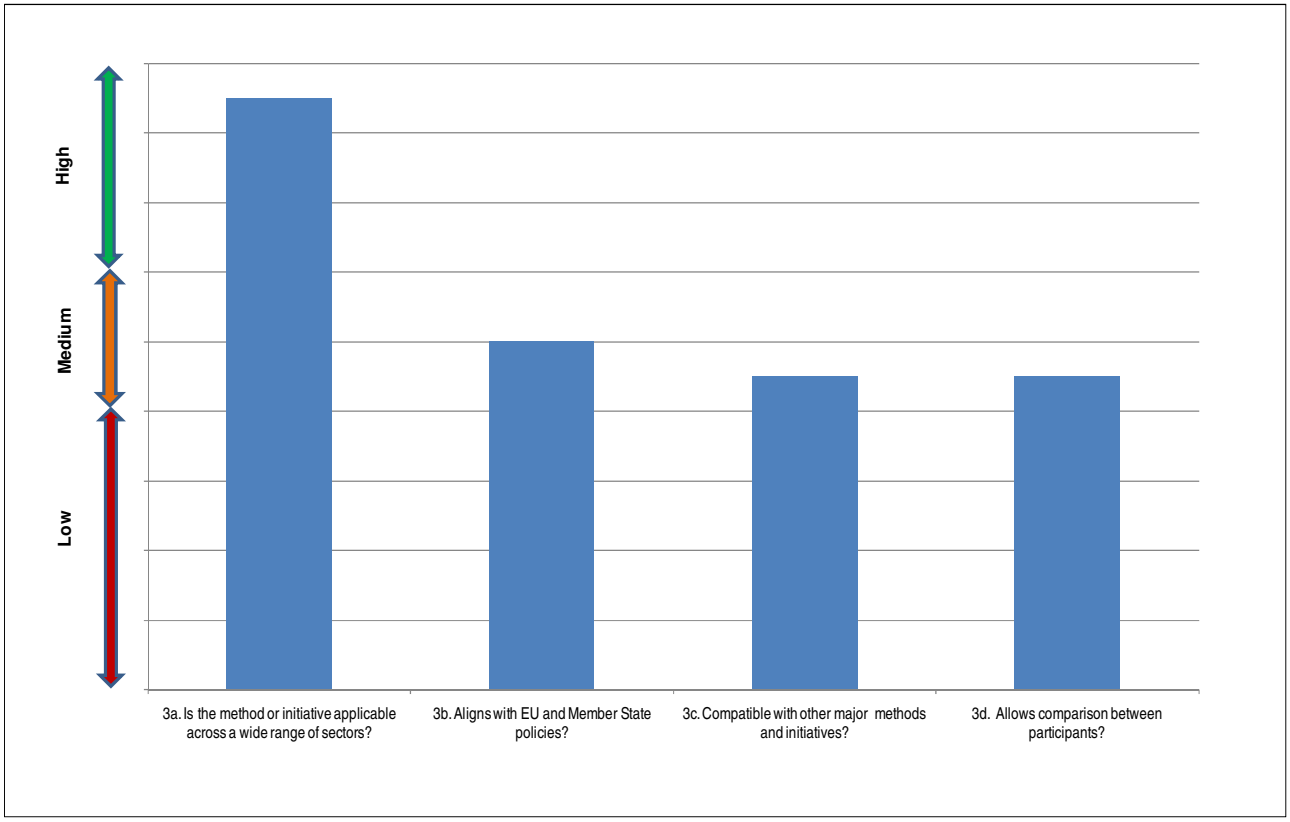


Figure 4.5 Overall Evaluation of Shortlisted Methods/Initiatives Against Criteria 4 – Ease of Use

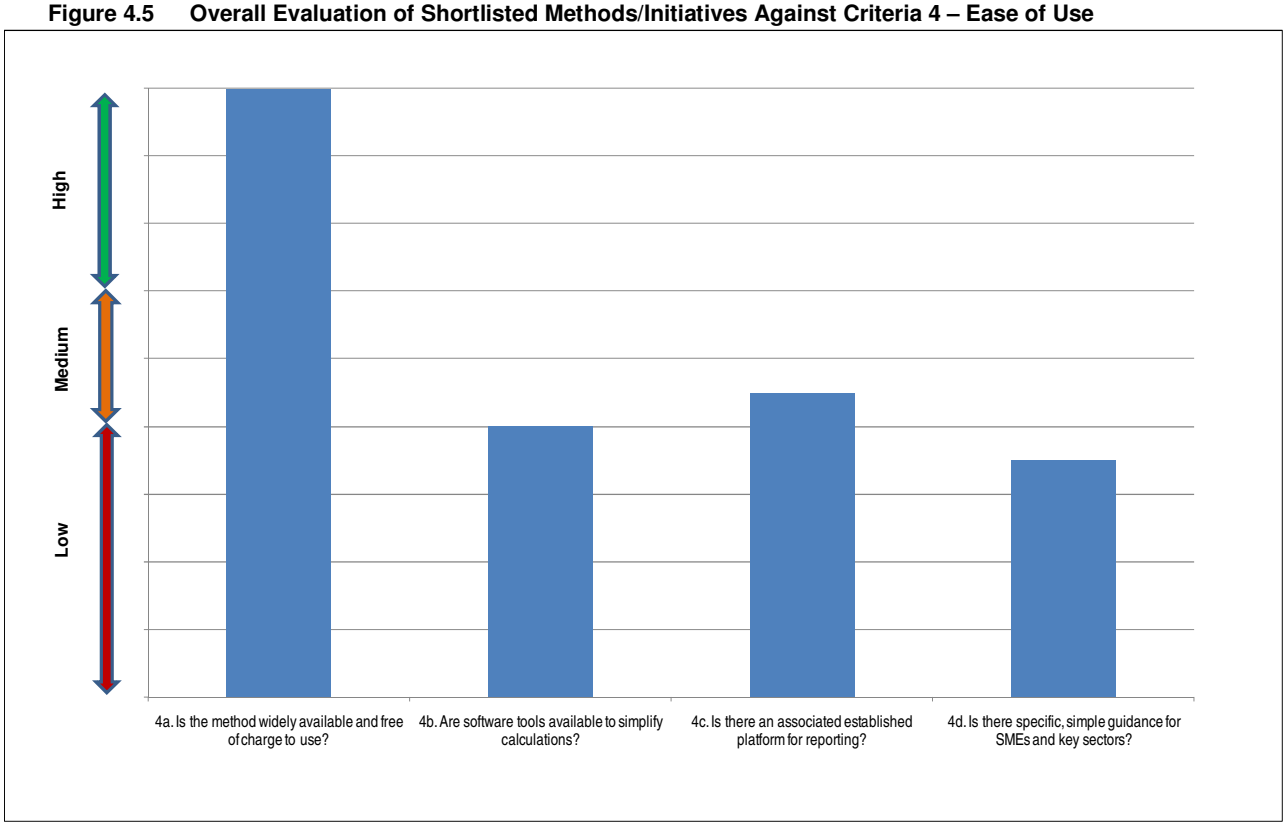


Figure 4.6 Overall Evaluation of Shortlisted Methods/Initiatives Against Criteria 5 – Incentives for Use

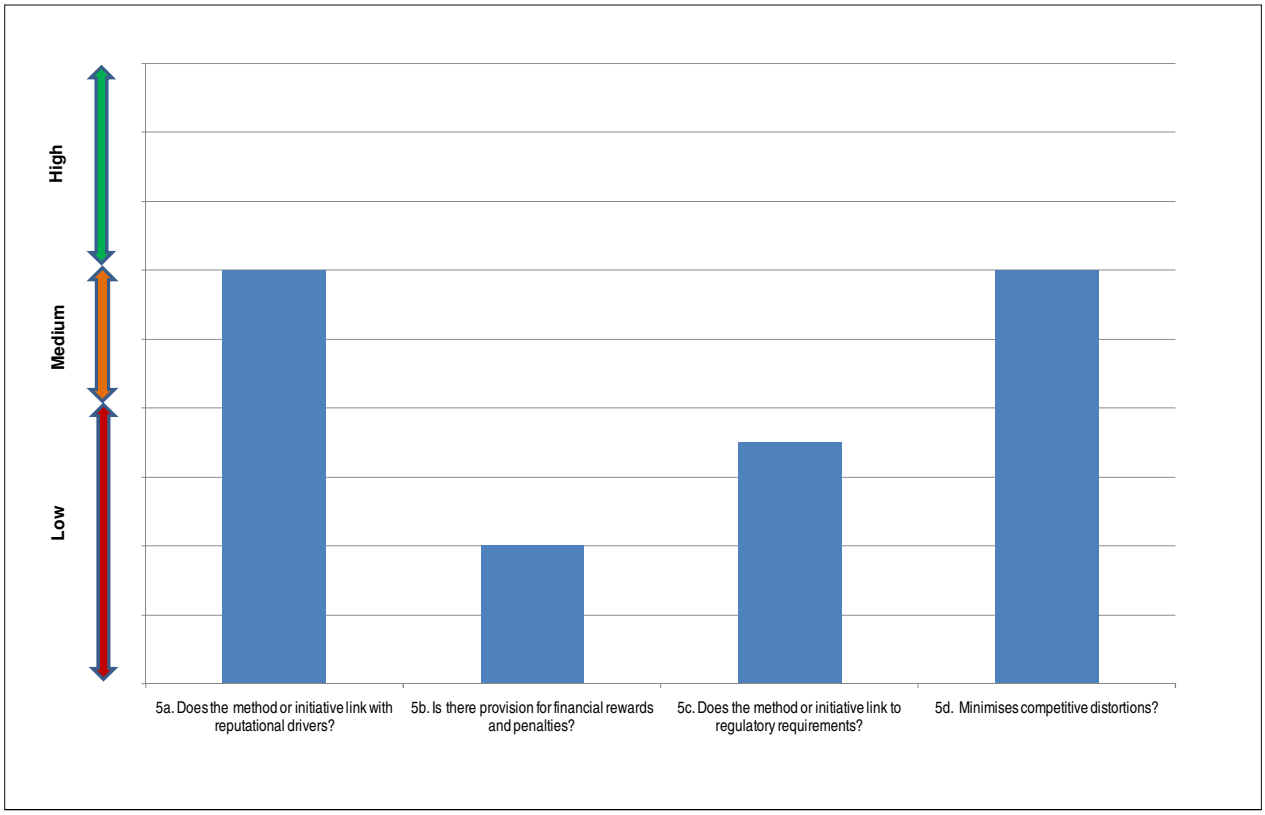
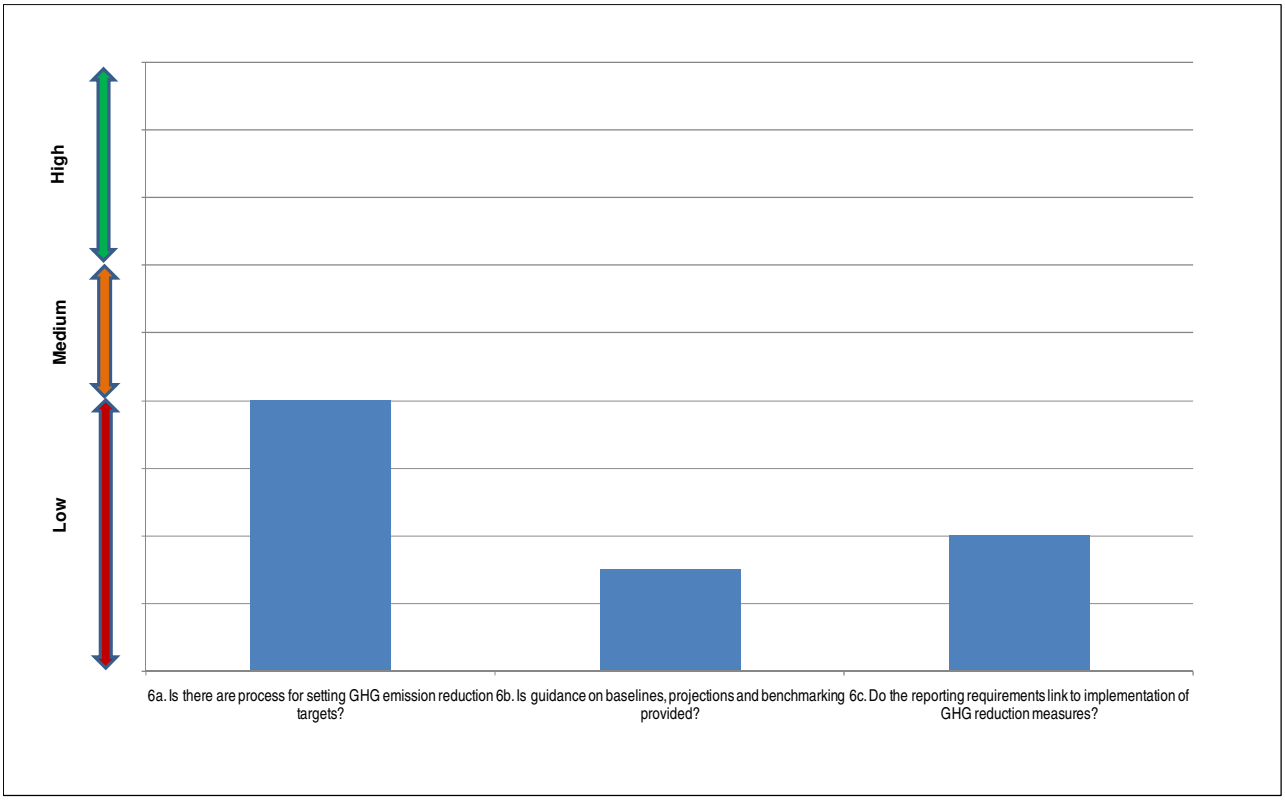


Figure 4.7 Overall Evaluation of Shortlisted Methods/Initiatives Against Criteria 6 – GHG Abatement Potential



4.4 Observations from Assessment of Methods and Initiatives

Based on the assessment of shortlisted methods and initiatives against the agreed criteria, the following observations can be made:

- ***1. Uptake Rate***

Level of recognition?

- Almost all of the shortlisted methods and initiatives have **high recognition amongst the stakeholders at which they are targeted,** but only a few of them (e.g. CDP; GHG Protocol Corporate Standard) can be considered to have a high and wide recognition amongst stakeholders globally. The reasons for this are clear: the majority of the methods and initiatives are either regional or national in their application. It is also clear that some relatively new methods/initiatives are not yet fully established and so they are still at an early stage of recognition within their target stakeholder group (although uptake may be bolstered by the recognition level the sponsor/owner organisation). The GHG Protocol Product & Supply Chain Initiative is a good example here (where it is still in Draft form and recognition is limited at present to the leading multinational companies, experts and policymakers). Amongst the global methods and initiatives, it is fair to conclude that the CDP and the GHG Protocol Corporate Standard are the most widely recognized reporting initiative and reporting method. The ISO14064 standard is currently less widely recognized.

Level of use?

- A small number of the methods/initiatives were rated low when considering **how widely they are currently used.** The primary reason for this is that they have not yet had time (since publication) to attain a high uptake rate amongst their target stakeholder group. A good example of this is the GHG Protocol Product and Supply Chain Initiative which was only recent finalised in draft form and is undergoing trial by a leadership group of more than 70 companies. The Carbon Reduction Commitment also falls into this category (at the time of writing, the first annual registration period had not been completed). However, it is fair to conclude that, in due course, it will achieve a 100% uptake rate within its target group. Whilst no data are readily available, anecdotal evidence suggests that uptake and use of the ISO14064 standard is relatively much lower than that for the GHG Protocol Corporate Standard. The reason for this may be that it is a more complex standard which is complementary to the GHG Protocol Corporate Standard and is of greatest use for organizations which wish to validate and verify their GHG inventory. ISO is currently working on developing guidance for the application of ISO 14064-1, which might modify the situation.

Uptake rate?

- Some methods are limited in their **maximum feasible uptake rate** by the nature of their focus on a particular country, region or audience. This is to be expected since a method or initiative that is tailored in this way is less likely

to be generic enough to meet the needs of other sectors or audiences. The USEPA Climate Leaders Inventory Guidance (which is most suited to energy intensive companies) and the DEFRA Company GHG Guidance and Bilan Carbone (both aligned to the GHG Protocol but focused on a national target group) are examples.

- By way of contrast, those voluntary methods and initiatives that have had the time to establish themselves well, which are broadly applicable, and which were developed with extensive stakeholder consultation (e.g. globally the CDP and WBCSD/WRI GHG Protocol Corporate Standard, both of which have been running for approximately 10 years and which have wide stakeholder support) **have developed a high uptake rate** (e.g. > 80% uptake rate by global 500 companies to the CDP2009).
- **Mandatory schemes,** by definition, ensure a high uptake rate for the target sector typically via financial penalties for non-compliance and, once in place, can achieve an uptake rate of close to 100% very quickly. In contrast, **voluntary schemes** rely upon non-financial incentives, stakeholder pressures and reputational drivers to enhance uptake: a process which can take many years to achieve a high uptake rate (a good example of this can be seen from the time series data on uptake published by the CDP).

Resources to promote uptake?

- Limited data was available on this aspect. No evidence was found to suggest that the major methods and initiatives do not have an adequate **level of resources in place** to promote their increased uptake and development.

➢ ***2. Reliability and Robustness***

Sets out principles?

- Most of the methods and initiatives were rated well on **setting out the principles of reporting** as the related protocols and guidance documents tend to be detailed and lengthy documents. However, the greatest areas of variation occur for: Scope 3 (indirect) emissions boundaries; outsourced activities; choice of emission factors; and, treatment of renewables/offsets. It was also noted, in our assessment, that no clear and definitive guidance is currently provided by any of the leading methods and initiatives in relation to corporate accounting of carbon emissions due to land use change and forestry activities.

Sets minimum standards?

- Whilst it perhaps obvious that this will be the case, globally applicable voluntary methods and initiatives generally rate less well on **setting minimum standards** since most constitute best practice guidance which the user can decide to deviate from. Some of the guidance provided by the methods is too generic to provide a basis for minimum standards. For example the guidance is typically open to interpretation on issues such as: the inclusion/exclusion of grid losses in electricity emissions; offsets for use of renewable electricity tariffs; definition of materiality thresholds; and,

optional inclusion of business travel indirect emissions. National guidance, such as the voluntary Company GHG Reporting Guidance from DEFRA (but also the Bilan Carbone and USEPA Climate Leaders Inventory Guidance), typically addresses a number of these issues. The methods which rate most highly on setting minimum standards tend to be mandatory schemes and associated reporting requirements (e.g. UK CRC) which dictate clearly which emission sources must be reported and which emission factors must be applied. ISO 14064 takes a different and often complementary approach, setting minimum standards for accuracy and completeness whilst allowing flexibility on other issues such as boundary setting.

Results verifiable?

- The methods generally score poorly on the **verifiability of results** since independent verification is optional (for 7 out of the 9 shortlisted methods/initiatives), except in the case of ISO 14064 where verification is mandatory, and the CRC which takes a streamlined approach based on self certification and sample verification audits. Also the lack of minimum standards as noted above means that any two GHG emission assessments for the same operation may give significantly differing results (of the order of 10%+ in ERM's experience). Guidance on materiality and uncertainty assessment is generally found to be an area for improvement. It is noted that best practice in voluntary GHG reporting typically involves applying a 5% materiality threshold in aggregate, whilst a mandatory scheme typically has a tighter materiality threshold. Under the ISO 14064 standard the materiality threshold relies on the judgment and experience of the verifier.

Uses recognised data sources?

- Most methods use a range of **recognised data sources**, such as the IPCC 1996 GWP values and emission factors. Activity data required is typically readily available although data for refrigerant leakage and business travel is often of poor quality in ERM's experience. The methods typically lack detailed guidance on making estimates for missing or incomplete activity data.
- Most methods **periodically revise** and update their guidance and emissions factors. This may lead to problems for companies wishing to report annual trends on a consistent basis, especially if the emission factors are changed frequently or at irregular time intervals. Typically, basic (but not comprehensive) guidance is given on how and when to update calculation methods and emission factors.

➢ *3. Compatibility and Comparability*

Applicable across sectors?

- The voluntary methods and initiatives were rated well for **applicability across a wide range of sectors.** Sector-specific protocols are available for some sectors (e.g. 12 sector toolkits available alongside the GHG Protocol Corporate Standard, most of them for heavy industrial sectors), along with sector-specific emission factors and/or calculation tools. The mandatory UK

CRC scored less on this aspect as it is targeted at stationary energy use emissions in the non-energy intensive sectors.

Aligns with EU and MS policies?

- In specific terms, the voluntary methods and initiatives **did not rate highly** in terms of alignment with specific EU and Member State policies. For example, the Bilan Carbon aligns with the Grenelle II law but is not adopted by other Member States. This is because voluntary schemes tend to be global standards with no particular EU or MS policy links (such as WBCSD/WRI GHG Protocol and CDP).
- The UK CRC aligns with the UK Climate Change Act but is not adopted by other Member States. There is **limited alignment** between UK CRC and EU ETS (e.g. few EUETS participants have operations that are covered by the UK CRC) and the calculation methods and reporting requirements are entirely different.
- All of the methods and initiatives align with the **broad climate change policy objectives** of sustainable production and consumption. They also foster transparency and public accountability, both of which are strongly aligned to EU and Member State environmental policy. Notably, the USEPA Climate Leaders Initiative has formalised the voluntary, public emission reduction commitments of over 100 leading companies, in advance of US Federal legislation to cut emissions.

Compatible with other major methods/initiatives?

- The scores for **compatibility with other major methods and initiatives** were variable. Those (6 out of the 9 shortlisted) which refer back to the WRI/WBCSD GHG Protocol Corporate Standard scored most highly as this is seen as a leading standard which sets out the fundamental principles of GHG reporting (14 out of the original list of 30 methodologies/initiatives linked to the GHG Protocol, see Table 3.8). The UK CRC, as a mandatory method, was rated less highly because it sets emission boundaries which comprise only part of an organisation's emissions. Whilst the overall principles of reporting under the UK CRC are consistent with the principles of the GHG Protocol Corporate Standard, there are significant differences in scope and boundary, monitoring and verification requirements, and gases covered. A company with all of its operations in the UK would not be able to prepare a full GHG inventory, in line with DEFRA Company GHG Guidance, based purely on its submission under the CRC.

Allows comparison between participants?

- Most methods and initiatives were rated moderately in terms of **allowing comparison between participants.** The UK CRC was rated less highly since, despite the inclusion of a 'league table', the inclusion of crediting for early action and a wide variation in sizes/sectors for participants with little contextual data may make it more difficult to make true comparisons between companies. Nevertheless, the CRC provides detailed guidance around scope, boundary, calculation methods, emission factors etc, and also arrangements for audit of participants accompanied by penalties for incorrect

reporting which provide a strong incentive to participants to 'get the numbers right'.

- As noted above the general **lack of minimum standards** in the voluntary methods does cause problems when comparing participants (for example, whilst the CDP has for many years included a Carbon Disclosure Leadership Index which is valuable, the absence of requirements for verification, and the absence of specific guidance for many sectors within the GHG Protocol Corporate Standard, make absolute comparison between companies, even in the same sector, difficult and potentially misleading unless other contextual factors are taken into account).

➢ ***4. Ease of Use***

Widely available and free of charge?

- The methods and initiatives rate well on **availability and use free of charge.** Only Bilan Carbone (which provides documents free of charge but requires users to attend training sessions on supporting tools) and ISO14064 (for which the costs of the part 1 and 3 documents is approximately €250) involve any access costs to the user.

Supporting calculation tools available?

- The assessments for **availability of software tools to simplify calculations** are variable, with some methods providing a range of Excel spreadsheet tools covering different sectors and others not providing any tools at all. In ERM's experience the majority of companies use Excel spreadsheet for GHG reporting, although a growing number of larger companies are integrating GHG reporting tools into wider sustainability data management platforms which are typically enabled for multi-site use through corporate intranets;

Associated platform for reporting?

- The 'methods' tend to have no **established platform for reporting** since this is not in their remit (e.g. WRI/WBCSD GHG Protocol; ISO14064) whilst the 'initiatives' tend to have highly developed platforms for reporting and public disclosure as this is one of their key aims (e.g. CDP; EU ETS via the Community Independent Transaction Log). There are some examples (EU ETS, CRC; USEPA Climate Leaders Inventory, and The Climate Registry) where reporting initiatives also provide a GHG calculation methodology.

Simple guidance for SMEs and key sectors?

- Only two of the 9 methods (DEFRA and USEPA Climate Leaders Inventory) provide **simple guidance for SMEs.** The USEPA Climate Leaders Inventory 91 Small Business Network Members. In addition, Bilan Carbon provides some examples that are applicable to SMEs. The lack of simple guidance is likely to be a significant barrier to increasing SME uptake. Other organisations have responded to this by working with methodology and initiative owners to prepare simplified guidance and web-enabled calculators

that are accessible to SMEs, for example the Carbon Trust and the CBI [5]. Both of these examples link to core methodologies (in this case, the WBCSD/WRI GHG Protocol and the DEFRA guidance) which would suggest that the core methodologies themselves are not unsuited to use by SMEs, but that the length and complexity of the associated guidance documents makes them inaccessible for SMEs with limited resources.

- Some methods (e.g. WBCSD/WRI GHG Protocol; Bilan Carbone) provide **sector-specific guidance**, typically for energy-intensive sectors (e.g. iron & steel, cement) and the chemicals and waste sectors (e.g. covering non-CO_2 gases). This sector-specific guidance provides more detailed definition of the key emission sources, boundary issues, calculation methods and emission factors than the general protocols.
- A particular **area of weakness** in the general protocols is the lack of guidance on quantifying refrigerant leakage emissions from air conditioning and refrigeration equipment, which is used across several sectors (e.g. chemicals, retail, transport, offices). In reporting of refrigerant leakage it is considered to be good practice to **include HCFCs in addition** to the Kyoto basket-of-six GHGs but most protocol do not cover HCFCs (e.g. the WBCSD provides a calculation tool for refrigerants it excludes HCFCs).

➢ *5. Incentives for Use*

Link with reputational drivers?

- The voluntary methods and initiatives tend to **link well with reputational drivers**. In ERM's experience many companies derive reputational benefits from public disclosure of GHG emissions (and associated policies/reductions) and the voluntary schemes add credibility to the disclosure process. The UK CRC has a stronger link to reputational drivers due to mandatory participation in a published performance league table.

Provision for financial rewards and penalties?

- Out of the 9 shortlisted methods and initiatives, the UK CRC rated highly on **provision for financial rewards and penalties** since mandatory schemes are the only ones which have such a remit. Arguably voluntary schemes would struggle to implement any financial reward or penalty scheme, however, in the previous list of 30 initiatives, there are two which do this in some way: the Japan Voluntary ETS and the Chicago Climate Exchange, both of which are voluntary initiatives that allow participants to trade emissions.

Link to regulatory requirements?

- Not surprisingly, voluntary methods were not rated highly in terms of **linking to regulatory requirements.** However, voluntary methods tend to be referred to by Member State authorities as a means of demonstrating good management practices, consistent with government policy, and above and beyond regulatory requirements; and,

[5] See http://climatechange.cbi.org.uk/business/how-can-business-reduce-carbon/ and http://www.carbontrust.co.uk/cut-carbon-reduce-costs/calculate/carbon-footprinting/pages/organisation-carbon-footprint.aspx for two SME calculation tool examples.

Minimizes competitive distortions?

- The mandatory UK CRC did not rate well in terms of **minimising competitive distortions** at the international trade level since it does not apply outside the UK, so that competitors in other countries avoid the associated costs. However, it is important to note that within the UK a large amount of development work has been undertaken on the CRC to ensure that it provides, as far as possible, a 'level playing field' for participants.
- The voluntary schemes that are global in nature scored well since they typically **apply to a wider range of sectors and countries** of operation. Voluntary schemes which are regional or Member State specific (e.g. Bilan Carbone, DEFRA GHG guidance, USEPA Climate Leaders Index) are unlikely to lead to competitive distortions because, although they may lead to some reputational advantage for participants compared to non-participants who compete in the same markets, they are (at least in theory) open to all companies operating within a particular country or region irrespective of their HQ location.

➢ ***6. GHG Abatement Potential***

Process for setting reduction targets?

- In terms of processes for **setting GHG emission reduction targets**, the scores were generally low, with the exception of the USEPA Climate Leaders Index which requires participants to set a target with annual reporting of progress.

Guidance on baselines, projections and benchmarking?

- The rating of the 9 shortlisted methods and initiatives for **guidance on setting baselines** and making adjustments was generally good, with mandatory schemes being the most specific on this aspect. Scores for **guidance on making projections and benchmarking** were very low but this is an area of increasing importance in ERMs experience of company GHG reporting and climate change policy development.

Link to implementation of GHG reduction measures?

- Few of the shortlisted methods and initiatives rated well on **links with implementation of GHG reduction measures.** The CDP requires disclosure of company climate change policy and GHG emission measures. This is an important area for reputational benefits and stakeholder interest in company GHG reporting. As the CDP resources are further developed, they will enable stakeholders to evaluate company GHG performance over time. The USEPA Climate Leaders Inventory also requires some limited disclosure of reduction measures and initiatives. Meanwhile, the mandatory UK CRC gives financial incentives for GHG reduction. UK CRC incentives will strengthen over time as the scale or reward or penalty is increased (from +/- 10% in the first year of the scheme, to +/- 50% in year 5 of the scheme), dependent on the relative GHG emissions performance of the participant organizations.

➢ ***General Observations***

- Whilst a theoretical ideal method or initiative would fully meet all of the criteria, it may be **difficult to achieve this** in practice – a combination of best practice elements taken from leading existing methods would be required. This is due in part to apparently wide variations (between companies, stakeholders and Member States) in factors such as: reporting aims/objectives and needs; boundaries and size of operations; sector or country specific emission factors; policy requirements; and, financial and reputational drivers. There may also be an element of trade-off between best practice elements (e.g. there is a balance to achieve between the robustness/accuracy of a method and its ease of use).
- Some method or initiative features and assessment criteria **may be more important** than others depending on the needs of the user and the stakeholders. For example, the aims and objectives of an international voluntary scheme will be significantly different from the aims and objectives of a national mandatory scheme. The above assessment does not take this aspect into account. However, this will be explored further in the later section of this report that considers different policy scenarios.
- This assessment of the shortlisted methods and initiatives provides an appreciation of their **particular strengths and weaknesses** which can usefully inform the development of revised methods and initiatives in the future. It will also inform the subsequent tasks in this study, particularly the analysis of suitability of different methods and initiatives to different policy scenarios.

These observations and the assessment results will help to inform Phases II and III of the study to assess risks, costs and benefits of GHG reporting and examine areas for future policy development.

4.5 Summary of Phase I – Analysis of Methodologies and Initiatives

Phase I of the study has focused on the identification, comparison and assessment of major company GHG reporting methods and initiatives. Phase I of the study can be summarised as follows:

- A total over 80 company GHG reporting methods and initiatives were identified as being currently in use globally, many being sector-specific adaptations of other methods;
- Through desk research and consultation with key stakeholders, a 'long list' of 30 'major' GHG reporting methods and initiatives has been identified which are in common use;
- The 30 major methods and initiatives have been reviewed against a number of key features to understand their commonalities and differences;
- Initial review of these has enabled a representative shortlist of 9 leading methods and initiatives to be compiled. These shortlisted methods and initiatives have been assessed in detail against a set of criteria;

- The assessment has enabled an analysis of the features, strengths, weaknesses and fields of application of leading methods and initiatives which will inform Phase II (Analysis of risks and benefits) and Phase III (Analysis of scenarios of application) of the study; and,
- A large volume of data (i.e. several thousand data items/descriptions across 30 methods/initiatives) has been collected and analysed during Phase I. The scale of this task is an indicator of the level of complexity involved in assessing and comparing the multiplicity of GHG standards and schemes in current use. This analysis also indicates the issues that companies, investors, policy makers and other stakeholders may face when using and comparing the multiplicity of schemes in current use.
- A number of observations have been made from the more detailed analysis of nine shortlisted methods and initiatives (see Section 4.4). These observations can help to inform the assessment of possible future policy options for company GHG reporting in Section 6 of this report.

5. Assessment of Risks and Benefits of GHG Reporting

5.1 Introduction

This Phase of the study is focused on assessing the risks and benefits of company GHG reporting and how this relates to choice of reporting methods and company sector/size. A range of data sources were utilised, including:

- Telephone interviews with a range of private sector companies;
- Questionnaire survey of methodology and initiative owners;
- Examination of company websites and public reports;
- Review of literature from key international sources; and
- ERM expert inputs.

It is also important to try and separate out the risks, costs and benefits that are directly associated with GHG reporting form those that involve addressing wider climate change and environmental issues. This point has been addressed as far as possible during the study although it is recognised that many GHG reporting costs and benefits are difficult to 'unpick', since the process of GHG reporting is typically integrated with wider company initiatives. The subsequent sections present the process that was followed, summarise the data collected and discuss the key findings from the assessment.

5.2 Company Interviews: Selection Criteria

Introduction

During May 2010, ERM undertook a series of interviews with selected companies, as part of Phase II of the study, in order to collect additional evidence on risks, costs, benefits, strengths and gaps of GHG reporting methodologies and initiatives, complementing the research conducted in Phase I of the project.

The main intended outcomes of the interview process along with the subsequent analysis of the companies' responses were, inter alia, to understand:

- What are the reasons for choosing different European and international methods and initiatives for GHG reporting?
- How well do existing methods and initiatives meet the needs of different sizes of company and different sectors?
- How can companies use GHG reporting methods/initiatives to facilitate emissions reductions?
- What are the strengths and limitations of existing GHG reporting methods and initiatives?
- What factors need to be considered to ensure comparability, ease of use and the correct balance of risks, costs and benefits in developing future policies on company GHG reporting?

The following section presents the company selection criteria that were applied.

Selection Criteria

Four main selection criteria have been employed for the purposes of this study in order to arrive at a shortlist of around 30 companies that offered a good representation of different GHG reporting methods/initiatives, geographies, company sizes and sectors.

The first selection criterion aims to introduce an element of diversity in terms of GHG reporting methods and initiatives used by the companies included in the survey, for example:

- WBCSD/WRI GHG Protocol users;
- French Bilan Carbone users;
- EU ETS participants;
- UK Carbon Reduction Commitment (CRC) participants
- DEFRA GHG Guidance users;
- US Climate Leaders Program participants;
- Chicago Climate Exchange (CCX) participants;
- API/IPIECA GHG Compendium users;
- Global Reporting Initiative (GRI) users;
- Carbon Disclosure Project (CDP) participants;
- ISO 14064: 2006 (Parts 1 and 3) users; and,
- Japanese GHG Reporting Scheme participants.

The second criterion aims to introduce a balanced geographical representation of companies in the study. The shortlist included companies that are headquartered/operating in the following EU countries and broad regions:

- UK;
- France;
- Germany;
- Northern EU Member States (e.g. Denmark, The Netherlands and Belgium);
- Southern EU Member States (e.g. Spain, Italy and Greece);
- New EU Member States (EU 12); and,
- Outside of EU (e.g. USA and Japan).

The third criterion aims to allow adequate representation to a variety of companies and public sector organisations engaged in GHG reporting that are operating in number of sectors such as:

- Public Sector;
- Oil & Gas;
- Utilities;
- Transport and Logistics;
- Manufacturing;

- Technology, Media and Telecoms;
- Chemicals and Pharmaceuticals;
- Construction and Building Products;
- Hospitality, Leisure and Business Services;
- Raw Materials, Mining, Paper and Packaging;
- Retail and Consumer Goods; and,
- Financial Services.

The fourth criterion aims to introduce ensure a fair representation of companies of different sizes in the study e.g. multinational companies, large national companies and SMEs.

Enterprises qualify as micro, small and medium-sized enterprises (SMEs) if they fulfil the criteria summarized in Table 5.1 [6].

Table 5.1 EC Definition of SMEs

Enterprise category	Headcount	Turnover	or Balance sheet total
medium-sized	< 250	≤ € 50 million	≤ € 43 million
small	< 50	≤ € 10 million	≤ € 10 million
micro	< 10	≤ € 2 million	≤ € 2 million

More specifically and for the purposes of this study:

- A company qualifies as an SME if in addition to the staff headcount ceiling for a medium-sized enterprise meets either the turnover ceiling or the balance sheet ceiling, but not necessarily both;
- A company qualifies as a large national company if it has its headquarters and its main production sites in a European country and does not meet the SME criteria; and;
- A company qualifies as multinational if while headquartered in the EU it has major operations in more than one country and does not meet the SME criteria.

ERM identified a number of SME companies that participated in the EC study on "CSR and Competitiveness, European SMEs' Good Practice" [7] and are active in the Corporate Social Responsibility area. ERM undertook a high level review of the websites of the companies listed and found no evidence that they are actively managing or reporting their GHG emissions which raises an issue in terms of the uptake of GHG reporting methods and initiatives by SMEs.

A number of reasons why SMEs do not actively manage and report their emissions can be proposed such as:

- Majority of SMEs are operating in non-energy intensive sectors;
- Lack of appropriate incentives, toolkits etc;

[6] European Commission, Recommendation 2003/361/EC regarding new SME definition, 6 May 2003
[7] EC, DG Enterprise and Industry, CSR and Competitiveness - European SMEs' Good Practice - Consolidated European Report, 2007

- Lack of financial, human and other resources; and,
- Lack of awareness of benefits.

In order to be able to draw on SME company responses that are relevant and material to the objectives of the study, ERM took an alternative approach of targeting companies mainly through recommendations from reporting schemes, investors and other stakeholders of SME's that are known to be calculating and reporting their GHG emissions.

5.3 Company Interview Process

A shortlist of the companies selected for interview according to the above four main criteria is given in Annex C. The company names have been kept confidential as the majority of participating companies requested this. Instead companies are listed by sector, size (multinational, large national, SME) and region of operation (or country where headquartered). ERM used its existing range of contacts in government and industry in order to identify candidate companies and gain relevant company contact information. A total of 35 companies were identified covering SMEs, national, multinational, different Member States, etc. according to criteria. These shortlisted companies were contacted by ERM and provided with a briefing note and copy of the questionnaire (see Annex D). The questionnaire covered 18 questions, under 5 main topics as follows:

A. Overview of the company: with the aim to get an understanding of the company's GHG management and reporting cycle/system.
B. Company Emissions Profile: in order to provide an overview of the company's GHG emission sources, reporting boundary, KPIs and targets and identify any differences in the management of voluntary vs. mandatory emissions.
C. Selection of GHG reporting methodologies and initiatives: to identify GHG methodologies and reporting initiatives employed by the company and understand drivers for selection.
D. Benefits: to identify the benefits to companies associated with GHG measurement and reporting.
E. Barriers and costs: to identify the barriers, risks and costs to companies associated with GHG measurement and reporting.

ERM staff conducted the interviews by telephone (typically lasting one hour) during May 2010. The questionnaire format was followed and used as the basis for recording responses.

From the shortlist of 35 companies invited to interview, 15 companies responded positively within the six-week interview deadline (giving a 43% response rate), providing a useful range of viewpoints and data for the assessment of risks, costs and benefits. The respondents tended to be the multinational companies which have the resources to take part in such surveys. In most cases the interviewee was either a

head of Corporate Responsibility or other senior manager with environmental reporting responsibility at the company.

The companies which participated in the interviews are listed in Table 5.2. Each company is assigned a unique ID number in Table 5.2 which is then used in subsequent tables which summarise the interview responses (company names remain confidential).

Table 5.2 List of Companies Interviewed During May 2010

Company ID No. (used in subsequent tables)	Region/Country HQ	Sector	Company Size
1	UK	Waste Food Composting	SME
2	UK	Metal Products Manufacturing	SME
3	Germany	Construction Materials and Mining	Multinational
4	France	Oil and Gas Extraction, Processing and Retail	Multinational
5	US	Healthcare and Pharmaceuticals	Multinational
6	Italy	Oil and Gas Extraction, Processing and Retail	Multinational
7	Sweden	Paper and Packaging	Multinational
8	Spain	Power Generation	Multinational
9	UK	Security Services	Multinational
10	Greece	Construction and Real Estate	SME
11	Spain	Oil and Gas Extraction, Processing and Retail	Multinational
12	Germany	Power Generation	Multinational
13	UK	Retail of Food and Consumer Goods	Multinational
14	UK	Light Rail Passenger Transport Operator	National
15	US	Food and Beverage Manufacturer	Multinational

5.4 Company Interview Results

A summary of the responses and perspectives arising from the company interviews are presented in the Tables below as follows:

- Table 5.3 A. Overview of GHG Reporting Systems
- Table 5.4 B. Overview of GHG Emissions Profile
- Table 5.5 C. Selection of GHG Reporting Methodologies and Initiatives
- Table 5.6 D. Benefits of GHG Measurement and Reporting
- Table 5.7 E. Barriers and Costs of GHG Measurement and Reporting

Table 5.3 Summary of Company Interview Results – A. Overview of GHG Reporting Systems

Company ID No. (size; country; sector)	A. Overview of Company GHG Measurement and Reporting Systems				
	1. What overall policies and systems does your company have for GHG measurement and reporting?	**2.** How many years have GHG emissions data been calculated/reported for and how frequently is reporting carried out?	**3.** Is the coverage/basis of GHG data and calculation/reporting global or local in nature?	**4.** Is your emissions data publically disclosed or reserved for internal reporting and management purposes only?	**5.** What quality assurance systems do you have in place for GHG measurement and reporting?
1. SME; UK; Waste Food Composting	No policies or systems in place. GHG reporting is limited to completion of CDP (to meet customer requirements). The submission is managed by the small number of employees internally - there is no dedicated team responsible for managing GHG issues at the company.	CDP was completed for the first time in 2009 - undertaken in response to customer requirements. The second CDP submission (2010) is currently being completed. Other than CDP no other measurement or reporting is carried out.	UK based company - scope of reporting is UK operations only, covering all operations.	Data is disclosed via the CDP, however at the current time there is no other public disclosure of GHG data. Following completion the second CDP response the company will review and compare the two submissions and begin to identify any trends/improvements in their GHG data.	Data submitted to the CDP is checked internally. No formal data assurance process is undertaken.
2. SME; UK; Metal Products Manufacturing	The company is striving to be a leader in the metals sector in terms of GHG reporting. In 2006 they introduced 20 Sustainable Development Indicators (SDIs). Two of the SDI's relate directly to GHG emissions. The company is a voluntary participant in the Global Reporting Initiative. Index Reporting is made available to stakeholders through their corporate website and hardcopy Annual Sustainability Report.	GHG emissions reported annually since 2006.	The company's main activity is the production of 10,000 tonnes per annum of primary and secondary (scrap) based aluminium alloys in ingot form. The company has one facility in the UK. Monitoring and reporting of emissions covers all site operations.	Data is publically disclosed via their Sustainability Report available on the company website.	GHG emissions associated with the manufacturing process are monitored by an external company. No third party checking/assurance of the remaining GHG data reported within the companies Sustainability Report. The company is accredited to the Environmental Management System (EMS) ISO 14001. Monitoring emissions to the atmosphere from stacks is controlled under this Standard.
3. Multinational; HQ in Germany; Construction Materials and Mining	Voluntary participation in the Cement Sustainability Initiative (CSI), which is a sector project of the WBCSD/WRI. All 45 European plants in 13 countries also report for EU ETS. The company's Global Environmental Sustainability team has responsibility for centrally managing collection of data.	Since 2003 at least. Reporting is annual but production data is collected monthly.	Coverage is global. In each of the 13 European countries there are different methods of calculating emissions. The US system is different to Europe, and California is different again. Canada and Australia also have their own methods of calculation.	Disclosed on Website and through CDP.	External QA verification of ten plants in Europe every two years by independent auditors. Nearly all operations in European countries have an EMS, some are externally verified, some are not.

Company ID No. (size; country; sector)	A. Overview of Company GHG Measurement and Reporting Systems				
	1. What overall policies and systems does your company have for GHG measurement and reporting?	**2.** How many years have GHG emissions data been calculated/reported for and how frequently is reporting carried out?	**3.** Is the coverage/basis of GHG data and calculation/reporting global or local in nature?	**4.** Is your emissions data publically disclosed or reserved for internal reporting and management purposes only?	**5.** What quality assurance systems do you have in place for GHG measurement and reporting?
4. Multinational; HQ in France; Oil and Gas Extraction, Processing and Retail	The company's consolidated environmental reporting , including GHG emissions, focuses on the scope of operational control, for which reliable figures are available. Under the responsibility of the Sustainable Development and Environment Division, the Group has issued Corporate Directives and specific methodologies by business segments for GHG emissions reporting. The directives and methodologies are in line with the International Petroleum Industry Environmental Conservation Association (IPIECA)'s guidance and EU ETS monitoring reporting guidelines.	Since 2000 the company issued an annual reporting of performance whose major indicators are published within the annual CSR report. An external verification on eight indicators are performed each year, since 2005, and again the 2009 data are certified by auditors at a level of moderate assurance. Data is consolidated on a monthly or quarterly basis. Corporate guidelines are well applied.	The coverage of GHG reporting covers all operating sites. Data is first consolidated, site by site, at the Branch level and then at the Group level where results are analysed and reported. Methodologies are consistent on a worldwide basis, ensuring no double reporting and with adaptation according to local regulations if required.	Performance data are disclosed annually for a large part, using the CSR publication, website and via CDP. Results are presented at a Group level and by activities (Upstream, Downstream and Chemicals), by sources and by gases. Others levels of reporting are available internally. There is no Group publication for the EU ETS scope as this is dealt with at site level and publically available via the EU ETS CITL.	A large part of Group operated sites are ISO14001 certified (about one third in 2009) and this accounts for 90% of the main indicators including the air emissions. An external verification of performance is performed each year, the coverage was 33% of sites in 2009.
5. Multinational; HQ in US; Healthcare and Pharmaceuticals	The company uses a system based on a number of regional GHG reporting procedures but there is no overall policy in place. Proprietary software is used to collect environmental data. Last year the company evaluated their full supply chain (life-cycle) footprint for the first time (around 3 million tCO_2e/annum). The company will develop a formalised procedure for full life-cycle emissions reporting in future.	First reported direct GHG emissions in 1996. Reports covers Scope 1, 2 and 3 emissions. External reporting is annual, internally GHG emissions are reported quarterly.	Reports publicly using the GHG protocol for the whole company. Also reports under CCX based on CCX requirements; US Climate Leaders based on US EPA requirements; and, Ireland - EU ETS. Additional GHG reporting based on local schemes. Also reports for investors who have their own survey, often web-based.	Reports under: CDP; Company website - sustainability report; USEPA Climate Leaders; EU-ETS; and, CCX	Review of sustainability report - to show consistency - this is at a higher level - third party verification used; Ireland - local (EU-ETS) verification; America - reviews by separate consultant; Global audit program/external verification of sustainability report; US EPA climate leaders - reviewed/audited; CCX emissions verified by 3rd party

Company ID No. (size; country; sector)	A. Overview of Company GHG Measurement and Reporting Systems				
	1. What overall policies and systems does your company have for GHG measurement and reporting?	**2.** How many years have GHG emissions data been calculated/reported for and how frequently is reporting carried out?	**3.** Is the coverage/basis of GHG data and calculation/reporting global or local in nature?	**4.** Is your emissions data publically disclosed or reserved for internal reporting and management purposes only?	**5.** What quality assurance systems do you have in place for GHG measurement and reporting?
6. Multinational; HQ in Italy; Oil and Gas Extraction, Processing and Retail	The company applies an internal GHG accounting protocol (2004, revised 2009 based on API guidance) that includes reporting criteria for different parts of the business refined by sector Corporate level reporting criteria has been adopted, guided by sector-specific standards (sectors are downstream, upstream, refining, petro-chemicals, engineering and construction). In reporting the methodology is split by process operation. There is a central database where all GHG data is collated.	Company-wide GHG reporting begun in 2005 using proprietary software. The company now follows international best practice for the GHG reporting in the oil & gas sector (API guidance) and reports are done quarterly.	Different systems are in place for mandatory and voluntary reporting requirements. Facilities under the EU ETS report under the scheme MRV guidelines. Each site has guidelines to meet reporting criteria for emissions trading, audit processes and verification. For voluntary reporting E&P have their own API compendium – an Excel file that is shared around the world. One reporting system is compliance based whilst the other is based on local and regional emission factors. Data is collated at corporate level from 70 countries, leading to consistency issues.	Responds to the CDP and reports GHG results in the company website/sustainability report.	Verification process under EU-ETS and certification and external 3rd party verification of GHG reporting software.
7. Multinational; HQ in Sweden; Paper and Packaging	The company follows the WBCSD/WRI GHG Protocol and its subordinate sectoral protocols. Internal policies are in place to report annually on scope 1 and 2 emissions from all sites that employ more than 10 people. GHG reporting is part of the company Balanced Scorecard.	The company first reported externally on GHG emissions in 1999. Quarterly reports are produced internally.	Sites provide data on energy use to Group and Scope 1 and 2 emissions are calculated centrally. The company uses the GHG protocol in order to ensure consistency globally.	The company responds to the CDP and reports via its website and annual environmental report – printed. The company is a WWF climate savers member which involves third party assurance.	GHG reports are assured by an independent consultant. Green Electricity suppliers must follow the "Eugene" label or equivalent.
8. Multinational; HQ in Spain; Power Generation	The Environmental and Sustainability Committee remains as the highest group within the Company, promoting the policies and setting up the objectives in climate change to be approved later by the Board.	Fuel consumption has been reported annually since 1990 and quarterly since 2005. GHG emissions have been reported since 2004 and the procedures were updated in 2008.	In Europe, the EU ETS MRV guidelines are followed for participating sites and this is part of the site permit conditions. The same GHG reporting methodology has voluntarily been implemented in facilities in Europe that are not included in the EU ETS. Installations in Latin America have voluntarily used the same calculation methodology as in Europe, by introducing this procedure into their EMS, certified by ISO 14001.	The company responds to the CDP and also reports GHG data annually via its website and CSR report.	CO_2 direct emissions from facilities included in the EU ETS are externally verified by an accredited verifier company every year. In 2008, the emission data of each installation in Spain and Portugal was independently verified.

Company ID No. (size; country; sector)	A. Overview of Company GHG Measurement and Reporting Systems				
	1. What overall policies and systems does your company have for GHG measurement and reporting?	**2.** How many years have GHG emissions data been calculated/reported for and how frequently is reporting carried out?	**3.** Is the coverage/basis of GHG data and calculation/reporting global or local in nature?	**4.** Is your emissions data publically disclosed or reserved for internal reporting and management purposes only?	**5.** What quality assurance systems do you have in place for GHG measurement and reporting?
9. Multinational; HQ in UK; Security Services	The company recently established a CSR Committee to ensure that CSR issues remain at the forefront of the group's strategy. To ensure good governance, procedures for GHG reporting are set-up at the group level.	GHG reported is carried out annually, with an assurance exercise being completed every 2 years.	Global procedures are in place. The company uses the WBCSD/WRI GHG Protocol to ensure GHG reporting consistency worldwide.	The company responds to the CDP and also reports GHG data annually via its website and CSR report.	A data quality review is completed annually with an assurance exercise being completed every 2 years.
10. SME; Greece; Construction and Real Estate	The company has a CSR programme and GHG measurement is part of the environment sub-set of the CSR programme.	GHG reported is carried out annually, and has been done for the last 3 years.	Reporting methods are based on local/regional standards and is split by project /office /region.	GHG emissions reporting was mainly used for internal purposes until now due to data gaps and data uncertainty. The company has improved its data quality this year and will be reporting its emissions via their website	Total Quality Management Systems are used in projects/operations and Mansion have an internal QA/QC procedure to check emissions in relation to activity factors (i.e. KPIs are monitored).
11. Multinational; HQ in Spain; Oil and Gas Extraction, Processing and Retail	During 2009 the company approved a standard for the design, development and management of its GHG inventory, and for its quality assurance, based on the IPIECA guidelines. The company also tracks Emissions Reduction Opportunities and the reporting of GHGs within the Company´s wider environmental management system (aligned with ISO14001).	The company has been reporting its GHG emissions (CO_2 and CH_4) since 2001 and specific emissions in refining (tonnes CO_2e / tonne of crude oil treated) have been reported since 2007. Effort is made each year to cost-effectively reduce GHG emissions by conducting technical feasibility studies. The operational control reporting boundary is applied. Companies over which operational control is exercised and 100% of emissions from joint ventures are also reported where the company has operational control or a majority shareholding.	Installations under the scope of the EU ETS use the associated MRV guidelines stated in their ETS permit. Installations which are not under the EU ETS use a reporting methodology established on an installation level according to specific systems, or following corporate general methodologies.	The company responds to the CDP and also reports GHG data annually via its website and CSR report. The company is also part of the Dow Jones Sustainability Index and FTSE 4 Good Index.	The company publishes every year a global GHG Inventory (which includes scope 1, 2 and 3) in their Corporate Responsibility Report. These data were independently assured in 2008. A notable development in 2007 was the Company's decision to verify the corporate GHG inventory and emissions reduction programs and projects according to the international standard ISO14064. Data for EU ETS facilities are externally verified each year.

Company ID No. (size; country; sector)	A. Overview of Company GHG Measurement and Reporting Systems				
	1. What overall policies and systems does your company have for GHG measurement and reporting?	**2.** How many years have GHG emissions data been calculated/reported for and how frequently is reporting carried out?	**3.** Is the coverage/basis of GHG data and calculation/reporting global or local in nature?	**4.** Is your emissions data publically disclosed or reserved for internal reporting and management purposes only?	**5.** What quality assurance systems do you have in place for GHG measurement and reporting?
12. Multinational; HQ in Germany; Power Generation	The company has a number of climate change policies and systems in place as detailed in their annual CR report. A key focus is on transparency. As a result, their GHG information presented in the public domain is comprehensive.	GHG emissions have been calculated by since the late 1990's. The majority of emissions are regulated under the EU ETS. Of the total annual footprint of 180 million tonnes of CO_2, over 99% is covered by the EU ETS. Emissions are calculated internally on a daily basis as part of the company's normal activities - for internal forecasting. Emissions are also calculated on a quarterly basis for reporting publically (via web site etc). Emissions are calculated annually and reported in the public domain (via CR report, annual report, corporate website). In addition to the annual footprint, the company undertakes annual verification of emissions from all installations under the EU ETS.	GHG emissions are calculated for all company operations, which extend across Europe. Consistent measurement methods are used for calculation of emissions. The majority of emissions are covered by the EU ETS - all of which are reported according to the stringent methodologies associated with the ETS.	Being transparent in reporting GHG emissions is considered key to business. In addition to disclosure through the CR report, annual report and corporate website, emissions are also disclosed via other bodies - including the CDP (the company is listed on the CDP Leadership Index - as one of the most transparent companies on reporting carbon).	The majority of company GHG emissions are covered by the EU ETS. All of these emissions are subject to annual verification by accredited verifiers under the scheme. The emissions not covered by the EU ETS are checked internally before being reported publically, although no independent assurance of these emissions is undertaken.
13. Multinational, HQ in UK; Retail of Food and Consumer Goods	The company has set an ambition to be a zero-carbon business by 2050 without purchasing offsets, and is making considerable progress in reducing their direct footprint. The company has also set a target to reducing emissions in the supply chain. The company's CR Director oversees the development of policy on GHG reporting. Emissions are reported voluntarily via the CDP, company website and CR report each year.	The company has been reporting on its Group direct carbon footprint since 2007, and prior to that had been reporting on the energy use of its stores since 2002. Data collection is undertaken quarterly and reported internally, with annual data collection and external reporting via the corporate website and CR report (data is verified as part of the annual process).	Global coverage using consistent measurement and reporting procedures. Historically reporting was via spreadsheets and from 2009 reporting is via a web-based calculation tool. Local and group-level checking of all data is carried out each quarter via inspection of KPIs and emission trends.	Data is externally disclosed annually via the CR report and corporate website. Quarterly emissions data is used internally in assessing countries progress against targets. The company will become one of largest participants in the UK CRC. The company has also responded to the CDP for the past few years and have responded to "Mayday" in the UK and Report to the CBI climate change board. At a sector level in 2009, the company participated in a supermarket study - which provided a useful tool for benchmarking.	Consultants undertake a data review of the company's annual GHG data submitted by countries prior to finalising the results (this includes identification of trends and anomalies to help ensure accuracy of the data). In addition, formal assurance of the final annual data is undertaken by a and independent assurance provider.

Company ID No. (size; country; sector)	A. Overview of Company GHG Measurement and Reporting Systems				
	1. What overall policies and systems does your company have for GHG measurement and reporting?	**2.** How many years have GHG emissions data been calculated/reported for and how frequently is reporting carried out?	**3.** Is the coverage/basis of GHG data and calculation/reporting global or local in nature?	**4.** Is your emissions data publically disclosed or reserved for internal reporting and management purposes only?	**5.** What quality assurance systems do you have in place for GHG measurement and reporting?
14. National; UK; Light Rail Passenger Transport Operator	The company has in place simple procedures for GHG reporting. These are linked with the London Mayor's office - Climate change mitigation and strategy. Performance is being monitored and it will be reported publically. Whilst there is no formal policy in place the procedures for GHG reporting are documented in a manual. The company's environmental team co-ordinate an annual report which includes GHG emissions data.	The first annual company-wide GHG report was produced in 2004. Internally quarterly reporting is carried out to monitor progress.	Reporting is local in nature given that the company operates only in London across several facilities. Standard reporting procedures are in place.	Direct emissions are reported in the annual environmental report. Indirect emissions are also covered where the company has an influence. Participation in the CDP is a recent initiative for the company. They have started working with five companies in their supply chain to get information for next FY. The company also reports under a number of London-wide reporting initiatives.	The company is running and assurance exercise on this FY data for the first time. The company reports to the London Assembly - GLA on CO_2 savings. Annual environmental report data are checked via an extensive data quality review internally.
15. Multinational; US; Food and Beverage Manufacturer	The Company's Environment Sustainability Leadership Team (ESLT) oversees all the strategic environment related issues that, present both risks and opportunities to the company worldwide. The ESLT works globally with regional leaders to continuously assess and implement climate change mitigation and adaptation strategies and processes. The ESLT is chartered to: Create and maintain the company's Environmental Sustainability Strategy (including climate change); Develop, administer and maintain company-wide policies on matters of environmental sustainability (including climate change); Develop goals and timelines for the company's environmental performance (including climate change); Assess the gaps and strengths of performance relative to our own aspirations and external benchmarks.	The company has developed in-house tools to calculate enterprise emissions. GHG emissions associated with international operations, manufacturing, major offices and distribution centers are tracked monthly using a MS SQL database application. All international locations post energy data elements monthly, and built in calculations convert energy data elements to CO_2e. The company quantifies it's GHG emissions monthly for US and annually for companywide emissions; while certain Divisions of the company have been tracking GHG emissions since a 2006 base year, the company as a whole sets a base year of and reports against, 2008.	The company's reporting is Global. Scope 1 and Scope 2 data are collected from Primary Sources – e.g. Meters or Billing Records. Global calibration is insured via a standard metric protocol document that is universal for the company.	Data are publically disclosed on an annual basis through CDP, GRI, USEPA Climate Leaders and our corporate website and annual and/or sustainability reports.	Scope 1 and Scope 2 data disclosed in CDP and GRI reports, which comply with WRI/WBCSD reporting protocols, and have been validated by 3rd party auditors. In addition, the company follows ISO 14001 for EMS in most facilities and is certified in most international facilities; the company collects and analyses data through a corporate database system - environmental management information system.

Table 5.4 Summary of Company Interview Results – B. Overview of GHG Emissions Profile

Company ID No. (size; country; sector)	B. Overview of Company GHG Emissions Profile and GHG Targets			
	6. Please describe your main GHG emission sources and choice of reporting boundaries	**7.** Do you have a mix of both mandatory and voluntary GHG emissions reporting and are these emissions treated differently?	**8.** Do you request any GHG reporting within your supply chain?	**9.** What company GHG emission reduction targets and monitoring systems are in place or planned?
1. SME; UK; Waste Food Composting	Company has mainly scope 1 and scope 2 emissions. GHG reporting boundaries align to the CDP and therefore the GHG protocol. As part of the CDP submission, the company reports emissions associated with their offices and transport (waste collection vans). In addition, to the above, the company produces compost from food waste, diverting food waste from landfill.	All emission reporting is on a non mandatory basis (CDP) and is undertaken in response to customer demands.	Yes as part of the process of completing CDP, GHG information is requested from the company's main supplier. The supplier is a fairly large company and no technical support is offered to them.	Company does not currently have any GHG emission reduction targets of monitoring systems in place. Following completion and submission of the second CDP response 2010 the company will be in a position to review and compare the two submissions and begin to identify any trends/improvements in their GHG data. Any improvements/potential improvements identified may be incorporated into the companies 3 year plan as targets or potential areas of focus.
2. SME; UK; Metal Products Manufacturing	Emissions covered include: Office, plant (process emissions), business travel, company vehicles (cars and delivery fleet), employee commuting to and from office. Both direct and indirect emissions (i.e. Scope 1 and 2) are reported, in line with the boundaries of the GHG protocol plus limited Scope 3 sources (business travel and employee commuting)	All historic emission reporting is on a voluntary basis as the company is not included under the EU ETS or other mandatory scheme at the moment. However, the company will be included in the UK CRC scheme from 2010. The company does not participate in the CDP.	No.	The company has an overarching target for their operations to become carbon neutral by 2015. This will be achieved through reductions in their process emissions (through investment in efficient equipment). In addition to reductions in their other emissions (office, business travel etc) through a range of efficiency measures. In order to achieve the target of becoming carbon neutral by 2015, any remaining emissions will be offset through investment in biodiversity projects.
3. Multinational; HQ in Germany; Construction Materials and Mining	Main emissions are from clinker. All scope 1 emissions are monitored. Scope 2 emissions are calculated. Scope 3 is excluded since these are insignificant in comparison to scope 1.	There is a mix of mandatory and voluntary emissions reporting. There are significant differences in emission factors used for fuels in the WBCSD's Cement Sustainability Initiative protocol and the EU ETS. The emissions from a plant in Germany are not the same as from a plant in Romania even if the plants are identical. Similarly, emissions increase and decrease is seen in both reporting systems. For example in the cement industry all emissions from alternative fuels are carbon neutral whereas in the EU ETS, only biomass is carbon neutral.	Not done at a Global level as yet although some countries have this in place. Difficult to get data from supply chain.	A Group-level emission reduction target was set in 2003 for emissions to be reduced by 15% from 1990 levels by 2010. In Germany, there is a voluntary emissions reduction target in the cement sector which is to be met in 2050. Planned improvements for the monitoring system set out in the CSI protocol. New protocol expected in 2011. The new protocol will include improvements on power balance, biomass incorporation into solid fuels, and improved definitions. Group level improvements in data collection, frequency etc, are expected in 2011

Company ID No. (size; country; sector)	B. Overview of Company GHG Emissions Profile and GHG Targets			
	6. Please describe your main GHG emission sources and choice of reporting boundaries	**7.** Do you have a mix of both mandatory and voluntary GHG emissions reporting and are these emissions treated differently?	**8.** Do you request any GHG reporting within your supply chain?	**9.** What company GHG emission reduction targets and monitoring systems are in place or planned?
				also. Significant work is on going to improve cement sector KPIs.
4. Multinational; HQ in France; Oil and Gas Extraction, Processing and Retail	Company reports GHG emissions of its operated activities (i.e. upstream, downstream and chemicals), by source (combustion, flaring, processes, other) and by gas (CO_2, CH_4, N_20, HFC, others) based on API Methodology.	Yes but each site has to fulfill its compliance requirements and reporting to their administration separately. Corporate report voluntary for the group's operations, at a certain level of details, in accordance with dedicated KPI followed at the site or branch levels. For voluntary emissions reporting is based on the available set of data.	Partially. The oil and gas extraction activity itself represents globally about 15% of the LCA emissions while emissions associated with the use of the product represents 85%. The company has consolidated CO_2 emissions of the product transport.	The company has a global strategy in place for managing and reducing GHG emissions. GHG intensity reductions of 2% per year in Exploration and Production and Petrochemicals and 1% per year in Refining up to 2012); In terms of monitoring the company is taking into account CO_2 economic sensitivity when making capital expenditure decisions (i.e. from designing new projects to refurbishing existing facilities) and evaluating promising technologies such as CO_2 capture and storage.
5. Multinational; HQ in US; Healthcare and Pharmaceuticals	Emissions sources are mainly Scope 1 and 2. Emissions boundary is defined based on the GHG protocol and includes sources that the company can control and manage i.e. electricity, fuel used on site, vehicles emissions and refrigeration losses.	A very small part of global emissions are part of EU-ETS. Perception is that mandatory reporting and goals drive reductions more than voluntary.	There is a environmental supplier procurement programme and questionnaire but not specifically in relation to GHG emissions reporting. At the moment supply chain emissions are estimated through the use of life cycle assessment modeling.	Target for 2005-2015 to reduce GHG emissions by 45% indexed to sales. During the period 2005 - 2009 the company has reduced its emissions by 5% on absolute basis.
6. Multinational; HQ in Italy; Oil and Gas Extraction, Processing and Retail	Have a mix of scope 1, 2 and 3 emissions. Emissions boundary is defined according to the GHG protocol.	Mandatory and voluntary emissions are not treated differently.	The company is working with CDP supply chain initiative in defining a methodology to measure suppliers by the end of the year (2010). Main task is to improve scope 3, for activities that are sometimes out sourced - such as drilling. Supply base is mainly large multinational companies so no technical support provided but it some will inevitable come out of the CDP supply chain initiative project at the end of the year.	Target to reduce flaring by 70%, by 2012 from 2007 levels.

Company ID No. (size; country; sector)	B. Overview of Company GHG Emissions Profile and GHG Targets			
	6. Please describe your main GHG emission sources and choice of reporting boundaries	**7.** Do you have a mix of both mandatory and voluntary GHG emissions reporting and are these emissions treated differently?	**8.** Do you request any GHG reporting within your supply chain?	**9.** What company GHG emission reduction targets and monitoring systems are in place or planned?
7. Multinational; HQ in Sweden; Paper and Packaging	Emission sources include: Scope 1 - Natural gas, LPG, district heating, heavy fuel oil, light fuel oil/diesel, coolants, solvents Scope 2 - Electricity Scope 3 - Transport, raw materials from key suppliers, business travel, distribution – these are measured but not reported yet.	Only voluntary reporting is carried out annually at the current time.	The company suppliers' base includes mostly multinational companies. Company does not provide technical support however they meet with key suppliers quarterly to discuss a number of environmental indicators including GHG. They have encountered problems in getting data and in capturing suppliers' emissions. company is participating in the CDP supply chain initiative.	The company has an ongoing target to reduce by 10% absolute by 2010 (2005 baseline). Company has achieved a 9% emissions reduction so far (half from energy efficiency and half from green electricity)
8. Multinational; HQ in Spain; Power .Generation	Boundary is defined based on the GHG protocol. Main overall emission source is Scope 1 from stationary fuel combustion for power generation.	The company has a mix of voluntary (CDP and Eurelectric) and mandatory (EU ETS only) emissions reporting. They use the same methodology for reporting for both mandatory and voluntary.	The company has adhered to CDP Supply Chain, in order to control, to certain extent, suppliers' emissions. The company's supply chain includes mostly Large/Multinationals companies. The company has calculated emissions from 400 suppliers that constitute 90% of total Scope 3 emissions. The main source of supply chain emissions is transport of fossil fuels to the company's power plants. In 2008, supply chain emissions represented a total of 393,897 tonnes of CO2. This year the company would also be reporting emissions of service suppliers. They are providing support in collaboration with CDP to their suppliers.	The company has an emission reduction target of 50% (intensity based). The company has established a Sustainability Plan that includes targets, plans, programmes and indicators to meet the objectives defined. Climate change objectives are integrated in our business strategy, taking advantage of the opportunities generated by markets related to climate change, improving the economic and environmental operation of traditional sources, and leading new energy developments in order to decrease the emission of CO2 and to change the energy pattern.
9. Multinational; HQ in UK; Security Services	Emissions boundary follows the GHG protocol and includes the following sources: Scope 1: Fuel (mainly from fleet) Scope 2: Electricity (from buildings) Scope 3: Business Air Travel	No mandatory emissions but the company will be included in the UK CRC scheme from 2010. The company does not participate in the CDP.	No but planning to start measuring this year	Annual 4.5% intensity based target by 2012 based on 2009 baseline
10. SME; Greece; Construction and Real Estate	Emissions boundary follows the GHG protocol and includes the following sources: Scope 1: Fuel for operations Scope 2: Electricity (related to corporate and construction operation emissions) Scope 3: Fuel for employee commuting and business travel and other scope 3 emissions from certain sub-contractor emissions	Only voluntary reporting is carried out annually at the current time.	Yes they request any GHG reporting within supply chain but not from every sub-contractor. Their supply chain includes mainly SMEs.	No but in the process of setting out targets this year

Company ID No. (size; country; sector)	B. Overview of Company GHG Emissions Profile and GHG Targets			
	6. Please describe your main GHG emission sources and choice of reporting boundaries	**7.** Do you have a mix of both mandatory and voluntary GHG emissions reporting and are these emissions treated differently?	**8.** Do you request any GHG reporting within your supply chain?	**9.** What company GHG emission reduction targets and monitoring systems are in place or planned?
11. Multinational; HQ in Spain; Oil and Gas Extraction, Processing and Retail	Emissions boundary follows the GHG protocol. For Scope 1 emissions (that comprise the majority of the GHG footprint) the boundary is limited to direct emissions from stationary and mobile sources in operations where the Company has a majority shareholding and/or effective control. Certain emission sources associated with offices located outside industrial sites, temporary activities and operational centers have been excluded	Yes and depending on the nature of each installation, the monitoring and reporting for the direct GHG emissions is done according to the following criteria: Installations under the scope of the EU ETS will use the CO2 emission monitoring and reporting methodology established in their emission authorization. Installations not under the scope of European cap and trade scheme will use the CO2 emission monitoring and reporting methodology established on an installation by installation level according to specific systems, or following corporate general methodologies, included in the Environmental Parameters Guide which sets up general criteria so that each Operational Unit/Centre standardizes the calculation methods used to determine environmental parameters included GHG. These emission factors used in this case are derived from several sources.	The company is making efforts to provide better reporting on supply chain emissions with the objective of being able to estimate in the future the Company's carbon footprint. This is a complicated task in the Oil & Gas sector due to, amongst other things, the number of disperse suppliers and the fact that basic feedstock for process is often purchased from aggregators and market participants who are further down the chain from where the emissions are produced. The Company's efforts to date include analysis and categorization of supply chain emissions as well as the monitoring of the development of standards for carbon footprint calculation. As a result of these efforts, the Company has been able to estimate CO_2 emissions derived from the shipping of crude for use in their refineries worldwide in 2008.	In 2005 the Company set a reduction objective of one million tonnes of CO_2eq in the 2005-2012 period over the business as usual emissions. This objective translated to an annual reduction of at least 150,000 tonnes. In 2008, the company set a new strategic target with the objective of achieving further emissions reductions over the same period, as well as extending the period by one year. The new target is a 2.5 million tonne CO_2eq reduction in the 2005-2013 period with respect to the business as usual scenario. The company is investing in many projects and measures designed to reduce GHG emissions and therefore mitigate the effects of climate change. Many of these projects involve using current best practices and best available technology in the Company's operations. Others, however, involve technologies yet to be employed and commercialized.
12. Multinational; HQ in Germany; Power Generation	The company's main emissions are combustion and process emissions from their power generation (these are covered by the EU ETS). In addition, emissions from offices, fleet, business travel and employee commuting are all calculated. The company aligns its emissions' boundary with the GHG protocol definition and reports its emissions by scope 1, 2 and 3.	99.4% of the company's total emissions are covered by the EU ETS and are reported and verified following the strict requirements of the EU ETS. In addition to the mandatory reporting required through the EU ETS, the company reports their total footprint via their corporate website, CR report, annual report and other reporting mechanism (i.e. CDP).	No, however this may be done in the future.	In 2009 the company established a set of targets that are strategically important to the business, and include a number of GHG related targets: By 2015, to reduce the Carbon Intensity (CI) of electricity generated to 0.45 kgCO2/kWh (a 50% reduction compared to 1990 and 33% reduction compared to 2000) By 2014, to reduce the Carbon Intensity of office buildings to 131 k gCO2/m2, (a 38% reduction compared to 2008) In 2010, to increase the number of residential customers supported by low carbon technologies and renewable generation from 50,099 to 55,000

Company ID No. (size; country; sector)	B. Overview of Company GHG Emissions Profile and GHG Targets			
	6. Please describe your main GHG emission sources and choice of reporting boundaries	**7.** Do you have a mix of both mandatory and voluntary GHG emissions reporting and are these emissions treated differently?	**8.** Do you request any GHG reporting within your supply chain?	**9.** What company GHG emission reduction targets and monitoring systems are in place or planned?
13. Multinational, HQ in UK; Retail of Food and Consumer Goods	The starting-point for deciding what to include in the reported carbon footprint was that it should include all operations over which it had direct control. The aim was to inform where to focus emissions reductions measures within the business, as well as providing a comprehensive and transparent picture for external stakeholders. The main direct emissions-generating activities are the operation of stores and distribution centres, the transport of goods and employee business travel. Other activities are excluded for two main reasons: a lack of data (e.g. emissions from waste) or because they fall outside the company's direct control (e.g. use phase of goods).	Yes mix of voluntary and mandatory reporting (CDP, Mayday, Ends Carbon, CBI and CRC from 2010). Due to be one of the largest participants of the mandatory CRC in the UK. Unless directed otherwise, emissions reported as per the GHG footprinting tool (which is based on the GHG Protocol). Key driver for reporting emissions is not mandatory or non mandatory reporting requirements, but the requirement to do the "right thing", being a leader in reporting of GHG emissions rather than a follower.	The company asks for information from their top suppliers. Internal target to reduce the lifecycle emissions of all products in supply chain by 30% by 2020.	The company has a set of overarching global targets relating to GHG. Carbon reduction associated with buildings by 2020, distribution by 2012. These targets are built into country specific KPI's and are monitored through internal quarterly country reporting. These both feed into the global target of becoming carbon neutral by 2050 Progress against targets measured through internal quarterly reporting and formal annual reporting of emissions.
14. National; UK; Light Rail Passenger Transport Operator	Emissions boundary follows the GHG protocol. Purchased electricity use is the main footprint contributor. More specifically emissions include: Scope 1: 1.2 million tonnes Scope 2: 75 million tonnes from purchased electricity. Scope 3: 793 thousand tones, from purchased goods and services. The company has a large number of suppliers. The GHG Protocol and DEFRA guidelines used in quantifying emissions from goods and services.	Voluntary reporting is completed annually at the moment but the company will be included in the mandatory UK CRC in future.	They are participating in the Carbon Disclosure project and have started to ask for GHG reporting in specific contracts where they identify GHG emissions as a material issue. They have a very diverse supply chain comprising from service contracts to framework agreements with Large companies, multinational and SMEs.	Targets follow the mayor/city of London commitments and strategy to reduce emissions from the transport sector.

Company ID No. (size; country; sector)	B. Overview of Company GHG Emissions Profile and GHG Targets			
	6. Please describe your main GHG emission sources and choice of reporting boundaries	**7.** Do you have a mix of both mandatory and voluntary GHG emissions reporting and are these emissions treated differently?	**8.** Do you request any GHG reporting within your supply chain?	**9.** What company GHG emission reduction targets and monitoring systems are in place or planned?
15. Multinational; US; Food and Beverage Manufacturer	Scope 1 and Scope 2 data are collected from Primary Sources – e.g. Meters or Billing Records. Global calibration is insured via a standard metric protocol document that is universal for the company. GHG emissions are calculated according to the source. Manufacturing Fuel Usage is converted to GHG emissions using standard reference tables from the US EPA or DEFRA as is appropriate for the geography. Electrical Usage (Manufacturing, Offices and Distribution Centers) is converted to GHG emissions by using the grid average emissions factor for the country or state where the site is located obtained from the US Climate Leaders Program and the International Energy Agency (IEA). Transport Emissions are calculated using standard reference tables that account for the vehicle type, kilometers driven and fuel used. Fugitive Emissions are calculated using actual refrigerant usage plus leakage factors for each type of equipment. Smaller Offices and Distribution Center emissions are calculated using US EPA tools for this purpose. Electrical emissions are adjusted based on the average grid emissions for each state or country where the site is located.	The company reports on both a mandatory and voluntary basis (EU ETS, CDP, and GRI). The data are not treated differently and use the same methodology. For Regulatory reporting requirements the company separates the regulated entities from the global reported data. Both regulatory and voluntary emissions are reducing at the same rate.	The company does request GHG reporting within their supply chain. Support is offered to the supply chain through the company's procurement program and the CDP SCLC. In addition, the company has an on-going effort in both the US and the UK to engage and align key strategic suppliers in their efforts to reduce supply chain carbon.	In its 2009 Annual Report, the company publicly committed to achieving an absolute reduction in carbon emissions from company-owned entities. Individual business targets are being finalized and balanced to support the absolute reduction commitment. To ensure the company achieves its anticipated target to reduce the absolute carbon emissions resulting from their company-owned operations, the company must offset the impact of planned business growth. Based on their 2009 Scope 1 and Scope 2 emissions, this equates to an estimated 130,000 MT of potential carbon in 2010.

Table 5.5 Summary of Company Interview Results – C. Selection of GHG Reporting Methodologies and Initiatives

Company ID No. (size; country; sector)	C. Selection of GHG Reporting Methodologies and Initiatives		
	10. Which GHG calculation and reporting methodologies/initiatives do you use and why and which basket-of-six GHGs do you report?	**11.** What do you see as the main strengths and weaknesses of the selected GHG reporting methods and initiatives?	**12.** Are there any specific methodologies or reporting initiatives for your sector's emissions and if not do you think that such a development would beneficial?
1. SME; UK; Waste Food Composting	The company is at the early stages of GHG measurement and reporting and currently only provides GHG data via the CDP, therefore aligning with the GHG Protocol. Currently only CO2 emissions are reported (although when considering their process, the CO2e of methane is referenced).	Weaknesses: The company identified GHG reporting as lengthy and challenging for SME's, particularly where internal resources are limited and therefore the capacity to properly address issues is minimal.	The company was not aware of any sector specific methodologies/reporting initiatives. The company didn't provide thoughts on whether such a methodology/initiative would be considered beneficial.
2. SME; UK; Metal Products Manufacturing	The company has been aligning with the GHG protocol since 2008 due to its recognised status as a known and robust methodology. GHG reporting covers CO2 and Nitrous Oxide. Reference is made to the other 4 gases, but it is stated that the company is not a significant generator of these GHG's.	Strengths: The company identified the GHG Protocol is an internationally recognised methodology, considered to be robust and comparable.	The company identified the Aluminium sector initiatives, including the aluminium industry GHG reporting (aluminium federation), against which the company are able to benchmark themselves.
3. Multinational; HQ in Germany; Construction Materials and Mining	The Cement Sustainability Initiative (CSI) Protocol is used by the company for the calculation of emissions. The company only covers CO2 as this is the main GHG emissions from its operations (N2O can also be emitted in special circumstances, in which case it is monitored and reported separately).	Strengths: The company identified that the CSI Protocol is globally recognised, with 30-50% of plants within the sector reporting in the same way. As a result, use of the CSI Protocol allows for internal and external benchmarking. Also, data for the industry is aggregated and is publically available. This helps the industry to explain to the public the emissions, actions that can be taken, and what is not possible to achieve. Weaknesses: The company identified that the CSI Protocol is not completely aligned to the EU system, making it hard for the differences in emissions from the two systems to be explained to the public. Integration of the two systems would be good but the CSI would need to be the lead methodology since countries like China would never accept an EU system (but they do accept CSI).	The company identified the Cement Sustainability Initiative (CSI) Protocol, which it is already aligning to.
4. Multinational; HQ in France; Oil and Gas Extraction, Processing and Retail	The company reports GHG's in line with the methodologies of the International Petroleum Industry Environmental Conservation Association (IPIECA)'s guidance on Voluntary Sustainability Reporting, Guidelines for GHG and EU ETS monitoring reporting guidelines. IPIECAs documents are consistent with the GHG Protocol, although they provide a much greater level of details for the GHG reporting of the oil and gas industry.	Strengths: The company has identified that the methodologies used allow sectoral coherence at a global level, that the methodology is business relevant and compatible with regulatory requirements. Weaknesses: The company has concerns regarding inconsistencies across the various voluntary initiatives that are emerging.	The company identified the IPIECA's guidance and directives, jointly with API and OGP associations (American Petroleum Institute and Oil & Gas Producer association).

Company ID No. (size; country; sector)	C. Selection of GHG Reporting Methodologies and Initiatives		
	10. Which GHG calculation and reporting methodologies/initiatives do you use and why and which basket-of-six GHGs do you report?	**11.** What do you see as the main strengths and weaknesses of the selected GHG reporting methods and initiatives?	**12.** Are there any specific methodologies or reporting initiatives for your sector's emissions and if not do you think that such a development would beneficial?
5. Multinational; HQ in US; Healthcare and Pharmaceuticals	The company has used the GHG Protocol since it was launched for reporting of all 6 GHG's.	Weaknesses: The company identified that the structure of the calculations within the methodology are dated and the EFs are not sophisticated/detailed enough. Shortcomings were also identified regarding the formatting and usability of the methodology.	The company was not aware of any sector specific methodologies/reporting initiatives. The company didn't provide thoughts on whether such a methodology/initiative would be considered beneficial.
6. Multinational; HQ in Italy; Oil and Gas Extraction, Processing and Retail	The company has been aligning to the American Petroleum Institute GHG methodology since it started measuring and reporting its GHG emissions in 2004. API was selected due to its popularity with other companies within the sector, its transparency and the fact that the methodology seems to be the best reference practice to use. The company cover three GHG's CO_2, CH_4, N_2O	Weaknesses: The company identified that the flaring classification in the API is included in combustion sources whereas ENI accounts for Flaring as a separate category. It was also identified that the API is not detailed enough for the Petro-Chemical sector.	The company identified the American Petroleum Institute GHG methodology, which it aligns to.
7. Multinational; HQ in Sweden; Paper and Packaging	The company aligns to the GHG protocol for the reporting of CO_2 emissions (other GHG emissions are also considered to provide a CO_2e figure for refrigerants).	Weaknesses: The company would like better and more consistent emission factors.	With the exception of the forest/paper sector, the company was not aware of any sector specific methodologies/reporting initiatives. The company didn't provide thoughts on whether such a methodology/initiative would be considered beneficial.
8. Multinational; HQ in Spain; Power .Generation	The company is using the EU ETS Methodology and from 2010 plan to calculate Scope 3 supply chain emissions using the GHG Protocol. Although the company emits other GHG's, CO_2 is the most relevant GHG generated from their operations and therefore only CO_2 emissions have been considered in the calculation of total GHG emissions.	Weaknesses: The company identified a weakness of the EU-ETS methodology is that it doesn't cover Scope 3 emissions.	The company was not aware of any sector specific methodologies/reporting initiatives, however in terms of sector comparison/benchmarking, the Energy Wisdom Programme (EWP) was identified. The EWP is an initiative launched by Eurelectric (Association of the European Electricity Industry) to demonstrate the efforts made by the European electricity companies in the field of energy efficiency and GHG emission reductions.
9. Multinational; HQ in UK; Security Services	The company have aligned to the GHG Protocol since 2007, as it's considered to be a widely recognised and easy to use methodology. CO_2 is covered through company reporting (although other GHG emissions are also considered to provide a CO_2e figure for refrigerants).	The company did not identify any strengths or weaknesses of their selected GHG methodology (the GHG Protocol).	The company was not aware of any sector specific methodologies/reporting initiatives. The company didn't provide thoughts on whether such a methodology/initiative would be considered beneficial.

Company ID No. (size; country; sector)	C. Selection of GHG Reporting Methodologies and Initiatives		
	10. Which GHG calculation and reporting methodologies/initiatives do you use and why and which basket-of-six GHGs do you report?	**11.** What do you see as the main strengths and weaknesses of the selected GHG reporting methods and initiatives?	**12.** Are there any specific methodologies or reporting initiatives for your sector's emissions and if not do you think that such a development would beneficial?
10. SME; Greece; Construction and Real Estate	The company have been aligning to the GHG Protocol since 2007 due to its reliability and ease of use.	Strengths: The company identified that the GHG protocol is simple to use whilst providing a great level of detail. Weaknesses: The company would like to see more flexibility in customisation of the GHG protocol tool both in terms of entering the data but also in terms of reporting.	The company was not aware of any sector specific methodologies/reporting initiatives. The company commented that the current GHG Protocol is considered sufficient and therefore any methodology/initiative would be considered surplus to requirements.
11. Multinational; HQ in Spain; Oil and Gas Extraction, Processing and Retail	The company is using a special software application for reporting, validating and consulting environmental measurements (including GHG emissions) on the company intranet. The application aligns to the American Petroleum Institute (API) GHG Emissions Estimation Methodologies for the Oil and Gas Industry. For scope 3 emissions, the company is aligning with the GHG Protocol. The company reports emissions of CO_2 and CH_4. The other GHG's have been excluded from the company's GHG inventory, as they are not significant to the company's activities.	Weaknesses: The company identified that the API methodology is not very strong on Scope 3 emissions.	The company identified the Petroleum Industry Guidelines for Reporting Greenhouse Gas Emissions, developed by IPIECA (International Petroleum Industry Environmental Conservation Association) in collaboration with API (American Petroleum Institute), and OGP (International Association of Oil and Gas Producers).
12. Multinational; HQ in Germany; Power Generation	GHG Protocol has been used by the company for many years. The company only currently report CO_2.	Strengths: The company has identified that the GHG Protocol is seen as the best available standard, which allows transparent and consistent reporting. CDP also aligns closely to the GHG Protocol - adding to the consistency of using this method (for companies also responding to the CDP).	The company was not aware of any sector specific methodologies/reporting initiatives. The company didn't provide thoughts on whether such a methodology/initiative would be considered beneficial.
13. Multinational, HQ in UK; Retail of Food and Consumer Goods	The company aligns to the GHG Protocol for their reporting of all 6 GHG's.	Strengths: The company identified the main strength is that the GHG protocol is recognised as international best practice - resulting in a recognised level of credibility. A further benefit is that the UK government has adopted/aligned with the GHG protocol in their national guidelines, so any move to reporting becoming mandatory in the UK is likely to be based on the GHG protocol.	The company was not aware of any sector specific methodologies/reporting initiatives. The company didn't provide thoughts on whether such a methodology/initiative would be considered beneficial. The results of a 2009 study commissioned into GHG reporting across the sector provided an interesting insight into competitor performance and allowed benchmarking.

Company ID No. (size; country; sector)	C. Selection of GHG Reporting Methodologies and Initiatives		
	10. Which GHG calculation and reporting methodologies/initiatives do you use and why and which basket-of-six GHGs do you report?	**11.** What do you see as the main strengths and weaknesses of the selected GHG reporting methods and initiatives?	**12.** Are there any specific methodologies or reporting initiatives for your sector's emissions and if not do you think that such a development would beneficial?
14. National; UK; Light Rail Passenger Transport Operator	The company aligns with the requirements of the GHG protocol to establish their reporting boundary. The DEFRA guidelines are also used as these provide more focused guidelines on specific transport ratios etc. The company only reports on CO_2 emissions, as these are most relevant to their business.	Weaknesses: The company identified that the annual updating of the DEFRA guidelines has resulted in lack of comparability between annual data (emissions appear to be increasing when in reality it's the factor that has changed). In order to address this issue, companies would need to recalculate historical data, creating additional reporting burden.	With the exception of the EU transport leadership index (which would allow some level of comparison / benchmarking rather than provide a methodology), the company was not aware of any sector specific methodologies/reporting initiatives.
15. Multinational; US; Food and Beverage Manufacturer	Scope 1 and Scope 2 data are collected from Primary Sources – e.g. Meters or Billing Records. Global calibration is insured via a standard metric protocol document that is universal for the company. GHG emissions are calculated according to the source. Manufacturing Fuel Usage is converted to GHG emissions using standard reference tables from the US EPA or DEFRA as is appropriate for the geography. Electrical Usage (Manufacturing, Offices and Distribution Centres) is converted to GHG emissions by using the grid average emissions factor for the country or state where the site is located obtained from the US Climate Leaders Program and the International Energy Agency (IEA). Transport Emissions are calculated using standard reference tables that account for the vehicle type, kilometres driven and fuel used. Fugitive Emissions are calculated using actual refrigerant usage plus leakage factors for each type of equipment. Smaller Offices and Distribution Centre emissions are calculated using US EPA tools for this purpose. Electrical emissions are adjusted based on the average grid emissions for each state or country where the site is located. The company's GHG assessments cover all 6 greenhouse gases which are generally expressed in CO_2e.	There is significant ambiguity to scope and boundary reach that would allow for differences in reporting between similar sectors – this is part of the reason behind the company's participation in the Beverage Industry Environmental Roundtable's (BIER) GHG sector guidance document development.	The company is one of the leading parties in the Beverage Industry Environmental Roundtable (BIER), which has developed and published Sector Specific Guidelines on greenhouse gas foot printing of products. The company is also interacting with policy makers through their partnership with the Carbon Trust, WRI and WBCSD, to support the introduction of common approaches on environmental footprinting worldwide. They also support the development of product category rules (PCRs).

Table 5.6 Summary of Company Interview Results – D. Benefits Arising from GHG Measurement and Reporting

Company ID No. (size; country; sector)	D. Benefits Arising from GHG Measurement and Reporting		
	13. How has measurement and reporting of GHG emissions helped the company to reduce its GHG emissions?	**14.** Can any of the benefits (e.g. excess ETS allowances, energy savings, etc.) be estimated in monetary terms (e.g. £ savings per annum)?	**15.** What are the other benefits arising from GHG measurement and reporting (e.g. company reputation, new customers, associated environmental benefits, improved investor relations, potential market opportunities)?
1. SME; UK; Waste Food Composting	To date measurement and reporting of GHG emissions has not helped the company reduce its GHG emissions. 2009 was the first year of measurement & reporting for this company, however following 2010 measurement and reporting, the company will be in a position to identify any trends/improvements in their GHG data, which may in turn help to focus reduction efforts.	The company could not provide an answer to this question.	The key benefit of GHG measurement and reporting (via CDP) has been identified as the company responding to customer expectations and meeting their requirements. Another benefit has been identified as increased internal awareness throughout the company of their GHG impacts.
2. SME; UK; Metal Products Manufacturing	It is considered that measurement and reporting of emissions has definitely helped the company reduce its GHG emissions, through allowing an understanding of their GHG impacts.	No data from company on estimated benefits in monetary terms.	Improved reputation, meeting customers' requirements/requests and reducing the environmental impact of the company's operations have all been identified as key benefits arising from GHG measurement and reporting.
3. Multinational; HQ in Germany; Construction Materials and Mining	For many years, the company has been seeking to reduce emissions, in order to reduce costs associated with energy and raw material use. The monitoring and reporting systems have become a tool to allowing for the biggest opportunities to be identified. The data allows for internal benchmarking of plants so poor performance can be tackled and good performance can be learnt from.	No data from company on estimated benefits in monetary terms.	Although, measurement and reporting of GHG emissions following sector specific guidance is standard across the industry (resulting in no competitive advantage across the sector), reporting is seen to support the company's position when engaging with stakeholders.
4. Multinational; HQ in France; Oil and Gas Extraction, Processing and Retail	In order to set targets and reduce GHG emissions, the company first needed to understand its emissions. This understanding was achieved through GHG measurement and reporting.	No data from company on estimated benefits in monetary terms.	Monitoring and reporting of GHG emissions provides the company with data, which can be shared with stakeholders.
5. Multinational; HQ in US; Healthcare and Pharmaceuticals	The company has confirmed that measurement and reporting of GHG emissions is a prerequisite for reductions, believing that in order to reduce, you first need to measure.	The company reported approximate financial payback: for every $1 they invest in a proactive global environmental program they get about $3 to $4 back annually.	The biggest benefits have been identified as reputation, brand and investor relations.

Company ID No. (size; country; sector)	D. Benefits Arising from GHG Measurement and Reporting		
	13. How has measurement and reporting of GHG emissions helped the company to reduce its GHG emissions?	**14.** Can any of the benefits (e.g. excess ETS allowances, energy savings, etc.) be estimated in monetary terms (e.g. £ savings per annum)?	**15.** What are the other benefits arising from GHG measurement and reporting (e.g. company reputation, new customers, associated environmental benefits, improved investor relations, potential market opportunities)?
6. Multinational; HQ in Italy; Oil and Gas Extraction, Processing and Retail	The company has confirmed that measurement and reporting of GHG emissions does help with identification and management of emission reductions. Through developing emission baselines, the company is able to identify emission trends that form a basis for emission reduction measures/project	No data from company on estimated benefits in monetary terms.	The company has identified that GHG measurement and reporting shows transparency and is good for stakeholder relations.
7. Multinational; HQ in Sweden; Paper and Packaging	The company has confirmed that measurement and reporting of GHG emissions has helped with emission reductions, as the data allows targets to be identified and set.	No data from company on estimated benefits in monetary terms.	A key benefit has been identified as company reputation. Participation in reporting schemes is considered to have the added benefit of providing positive company exposure.
8. Multinational; HQ in Spain; Power .Generation	The company confirmed that the measurement and reporting of GHG emissions does help reduce emissions. For this company monitoring and reporting is a clear first step to reduction as it allows key areas for reduction and reduction opportunities to be identified.	No data from company on estimated benefits in monetary terms.	Reputational benefits of GHG measurement and reporting have been identified, particularly in relation to reporting through the CDP. In addition, the potential for increased market opportunities for companies engaging in GHG measurement and reporting has been identified as a potential benefit.
9. Multinational; HQ in UK; Security Services	Measurement of GHG emissions is considered to be a prerequisite to managing and reducing emissions.	No data from company on estimated benefits in monetary terms.	It has been identified that the companies Corporate Social Responsibility programme (including GHG Measurement and reporting) provides reputational benefits and helps with investor relations. In addition, employee engagement and increased motivation is also evident in the company, alongside the potential for the development of new market opportunities.
10. SME; Greece; Construction and Real Estate	The company confirmed that measurement of GHG emissions is a prerequisite to control/reduction of emissions and to the development of intensity based targets to help further reduce emissions.	No data from company on estimated benefits in monetary terms.	Company reputation (Brand image differentiation) and potential market opportunities have been identified as two key benefits of measurement and reporting of GHG emissions.

Company ID No. (size; country; sector)	D. Benefits Arising from GHG Measurement and Reporting		
	13. How has measurement and reporting of GHG emissions helped the company to reduce its GHG emissions?	**14.** Can any of the benefits (e.g. excess ETS allowances, energy savings, etc.) be estimated in monetary terms (e.g. £ savings per annum)?	**15.** What are the other benefits arising from GHG measurement and reporting (e.g. company reputation, new customers, associated environmental benefits, improved investor relations, potential market opportunities)?
11. Multinational; HQ in Spain; Oil and Gas Extraction, Processing and Retail	For this company, carbon footprinting is not considered to directly result in emissions reductions. Any reductions associated with energy efficiency result primarily from economic pressure (from society, regulations and the value of carbon).	No data from company on estimated benefits in monetary terms.	Improved reputation and therefore relationships with stakeholders are seen as key benefits of measurement and reporting GHG emissions. In addition, monitoring and reporting is considered to have enabled increased energy management and therefore improved efficiency.
12. Multinational; HQ in Germany; Power Generation	Although a direct link isn't identified by the company, an indirect link between transparency of GHG reporting, public & stakeholder pressure / awareness and programmes to reduce CO2 emissions have been identified.	No data from company on estimated benefits in monetary terms.	Monitoring and reporting allows the company to meet its company goal of being transparent and to meet the requirements for GHG reporting expected by the company's stakeholders.
13. Multinational, HQ in UK; Retail of Food and Consumer Goods	It is considered that some level of emission reduction would have been achieved without GHG measurement and reporting. However, the company did acknowledge a definite link between measurement and reporting and emission reductions, as measurement of GHG emissions allows key areas of improvement/reduction to be identified, allowing the company's efforts to be focused in these key areas.	No data from company on estimated benefits in monetary terms.	It is considered that GHG measurement and reporting and the emission reduction targets / emission reductions that this enables is considered to result in both financial and reputational benefits. The key reputational benefit for the company is through improved public perception. Measuring and reporting also allows the company to be forward facing in managing their impact on climate change, meeting customer expectations and ensuring that the company does what is expected/required of them, and therefore allowing them to be leaders.
14. National; UK; Light Rail Passenger Transport Operator	The company considers that whilst mandatory initiatives drive reduction (rather than measurement and reporting), measurement is a pre-requisite to these mandatory reductions and also help identify trends.	No data from company on estimated benefits in monetary terms.	Key benefits identified by the company are improved reputation amongst external stakeholders and internal staff engagement.
15. Multinational; US; Food and Beverage Manufacturer	No information provided by company on how measurement and reporting will help reduce its GHG emissions and meet its corporate target to achieve an absolute reduction in carbon emissions from company-owned entities.	No data from company on estimated benefits in monetary terms.	The company has reported that benefits arising from GHG measurement and reporting include: company reputation, new customers, associated environmental benefits, improved investor relations and potential market opportunities.

Table 5.7 Summary of Company Interview Results – E. Barriers and Costs Associated with GHG Measurement and Reporting

Company ID No. (size; country; sector)	E. Barriers and Costs Associated with GHG Measurement and Reporting		
	16. Please estimate the approximate annual costs arising from GHG measurement and reporting (e.g. employee time, verification costs, etc.)	**17.** Are there any risks or barriers arising from measuring and reporting your company's GHG emissions?	**18.** Do you have any suggestions on how to overcome existing barriers (reduce risks and costs) or improve the benefits of company GHG reporting schemes?
1. SME; UK; Waste Food Composting	No data from company on estimated annual costs arising from GHG measurement and reporting.	Internal resources are the main barrier to the company monitoring and reporting their GHG emissions.	The company would like to see easily accessible funding and company consultation/training sessions, to provide help and support to SME's on monitoring and reporting emissions would be very helpful.
2. SME; UK; Metal Products Manufacturing	No data from company on estimated annual costs arising from GHG measurement and reporting. It was noted that costs would include employee time and time of contractors managing the process metering equipment.	The company did not identify risks or barriers arising from measuring and reporting GHG emissions.	The company did not have any suggestions on how to overcome existing barriers or improve the benefits of company GHG reporting schemes.
3. Multinational; HQ in Germany; Construction Materials and Mining	The company reported that 80 plants are involved with voluntary reporting, each of which has a CO2 coordinator collecting and reporting data, equating to 240 man days per year. In addition, there are, two full time equivalents working on calculations and one person FT equivalent assessing and checking data. External verification costs 100k Euros per year. Costs of EU ETS equate to 300k Euros per year for verification plus 54k Euros associated with laboratory samples. In addition, costs of one FTE, plus 540 man days per year for site coordinators need to be accounted for.	The complexity and costs associated with the GHG emissions verification process has been identified as a potential risk/barrier.	The company suggested one global system for monitoring and reporting across each sector. In addition, harmonisation of factors (fuels, obligations, costs) is also needed in order to aid comparability.
4. Multinational; HQ in France; Oil and Gas Extraction, Processing and Retail	No data from company on estimated annual costs arising from GHG measurement and reporting.	Lack of comparability between installations or projects is difficult and is considered to the company as providing a risk/barrier.	A single regional/global methodology would be welcomed by the company, ensuring harmonisation and superseding all local and divergent initiates, which can be time consuming to respond to.
5. Multinational; HQ in US; Healthcare and Pharmaceuticals	No data from company on estimated annual costs arising from GHG measurement and reporting. Cost of labour thought to be biggest expense (at a corporate level, 250 hours were spent during early 2010 on the company's sustainability report and responding to investor surveys).	The company has identified that variation in reporting requirements to different stakeholder is onerous and time consuming. In addition, clear understanding of boundaries and scope of reporting results in limited comparability.	The company would like to see harmonisation of the reporting scheme, in order to ease the difficulty of reporting for international companies with facilities around the world. Ideally, the company would like to see one central reporting system where all interested reporting initiatives could download comparable data.

Company ID No. (size; country; sector)	E. Barriers and Costs Associated with GHG Measurement and Reporting		
	16. Please estimate the approximate annual costs arising from GHG measurement and reporting (e.g. employee time, verification costs, etc.)	**17.** Are there any risks or barriers arising from measuring and reporting your company's GHG emissions?	**18.** Do you have any suggestions on how to overcome existing barriers (reduce risks and costs) or improve the benefits of company GHG reporting schemes?
6. Multinational; HQ in Italy; Oil and Gas Extraction, Processing and Retail	The company has two full time employees at corporate level, working on GHG/climate change issues, with further employees at facility level.	The fact that the EU-ETS methodology is very rigid and scope 3 emissions are not included is considered to be a barrier.	The company would like to see a harmonised Europe wide methodology including reference to scope 3 emissions. Development of a Europe wide leadership index, encouraging companies to report and set GHG targets.
7. Multinational; HQ in Sweden; Paper and Packaging	No data from company on estimated annual costs arising from GHG measurement and reporting. It was reported that a significant amount of time is spent across the company in measurement and reporting.	Consistency and irregular updating of emission factors have been identified as a risk/barrier to measuring and reporting company's emissions.	The company considers that it is important for a single harmonised methodology which would allow international companies to consider their global operations and set global targets.
8. Multinational; HQ in Spain; Power .Generation	The company has reported spending approximately €100,000 to date in developing a software tool to calculate Scope 3 emissions. In addition the costs associated with responding to the CDP are thought to be significant, amounting to 600 hours over a two month reporting period.	The company identified that Scope 3 emission calculations can be complex.	The company would like to see a harmonised EU methodology for Scope 3 emissions.
9. Multinational; HQ in UK; Security Services	The company reported the cost of measurement: GBP100k per year in addition to employee time for measurement and reporting: 150-200 person days per year.	Validation and comparability of data is a barrier in GHG calculation and reporting.	The company would like to see a globally harmonised methodology and EF factors. In addition, minimum standards on should be set on what should be reported in order to promote comparability. This should all be supported by guidance on what can be considered as transparent in terms of reporting, targets.
10. SME; Greece; Construction and Real Estate	No data from company on estimated annual costs arising from GHG measurement and reporting, however it has been estimated that 60hours per year is spent on measurement and reporting.	The company identified that internal reporting systems and tools are often not sufficient to capture all emissions data and good data quality can be an issue. The length of time required in measurement and reporting of emissions is also viewed as a risk/barrier. Calculating scope 3 emissions from sub-contractor activities can also be a challenge.	The company would like to see more incentives for SMEs, in order to encourage measurement and reporting of GHG emissions and drive GHG reductions (incentives could include tools and guidelines that promote reporting and a SME sustainability index).

Company ID No. (size; country; sector)	E. Barriers and Costs Associated with GHG Measurement and Reporting		
	16. Please estimate the approximate annual costs arising from GHG measurement and reporting (e.g. employee time, verification costs, etc.)	**17.** Are there any risks or barriers arising from measuring and reporting your company's GHG emissions?	**18.** Do you have any suggestions on how to overcome existing barriers (reduce risks and costs) or improve the benefits of company GHG reporting schemes?
11. Multinational; HQ in Spain; Oil and Gas Extraction, Processing and Retail	No data from company on estimated annual costs arising from GHG measurement and reporting. however, the company stated that the cost in terms of employee time is thought to be considerable.	Complexity of reporting requirements / reporting boundaries and comparability between sectors are seen as two key risks/barriers. Lack of standardized reporting and monitoring methodologies for scope 3 has also been identified.	The company would like to see a single measurement and reporting standard with clear reporting boundary and inclusion of scope 3 emissions. This standardisation would allow comparability.
12. Multinational; HQ in Germany; Power Generation	No data from company on estimated annual costs arising from GHG measurement and reporting.	The company did not identify risks or barriers arising from measuring and reporting GHG emissions.	The GHG protocol should be built upon, rather than introducing another new methodology, which doesn't completely align and therefore introduces issues with annual comparison. The methodology should allow the reporting company to focus on emissions that are material – rather than companies focusing significant effort on emissions that are not material to the company.
13. Multinational, HQ in UK; Retail of Food and Consumer Goods	Overall cost of calculating the global footprint estimated by the company to be £100,000 - £150,000 per annum. This figure includes employee time - both country representatives and HQ employees and cost of verification etc.	The company did not identify risks or barriers arising from measuring and reporting GHG emissions.	Standardisation of methodologies with clear interpretation would be key to overcoming barriers and improving the ease/benefits of company GHG reporting. Ideally, one reporting format to satisfy the needs of all reporting requirements (EU ETS, CRC, CDP etc), lowering the burden of reporting to companies and providing more harmonisation and comparability.
14. National; UK; Light Rail Passenger Transport Operator	No data from company on estimated annual costs arising from GHG measurement and reporting.	The company identified that data is required from a number of sources and that accessing and verifying this data can be complex and challenging.	Continuity of a recommended approach to GHG measurement and reporting (and associated guidance) over time would be helpful. Sector specific leadership indices would be helpful.
15. Multinational; US; Food and Beverage Manufacturer	The company does not break out separate expenses for measuring GHG emissions. It is a regular part of duties performed at the plant level, reporting on energy consumption, water and waste. Several Subject Matter Experts are designated to compile the information, as a regular part of their job duties. As it is part of our overall environmental compliance within the company's Environmental Management System, it is not broken out separately. In addition, the information on GHG emissions is not simply used to report externally, but to increase efficiency internally and to better understand the company's own exposures	There is initially risk of incomplete or inaccurate data when beginning GHG emission assessments however through the use of external verification processes, this risk has been minimized or eliminated. In addition, there is always the risk from comparisons that are likely to be made between the company and other's (which may be measuring and reporting emissions differently).	The company supports development and use of common methodologies such as PAS 2050 and WRI/WBCSD standards; sector guidance such as the BIER document; and believes that there should be common governmental reporting schemes so as to prevent redundancy and conflicting processes or methodologies. The company would also welcome a single reporting location so as to make the most efficient use of time for pulling together data and reports.

Company ID No. (size; country; sector)	E. Barriers and Costs Associated with GHG Measurement and Reporting		
	16. Please estimate the approximate annual costs arising from GHG measurement and reporting (e.g. employee time, verification costs, etc.)	**17.** Are there any risks or barriers arising from measuring and reporting your company's GHG emissions?	**18.** Do you have any suggestions on how to overcome existing barriers (reduce risks and costs) or improve the benefits of company GHG reporting schemes?
	and risks. The company contributes paid and intellectual support to and receives support from BIER, USCAP and Columbia University's Earth Institute.		

5.5 Observations from Company Interviews

The observations arising from the company interviews are as follows:

- **A. Overview of GHG Reporting**

- Most companies have been measuring and reporting emissions for a number of years, although for most the process is continuously improving as the reporting boundaries are widened, reporting systems and procedures mature and data becomes more reliable and transparent.
- A wide range of reporting standards are in use – larger companies have developed their own tailored procedures/policies and often have software databases to collect info.
- For larger companies, GHG reporting is often led by the company's Sustainable Development team and often involves senior management GHG. However, GHG reporting is often combined with a raft of other environmental, health & safety and quality issues in terms of departmental responsibilities and resourcing.
- Some companies have no formal GHG reporting policies in place although most have documented simple reporting procedures which refer to standard such as the WBCSD/WRI GHG Protocol.
- The majority of companies are publically disclosing their GHG data, although the level, scope and geographical coverage of data disclosed appears to vary according to a number of factors including he maturity of the company's reporting processes.
- Reporting via the CDP has emerged as one of the key routes for disclosure of GHG data amongst the companies (SME through to multinationals inclusively).
- Larger companies tend to produce an annual CR report which includes GHG emissions data. They also tend to employ external assurance/verification of the results to build stakeholder confidence.
- Larger companies often responding to multiple schemes, some voluntary and some mandatory. Often the reporting methods and verification requirements are different for each.
- Some leading SMEs are voluntarily reporting their GHG emissions using simple procedures but more commonly they use this information for internal management purposes due to lack of stakeholder pressure to report publicly.

- **B. Overview of GHG Emissions Profile**

- Each of the companies defines their reporting boundaries in line with scopes 1, 2 and 3, as set out within the GHG Protocol.
- The majority of companies have set their reporting boundaries to cover scope 1&2 emissions, including:
    - Process emissions
    - Office emissions
    - Company vehicles

- Business travel (via company owned vehicles – scope 1)

- Fewer companies have incorporated scope 3 emissions within their reporting boundaries, although the limited scope 3 reporting includes:
  - Business travel (where this is not operated by the company – scope 3)
  - Employee commuting
  - Sub contractor emissions
  - Third party distribution
- The majority of multinational companies have a mix of both mandatory and voluntary emission reporting. These companies often use the same methodology for both, although additional methodologies may also be adopted for voluntary reporting (i.e. GHG Protocol to cover scope 3 emissions).
- Around 50% of companies (including all SME's and some multinationals) are undertaking voluntary reporting only, although a number of the UK-based companies expect to begin mandatory reporting under the UK Carbon Reduction Commitment from 2010).
- Almost two thirds of the companies participate in the CDP supply chain initiative and therefore request GHG information from their supply chains. Despite this growing trend towards supply chain reporting, many acknowledge the difficulty in sourcing such data and often only focus on their top / largest suppliers.
- One company that requests GHG data from their supply chain provides support to their suppliers in collating the required information.
- The majorities of companies have reported having some form of GHG reduction targets in place, with a significant number of the targets being set at an overarching / company-wide level. Those companies without targets are generally in the process of establishing them.

➢ **C. Selection of GHG Reporting Methodologies and Initiatives**

- The majority of companies are aligning to the WBCSD/WRI GHG Protocol as the key methodology for measurement and reporting of GHG emissions.
- Companies not directly reporting against the GHG Protocol are often aligning to its principles via other closely linked reporting initiatives, such as the CDP, some sector specific methodologies and UK Government Guidance (issued by DEFRA/DECC).
- Some companies see alignment with the GHG Protocol as a strength in preparing for any future mandatory reporting requirements, since the GHG Protocol is internationally recognised, forms the basis of many other methods and has the flexibility to cover a range of sectors, emission sources and business operations.
- For companies within sectors with significant emissions (i.e. cement, oil and gas), sector-specific methodologies are commonly used. These methodologies are industry focused and provide the additional benefit of consistency and comparability across the sector allowing some level of sectoral benchmarking The main weakness of such sector specific methodologies comes from their lack of consistency with other widely used approaches (e.g. DEFRA GHG

guidance) and therefore the lack of comparability and transparency offered to stakeholders.

- In some instances companies are aligning to more than one methodology, particularly where the company is reporting on both a voluntary and mandatory basis and where the company has made the decision to extend reporting to cover scope 3 emissions.
- For reporting of scope 3 (indirect) emissions, it is widely acknowledged that the GHG Protocol constitutes the best methodology.
- The GHG Protocol was generally thought of positively by companies, as being widely recognised, simple to use, robust, transparent, credible and the 'best available' methodology.
- The main criticism of the GHG Protocol related to consistency of emission factors, with other minor issues identified by some companies associated with usability, flexibility and formatting.
- When asked for comments on the strengths and weaknesses of the companies adopted GHG reporting methodology, only one of the 15 companies had no comment to make.
- A limitation of sector-specific and UK CRC methodologies was considered to be their exclusion of indirect (scope 3) emissions.
- There appears to be a concern amongst some companies that the introduction of new methodologies would create a situation of methodology overload, where any new methodologies would be surplus to requirements. Instead these companies would prefer to see improvement and widening of existing methodologies.
- All companies are reporting CO_2 as standard, whilst others (mainly larger multinational companies) are including other GHG's within their reporting boundaries. This inclusion is however not comprehensive and tends to incorporate only a proportion of the company's operations.
- One of the most common of the other GHG to be included appears to be those associated with companies' air conditioning (refrigerants).
- Inclusion of other GHG's tends to depend on the company's operations (i.e. they may have process emission sources in addition to combustion emissions) and whether or not these are material to the company's total GHG inventory.
- There is a general consensus that companies are becoming aware of the others GHG's and are beginning to consider widening the scope of measurement and reporting to cover these.

➢ D. Benefits of GHG Measurement and Reporting

- The majority of companies have given little thought to identifying and quantifying the benefits of GHG reporting. They typically focus on the reputational and investor relation benefits only.
- Through engaging with the companies, we have seen a split in opinion on whether measurement and reporting has helped reduce emissions.
- Whilst some companies see no "direct" link to emission reductions, others are of the opinion that reductions are made as a direct result of measurement and reporting.

- Whatever their opinion, the majority of companies appreciate that measurement and reporting is an essential first step in the GHG management cycle, providing an understanding of the company's GHG position and key impacts, ultimately enabling management of emissions (often though target setting and progress reporting).
- For one multinational company, any GHG reductions associated with energy efficiency is thought to result primarily from economic pressure (from society, regulations and the value of carbon) and is not directly attributable to measurement and reporting. For another multinational, reductions are considered to result primarily from public and stakeholder pressure.
- One company identified their GHG methodology as a "tool" for identifying and tracking the company's biggest opportunities for cost reduction through smarter more efficient working practices, all of which has the follow on benefit of emission reductions.
- The general opinion aligned with the phrase "You can't manage what you don't measure", with measurement being a pre-requisite for reduction.
- Through developing emission baselines, companies are able to identify emission trends that often form a basis for emission reduction measures/projects/investments.
- Although significant reductions are achieved as a result of GHG measurement and reporting under voluntary schemes (such as the CDP), large-scale reductions are often driven through mandatory schemes. It is important to note that reductions under mandatory schemes are more driven by an overall emission cap (as in the UK CRC) and introduction of a carbon price, rather than being attributable to the process of GHG measurement and reporting in itself.
- Although many acknowledged the financial benefits of GHG measurement and reporting, of the 15 companies interviewed, 14 companies could not express the benefits in monetary terms. One multinational company was able to express the financial payback of investment as: for every €1 invested in a proactive global environmental program the company gets €3 - €4 back annually.
- Despite the majority of companies not being able to quantify the benefits in monetary terms, all the companies were able to detail the non-financial benefits of measurement and reporting. The benefits identified are listed below in order of perceived importance. It should be noted that "reputation" was by far the biggest perceived benefit, with only one company not identifying it. Reputation was followed closely by "investor / stakeholder relations", recognised as a significant benefit (by 10 out of 15 companies).
    - Reputation
    - Investor / stakeholder relations
    - Opening of new market opportunities for companies.
    - Increased employee engagement and awareness of GHG impacts.
    - Reducing the impact of the company.
    - Enabling focus on efficiency.
    - Allowing the company to be "forward facing".

- **E. Barriers and Costs of GHG Measurement and Reporting**

- The majority of companies have given little thought to identifying and quantifying the costs of GHG reporting other than direct costs such as EU ETS allowance purchase and verification fees. Those that have provided cost information may have typically under-estimated the staff time and direct and indirect costs
- Although key GHG management spend areas have been identified, few companies were able to translate this into employee time or monetary costs.
- Annual costs were provided by three companies, all of which were multinationals (no costs provided by SME's). Annual GHG reporting costs amongst these companies ranged from €100,000 to €450,000. However for two of these three companies, quantification of costs reflects discrete tasks, rather than the cost of the whole GHG measurement and reporting process across the company and does not include a cost provision for employee hours.
- Key cost areas have been identified as:
    - Employee time.
    - Contractor time (maintenance of metering equipment).
    - Verification costs.
    - Development of software (GHG tool).
- Around half of companies have quantified costs by employee time (man hours). However, as with the monetary costs, this quantification tends to reflect discrete tasks, rather than time spent on the whole measurement and reporting process across the company.
- One company reported that in addition to the internal costs of GHG measurement and reporting, they contribute "paid and intellectual support" to an external body (a university).
- It appears that in addition to the time spent measuring and reporting company's GHG emissions, a significant amount of time is spent responding to investor surveys.
- Only one company (a multinational not caught under the EU ETS) includes the monetary cost of employee hours within their total costings, resulting in an estimated cost of €118,000 - €176,000 per annum.
- Only 3 companies didn't identify any risks or barriers associated with measurement and reporting of GHG emissions.
- Key risks and barriers of measurement and reporting were identified as:
    - The lack of comparability between different sectors and business operations in terms of applicable boundaries, emission sources and emission factors (although often multinationals choose one methodology to apply across the whole company)
    - The wide range of GHG methodologies required by different mandatory and voluntary schemes, investors, customers (e.g. supply chain GHG footprinting) and other stakeholders
    - The complexities of reporting indirect (scope 3) emissions, particularly reporting of sub contractor activities.

- Other risks and barriers were cited as: complexity of reporting, challenges associated with accessing & verifying data from many sources, ensuring good quality data, irregular updating of emission factors and internal resourcing for data collection.
- One company identified that variation in reporting requirements to different stakeholders can be both onerous and time consuming. This is often seen where different reporting initiatives require data and narrative in different formats, for different periods, etc.
- Only one company (an SME that had already voluntarily adopted GHG reporting) didn't offer any suggestions on how to overcome existing barriers.
- A key solution to overcome risks and barriers of reporting offered by the majority of companies (12 out of 15) was through the development of harmonized measurement and reporting methodologies, allowing complete comparability. Some companies (6 out of 15) would like to see the methodology supported by one central reporting system, providing comparable site level data and sector specific leadership indices (including for SMEs). The companies which have international operations appear to support international harmonization (versus EU-wide) to ensure that all of their facilities are captured under one methodology.
- Some companies believe this single harmonized methodology and reporting system should reduce/remove the requirement for individual reporting initiatives (including investor surveys), significantly reducing the reporting burden faced by companies whilst improving the comparability and transparency of the data.
- This single methodology and reporting system would remove the issues faced by international companies struggling to report under numerous national and regional methodologies, resulting in inconsistent data.
- One company has identified the need for the GHG methodology to include flexibility allowing the company to focus on its material emissions.
- Representatives from SME's have requested further support (guidance, funding and incentives) to support SME's in measuring and reporting their GHG emissions.

5.6 GHG Reporting Methodology and Initiative Owner Questionnaire Process

ERM developed a questionnaire on risks, costs and benefits to gain viewpoints and data from the major GHG reporting methodology and initiative owners. The methodology and initiative owners (previously identified in Phase I of the study, see Table 3.1) were requested to respond within a six-week timescale. The questionnaire (see Annex E) included 13 questions under four main topic headings as follows:

A. Overview of GHG Reporting Methodology/Initiative
B. Benefits for Methodology/Initiative Users
C. Barriers and Costs for Methodology/Initiative Users
D. Possible Options for Future EC Policy Development

From a total of 30 methodology and initiative owners contacted, six responded with formal written comments during May 2010, whilst five others expressed an interest in participating in the questionnaire but did not ultimately respond. Whilst the response rate was low, useful evidence was provided by key stakeholders that did formally respond (WBCSD, CDP, DEFRA, Bilan Carbon, Australian NGER and ICLEI). The feedback gained was that the questionnaire was not directly relevant for owners that are based outside the EU and that for some owners they did not have sufficient resources to respond within the study timescales.

Representatives from seven major methodology/initiative owners had previously joined a Webinar in March 2010 to discuss the study. Comments from the Webinar and subsequent informal feedback (via telephone conversations and email communications) have also been taken into account to supplement the questionnaire responses.

5.7 GHG Reporting Methodology and Initiative Owner Questionnaire Results

A summary of the detailed written responses to the questionnaire is given in Table 5.8.

Table 5.8 Summary of GHG Reporting Methodology and Initiative Owner Questionnaire Responses

Question / Respondee	WBCSD	DEFRA	CDP	Bilan Carbone	Australian NGER	ICLEI
Title and Scope of GHG Reporting Methodology/Initiative (see Tables 3.3 to 3.7 for further background detail on each method/initiative)						
Title of the methodology or initiative	The WBCSD/WRI GHG Protocol Corporate Accounting and Reporting Standard (The GHG Protocol)	DEFRA / DECC "Guidance on how to measure and report your GHG emissions"	Carbon Disclosure Project (Investor, Supply Chain and Public Procurement Programs)	ADEME Bilan Carbone®	Australian National Greenhouse and Energy Reporting (NGER) Act	International Local Government GHG Emissions Analysis Protocol (IEAP)
Main geographies covered	All - a global standard	UK and UK headquartered multinational companies	Global	France and multinational companies headquartered in France	Australian National Boundaries to the EEO boundaries.	Local Authority (government and community) emissions across the world
Main sectors covered	All - applicable across sectors	All	Cross-sector	All	Constitutional Corporations that exceed thresholds defined in Section 13 of Act.	All sectors and all Kyoto Protocol gases
Approx. number of users/participants	Nearly all Fortune 500 companies use the Protocol. A full list of users and programs is available on the GHG Protocol website.	Unknown number of participants; voluntary scheme. Guidance is freely available by download from the DEFRA website.	In 2009 the responding organisations included: c.2500 companies; 675 institutional investors; and,c.50 large corporate and government purchasers.	1000 consultancy companies trained; 4000 reporting companies	1000 Corporations and their subsidiary companies.	Unknown - possibly thousands of Local Governments (LGs).
A) Overview of GHG Reporting Methodology/Initiative **(This section aims to provide an overview of the key strengths and areas for development for the Methodology/Initiative)**						

Question / Respondee	WBCSD	DEFRA	CDP	Bilan Carbone	Australian NGER	ICLEI
1 Key strengths	The GHG Protocol was: • developed involving 350 experts from business, NGOs, academia and government; • released in 2001, revised in 2004; • the first globally accepted GHG methodology; • Widely adopted by programs around the world (eg WWF, The Global Reporting initiative, Carbon Registry, Carbon Disclosure Project). Method framework and division of corporate organisational and operational boundaries is widely applicable, globally, to business, public sector organisation, programs and trading schemes. Results allow performance comparison and tracking. Standards are complemented by calculation tools and specific guidelines which are all available free of charge.	The UK Guidance was developed as a requirement of the Climate Change Act, 2008, is based on the GHG Protocol and is compatible with ISO14064-1. It provides 12 recommendations on how the Government expects all sectors and all sizes of business to measure and report emissions. Published Oct 2009. The uptake has not yet been assessed. DEFRA also published GHG emissions factors to accompany the guidance, which includes an Excel tool to calculate emissions. The recommendation is for companies to set themselves an emissions target for reductions.	THE CDP is comprehensive, including risks and opportunities, governance and strategy as well as greenhouse gas emissions. Sector-specific modules are available and company reports are comparable. Uptake has increased significantly in recent years: • 235 companies reported in 2003 • 2562 companies reported in 2009 CDP recommends that companies use the GHG Protocol to calculate emissions, but other methodologies can also be used. The CDP is Compatible with investor requests from IIGCC, IGCC, and Ceres. CDP is shortly to be aligned with GRI.	The methodology and tool associated has been developed by the French national agency for environment, ensuring both credibility and neutrality. The methodology has been widely adopted since it was introduced across all sectors in 2004. The methodology and calculation rules are clearly and fully described in the accompanying guide. Scope 3 is included within the reporting boundary of this methodology. The methodology is an "easy to use" and "stand alone" calculation tool, which has been developed to integrate a database of 1500 emissions factors. The methodology is compatible with the ISO 14064 standard and the GHG protocol.	Full GHG coverage is required under the legislation. Reporting methodology is accompanied by both general and technical guidelines. These guidelines also point the reader to calculation tools. Actual reporting occurs via an on-line reporting system to which registered corporations and their companies are provided access.	The ICLEI/IEAP methodology is based on IPCC methodologies, and the GHG Protocol (adjusted for territorial areas). The methodology also aims to mobilise the GHG inventory experience by thousands of LGs through the “Cities for Climate Protection” Campaign of ICLEI. The methodology includes detailed analysis for differentiation between government and community emissions and Scope 1-2-3 emissions of local authorities. The approach is useful for the understanding of the governors (councillors) and management of local governments (and the public).

Question / Respondee	WBCSD	DEFRA	CDP	Bilan Carbone	Australian NGER	ICLEI
2 Areas for further development	More companies are using the GHG Protocol every day, but the main focus for development, due at the end of 2010 is the GHG Protocol Product and Supply Chain Initiative, which involves 1400 stakeholders to help develop two new standards. The GHG Protocol Scope 3 Accounting and Reporting Standard will provide a method for accounting for corporate supply chain emissions. The other standard is the GHG Protocol Product Life Cycle Accounting and Reporting Standard. These two standards are currently being road tested by more than 70 companies. Also under development is the Public Sector Protocol which will provide further guidance.	Mandatory reporting is required by 2012, though further decisions are not expected till later in 2010. This may or may not include land use changes, such as forestry.	The CDP is: • Improving reporting comparability; • Developing an integrated calculator by 2011; • Encouraging third party verification of emissions data; • Working to increase the number of sector modules; and • working with the UN Principles for Responsible Investment to encourage institutional investors to urge companies to report to CDP.	Bilan Carbone incorporates a set of sectoral methodologies, which are continuously being improved: • The associated database of emission factors will be added to over time. • The tool is being transferred into an electronic format • A new governance process is being introduced. • Further links are being made with product footprinting.	The scheme will be extended to include further coverage of additional (and smaller) entities in the 2010-11 reporting year	The IEAP Protocol could be extended into more scope 3 emissions. The scheme could introduce detailed supplements for government and community analysis at the regional and national level. The scheme could introduce a common local GHG emissions reporting platform.
3 Coverage of supply chain (Scope 3 emissions) and SMEs	No response provided but the WBCSD/WRI Product and Supply Chain Initiative clearly addresses this issue and is a new/ongoing programme.	The Guidance recommends that companies report on their significant scope 3 emissions and offers guidance and a simple input-output model in order for companies to assess this. Specific SME guidance is also provided.	The CDP Supply Chain program enables companies to seek climate change information from their suppliers. The CDP Public Procurement enable government departments to ask for the same information from their suppliers. SMEs have a shorter questionnaire through the Supply Chain and Public Procurement programmes. Categories for Scope 3 emissions are according to the latest draft of the developing WRI/WBCSD Scope 3 standard.	The methodology includes consideration of scope 3 emissions. Given its position of anticipating the increased costs of fossil fuels, scope 3 are as relevant as the scope 1 and 2 emissions. A specific "free online tool" for scope 3 emissions is under development.	Scope 3 emissions are not required to be reported under the NGER Act.	Scope 3 emissions are not dealt in detail by the scheme.

Question / Respondee	WBCSD	DEFRA	CDP	Bilan Carbone	Australian NGER	ICLEI
4 Minimum standards for comparability between participants/users	Standardized approach, where boundaries are set at the start and maintained in updates. The step by step process includes guidance on: • including the 6 Kyoto GHG gases • organisational and operation boundary options • choosing a base year • choosing a significance threshold • data collection, sources and assurance	The 12 recommendations include guidance on the approach companies should take in reporting their emissions, including: • reporting all 6 Kyoto gases, • how to set their boundary, • setting a reporting year, • which emissions to report, • using DEFRA conversion factors, reporting gross and • net emissions and setting a baseline for emissions reporting.	Use of the CDP Framework is recognised and rewarded in CDP scoring. Verification is also encouraged. The requirements are strongly guided by work of the Climate Disclosure Standards Board in setting out an international reporting framework for climate change information.	All calculation rules have been set up to increase comparability (electricity mix, recycling, carbon offset, carbon storage, etc.). The database is provided and updated to include the lastest IPCC GWP vales. A model of "scope of work - technical specification" for consultancy company and reporting has been designed and is freely downloadable.	The NGER Act 2007 introduced a single national framework for the reporting and dissemination of information about the greenhouse gas emissions, greenhouse gas projects, and energy use and production of corporations.	The scheme covers all emissions within the LGs geopolitical boundaries, plus specified emissions sources outside these boundaries. LGs must use nationally acceptable emission factors and IPCC GWPs. The protocol stresses materiality rules as per routine accounting and auditing standards. As yet assurance services are not cost effective for LGs that are not using their inventory for trading purposes.
B) Benefits for Methodology/Initiative Users **(This section aims to provide an overview of the benefits associated with use of the methodology/initiative)**						
5 How does measurement and reporting help a company to reduce its GHG emissions	A common measurement and reporting framework allows companies to: • measure their emissions, • track their performance over time, • make business decisions based on the information, and • provide credible information to their stakeholders Case studies can be found in the GHG Protocol Corporate Standard	Case studies show that organisations that measure their GHG emissions do experience a reduction in carbon emissions, improve their resource and energy efficiency and save costs. However it is difficult to separate out the contribution that reporting alone has made to the performance as the organisation will usually have several initiatives ongoing to manage energy efficiency and reduce costs.	Research on this issue by the CDP will be finalised in late 2010 that contributes to the UK Government research on GHG reporting. This data will be shared with stakeholders as soon as possible.	The philosophy of our initiative is: "Quantify to anticipate". The dynamic is: measure to act and act to reduce. The methodology provides the user with data on emissions from key sources. In addition, Bilan Carbone has developed an economic tool in order to calculate the financial impact of any increased costs of fossil fuels.	This NGER legislation is intended to be the first step in structuring the economy to respond to excessive energy use and greenhouse emissions through the eventual development of an emissions trading scheme. Companies are already motivated to minimise costs and this reporting process will raise awareness of these costs now and in the future.	By appropriate accounting and reporting of their emissions, LGs can have a better understanding and management of their urban planning, energy, transport, waste operations and practices. A GHG Inventory provides a powerful sustainable urban management tool. This is the driving force for most of the developing country local governments.

Question / Respondee	WBCSD	DEFRA	CDP	Bilan Carbone	Australian NGER	ICLEI
6 Quantifying how the scheme helps users/participants to reduce their GHG emissions over time	Emissions are not reported to the GHG Protocol, but this could be done through the programs that use the GHG Protocol methodology. For example, WWF Climate Savers using the GHG Protocol will have collectively cut emissions by 14 million tonnes CO2e by 2010.	It is too early to say, but UK Government research is ongoing into how reporting contributes to the UK emissions reduction target, due before December 2010.	CDP has anecdotal evidence, but is supporting the current UK Government study into this issue	Although Bilan Carbone is not able to provide data on total CO_2 emission reductions, they do have feedback on cost and CO_2 reductions by individual companies. The Bilan Carbone approach is based on actions to achieve reductions. As such, Action Plans are established with all key employees within the reporting company.	It is not yet possible to quantify this measure across the whole economy.	The "Cities for Climate Protection" Campaign is the heart of IEAP. A 2006 report indicates an annual 60 million tCO_2eq reduction is achieved globally. Reports from Canada, US and Oceania refer to annual GHG reductions ranging from 4.5 million tCO_2eq/yr in Australia to 1.4 billion tCO_2eq reduction in the period 1990-2002. Cities in South Asia have also started energy conservation targets.
7 Other benefits of the scheme	The GHG Protocol provides the method to: • Identify future risks • Identify cost effective reduction opportunities • Set targets and measuring progress • Meet reporting requirements • Support trading programs • Calculate GHG taxes • Protect the "baseline" and support early action.	Aside from the cost savings achieved through energy efficiency, other benefits of our guidance include: • Preparation time prior to mandatory reporting • Opportunity to demonstrate leadership and strengthen green credentials • Generating long term behaviour change in developing GHG management.	All benefits mentioned below are experienced by companies to varying degrees: • improved company reputation • new customers • associated environmental benefits • improved investor relations • potential market opportunities The current UK Government study is looking at this in more detail.	A key benefit of the scheme is to reduce the reporting company's vulnerability to fluctuations in energy prices and exposure to taxation of GHG emissions. This reduced vulnerability has a positive knock-on effect on investor relations	NGER was not able to provide an answer to this question.	At COP15 (Copenhagen, December 2009), more than 3000 local reduction commitments were announced, showing the power of being involved in such an initiative.
C) Barriers and Costs for Methodology/Initiative Users **(This section aims to provide an overview of the barriers, risks and costs associated with use of the methodology/initiative)**						

Question / Respondee	WBCSD	DEFRA	CDP	Bilan Carbone	Australian NGER	ICLEI
8 Annual cost of using the methodology/ initiative	Expenses vary widely depending on size of company, level of detail of the inventory, what data sets one uses (free or pay for service), if a company would like the results assured, etc. Unfortunately, we have no consistent data on this.	Estimates, based on consultation feedback, include a few hours work initially, with up to 200 hours annually depending on the size of the business and their level of preparedness. We expect to gain a further understanding of costs and benefits as a result of a current study which is due to be completed by the end of 2010.	CDP has anecdotal evidence, but is supporting the UK Government's current study on this topic. The EU EPA have also made some cost estimates in their consultation of the Greenhouse Reporting Rule.	The reporting company can either contract a consultancy company or their own staff can be trained (€1250). Total time to be spent in order for a company to get from identifying CO_2 emissions to establishing a carbon action plan is approximately 10-20 person days (consultancy company) or 15 – 30 person days (staff) Consultancy person-day prices range from €500 to €2000 depending of the consultancy company.	NGER was not able to provide an estimate as costs are closely linked to participating company size.	If appropriate tools are available, the Government Operations sector emissions can be completed from existing LG data sources (taking a few weeks of work). Collecting and analysing data for the Community sector varies greatly depending on the quality of regional and national statistics. Completing this task after each national census of the population is appropriate - but it can be a major exercise.

Question / Respondee	WBCSD	DEFRA	CDP	Bilan Carbone	Australian NGER	ICLEI
9 Other barriers to uptake of the scheme	The free standardized methodology and guidance mean the measurement, data collection and reporting is largely straightforward. Challenges lie in setting suitable boundaries and acquiring data from global operations. Barriers which have been noted include: • lack of clear guidance on how to allow for RECs or other "credits" from green electricity; • lack of qualified assurance providers; • lack of programs within education systems to provide the necessary interest and awareness of GHG measurement and assurance; • lack of standardized approaches to requesting data from suppliers; and • lack of standardized means of reporting emissions (not what to report, but how to report it).	This issue forms part of the research being conducted for DEFRA, due in 2010. One of the expected barriers is in obtaining data for Scope 3 emissions. We also do not believe that companies who report on GHG emissions reduce resources on other environmental issues, as often GHG emissions are the sole environmental factor on which a company reports.	Barriers to uptake of the CDP include: • Lack of training in GHG accounting principles • Lack of understanding of emissions factors • Lack of free, easy to use tools for beginners • Lack of rigour in calculating electricity emissions factors • Confusion over boundary setting We suggest sector-specific approaches to comparison and offers of assurance to data-users that all significant emissions sources have been covered.	In order to align with Bilan Carbone, the reporting company has to consider scope 3 emissions. The emission factor database is in the process of being expanded. There is a lack of technical expertise in this area. In terms of cost, with the Grenelle law, incentives will no longer be available for some organisations. Cost are only considered to be a potential barrier amongst some SME's There are a significant number of consultancies applying Bilan Carbone for companies across France with a high level of expertise; and there are also many newer consultancies involved. It is difficult to assess and compare the abilities and level of advice /service provided by all consultancies. The quality of service provided by consultancies needs to be homogenised and improved.	The fact that the scheme doesn't allow companies to report scope 3 emissions could represent a potential barrier to uptake.	Barriers to uptake of the ICLEI scheme include availability of resources and lack of incentives at a local-national-international level for this work.
D) Possible Options for Future EC Policy Development **(This section aims to gain inputs on the possible range of options for future policy development for company GHG reporting in Europe)**						

Question / Respondee	WBCSD	DEFRA	CDP	Bilan Carbone	Australian NGER	ICLEI
10 Forecasts of business as usual scenario (next 5 years) in the absence of further regulation	There are a growing number of companies reporting their emissions, largely due to increased stakeholder pressure and improved understanding of the 'business case' for doing so. There will likely be an increase in reporting initiatives, but data collection and data sources will continue to lack standardisation, which complicates the inventory process.	The UK Government must make reporting mandatory or explain to Parliament why not by April 2012. Further information on future regulation is unavailable at present, but will in due course be subject to public consultation.	If there is no new policy at EU level, then it is expected at a national level, but this risks a lack of harmonisation and leaving eastern European countries at a disadvantage. It is our view that voluntary initiatives won't achieve full standardisation within 5 years. There is potential reluctance for companies to purchase Guarantees of Origin without further work on electricity factors.	Bilan Carbone stated that "Proliferation of standards and methodologies is not good" and the "EC should support ISO process on standardisation". There might be around 5% per year uptake rate under business as usual.	Due to the fact that much of the GHG reporting process is new, NGER was not in a position to define what a business as usual approach to reporting would look like.	There is a very high demand for GHG reporting services in Local Governments - but financial resources are likely to remain limited in the current economic situation.
11 Suggestions to overcome existing barriers for company GHG reporting including SMEs	The GHG Protocol has specific guidance for small office-based organisations doing an inventory for the first time. Companies must understand the risks of carbon before they will measure and report on it. There are few barriers to the methodology, but there are some in data access and data sharing along the supply chain. SME's have more obvious boundaries, so their GHG inventory should be simpler, but better understanding of the risks are needed to make them do this.	No response provided.	CDP has simplified the questionnaire for SMEs, which has been followed by good uptake in 2009. CDP provide webinars for all first time respondents, which have been taken up. Language barriers may be a problem for some SMEs and CDP is working on translations and accepting in local languages.	Development of a simplified reporting format is suggested. This report format should not allow other entities to access any confidential information.	NGER did not provide any suggestions and reported that no specific measures have been developed to overcome existing barriers.	It is suggested to make reporting a requirement by national (or EU wide) policy and regulation.
12 Suggestions to improve the level of benefits for company GHG reporting schemes	Existing benefits are adequate, but work could be done to alleviate confusion between the main GHG methodology (GHG Protocol) and various reporting programs as this may overwhelm companies looking to start measuring their emissions.	No response provided.	Government backing for reporting at EU level would be useful in stimulating reporting and raising response rates.	A European "eco-label" for GHG reporting might be attractive.	The eventual introduction of an ETS (compatible with international ETS systems) in Australia will provide a financial incentive to improve reporting standards.	The European Regional and Country supplements should be developed to help European cities have a better understanding and capacity and to allow harmonization of local GHG inventories.

Question / Respondee	WBCSD	DEFRA	CDP	Bilan Carbone	Australian NGER	ICLEI
13 Value of additional support from the EC	EC backing of existing methods may be helpful, but assistance is really needed in improving access to good data sets, for low cost to allow completion of inventories and more informed decision making. Clarity on long term policies would also help companies plan ahead.	Additional support for existing schemes would be welcomed. The importance of staying aligned with international developments and existing national standards, particularly for multi-national businesses, is stressed.	Any new standard must align with existing standards, e.g. GHG Protocol as closely as possible. (see work of the Climate Disclosure Standards Board). Mandatory reporting would result in complete, comparable information and would send a much clearer signal to the private sector. The E-track project work must be built on to produce electricity emission factors that address double-counting issues, take Guarantees of Origin sale and purchase into account.	It is suggested that the EC might focus its work on a regulatory scheme rather than a voluntary initiative.	NGER did not provide any information in relation to additional support from the EC	EC resources should be provided for local authorities that prepare inventories. Support should be provided to those who commit to reduction goals.

5.8 Observations from Methodology and Initiative Owner Questionnaires

The observations arising from the methodology and initiative owner questionnaire and their associated informal inputs (via the Webinar, telephone conversations and email communications) are as follows:

- **A. Overview of GHG Reporting Methodology/Initiative**

- The major methods/initiatives are generally successful for their target audience and have a number of strengths which have been developed over time.
- Most are planning to further develop their schemes and recognise that there is a general move towards mandatory reporting in future.
- Guidance on Scope 3 emissions and supply chain impacts is a key area of current work and new standards are in progress. Two of the initiatives have excluded reporting of scope 3 emissions from their remit.
- The schemes each set a number of minimum standards, although these do not necessarily allow direct comparability between schemes due to differences in interpretation/application by users.
- Each of the schemes are working towards achieving comparability between participant companies (within their own scheme).
- The methodologies/initiatives are continuously evolving and improving in general these changes are to deliver improve usability, comparability and meet other market requirements.

- **B. Benefits for Methodology/Initiative Users**

- Alignment with the methodologies allows companies to understand their GHG impacts and brings credibility to published results. The information provided through the methodologies forms the basis for companies to develop GHG management plans and identify emissions reduction potential.
- Bilan Carbone have the philosophy "quantify to anticipate", "measure to act and act to reduce". It is generally acknowledged that GHG measurement and reporting is an important first step towards achieving emissions reduction.
- DEFRA have acknowledged that it is difficult to identify the contribution that GHG reporting alone has on the performance of a company, which may have many ongoing initiatives to manage emissions and energy use.
- ICLEI believe that through aligning to their methodology, Local Governments can gain a better understanding and management of their urban planning, energy transport and waste operations and practices. In addition, ICLEI have partially attributed the increasing number of local level emission reduction commitments to the availability of the Local Government methodology.
- None of the reporting methodologies have been able to quantify how the individual schemes help users to reduce their GHG emissions over time. The methodologies allow for the measurement of emissions over a specific time period (typically annually). It is down to the individual companies to use the

methodology framework to measure trends and calculate potential emissions reductions.

- A number of significant benefits of the methodologies have been identified. Although these benefits vary between methodologies, in general terms they include improved business risk management, addressing investor demands and compliance with current/future regulatory requirements.
- In addition the reputational benefit associated with company GHG reporting is generally acknowledged by the methodology providers.

➢ **C. Barriers and Costs for Methodology/Initiative Users**

- Whilst it is understood that there are monetary costs associated with applying the methodologies, these have not been fully explored by all of the methodology providers and are seen to be highly variable and dependant on the position of the individual reporting company and the completeness of their reporting.
- Limited data is available on employee and consultancy hours input for GHG reporting. Based on one response (Bilan Carbone) , estimates range from 10 to 30 days input per GHG reporting round, which equates to costs in the range of €12,500 to €38,000 per annum (assuming a mix of company staff and consultants working on the report at typical daily rates). This cost may not be representative for reporting by large and more complex companies.
- Several barriers to uptake of GHG methodologies have been identified. These barriers range from lack of understanding through to cost considerations and lack of resources.
- The WBCSD have identified the lack of a standardisation in requesting data from suppliers and in templates/platforms for reporting emissions as two barriers, which could be easily overcome.

➢ **D. Possible Options for Future EC Policy Development**

- Under business as usual (BAU), the general view is that some Member States will gradually move towards mandatory reporting over the next five years.
- Under BAU voluntary standards and schemes will continue to proliferate, with a move towards standardisation, although full standardisation is likely to take longer than five years.
- Overall, methodology uptake rates are not well researched or documented, although Bilan Carbone estimate around 5% additional uptake by companies per annum under BAU.
- Some schemes provide simplified guidance for SMEs and further work in this area is seen as a key means of removing barriers to increased uptake in any future EC policy scenario.
- Other suggestions to remove barriers include simplified reporting formats, making guidance available in several languages and better communication of the business case for GHG reporting.
- Opinion on the need to strengthen benefits of GHG reporting varied, although most schemes indicated that increased backing from the EC would strengthen the benefits that are already present.
- There was a strong messages that any new EC reporting scheme must be aligned with and build upon existing standards as far as possible.

- Some responses provide support for a mandatory EC scheme, whilst others request additional EC support for existing voluntary schemes. It has been suggested that EC support be provided to those who commit to emission reduction goals.

Based on these observations, the issue of possible options for future EC policy development is explored further in Section 6 of this report.

5.9 Literature Review of Risks and Benefits Data

A review of the international literature on the risks and benefits of company GHG reporting was conducted using a range of sources, including:

- Case studies from reputable bodies that focus on GHG reporting (e.g. The Carbon Trust and WBCSD/WRI);
- Government policy reviews and regulatory impact assessments (e.g. US EPA and DEFRA);
- Company CR reports and websites;
- Company CDP and GHG Registry submissions;
- Sector association publications ; and,
- NGO and investor publications.

The results of the review are presented in Tables 5.9 to 5.11. Currency exchange rates of $1.30/€ and £0.85/€ have been applied in these tables. Where possible only the costs that are specific to GHG reporting have been shown. Wider scheme costs such as registration fees and costs for trading of allowances have been removed from the totals. These tables cover the 19 documents/references which were found to be most useful in terms of the aims of this study. Many more documents/references were identified but were either not from an authoritative source or did not provide sufficiently detailed data on risks and benefits for the purpose of this study.

It is also noted that the UK Government (DEFRA) are currently undertaking a detailed study into how GHG reporting contributes to the UK meeting its climate change objectives. As part of that review, UK businesses have been asked to identify the impact that reporting more widely has had on their overall GHG emissions. This will include a cost benefit analysis of reporting and its impacts. The review will be laid before Parliament before December 2010. However, at this time no study results are available from DEFRA.

Table 5.9 Literature Review of Data on Risks and Benefits of Company GHG Reporting

Data Source/Reference	Brief Description of the Document	Sectors Covered	Reporting Methods / Initiatives Covered	Summary of Risks and Costs Data	Summary of Benefits Data	Comments
Carbon Trust 2006 Climate change and shareholder value LINK: https://www.carbontrust.co.uk/Publications/pages/publicationdetail.aspx?id=CTC602&respos=0&q=CTC602&o=Rank&od=asc&pn=0&ps=10	A study on the influence of 'Climate Change' as a whole (including direct effects such as weather and indirect such as market changes) on different business sectors. The document is focusing on the effect of the carbon price / allowances. Other issues such as whether impacts and changing demand patterns are also included. The risks are assessed using scenarios.	• electricity generators • logistics • building materials • supermarkets • bulk commodity chemicals • industrial gases • food production • hotels and leisure • house building • water utility	General (complete foreseen regulatory background in 2013, including in particular EU ETS, UK CCL)	Study predicts that taking into account full regulatory and market dynamics, the profit exposures will be - 10% for the Building Materials and Bulk Commodity Chemicals sectors and -0-5% to all the other sectors studied. This is not resulting from GHG reporting alone, but mainly from other climate change related regulation (mainly price of carbon).	Profit upside is predicted for the Electricity Generator case study (due to mechanics of marginal cost pricing).	The paper does not specifically focus on GHG reporting - it includes GHG reporting under regulatory burdens on businesses resulting from climate change.
Carbon Trust 2005 Brand value at risk from climate change LINK: http://www.carbontrust.co.uk/Publications/pages/publicationdetail.aspx?id=CT-2004-10	An attempt to quantify 'reputational risk or brand risk' from climate change in 2010. The evaluation was based on quantifying the total brand value and brand image value (the part vulnerable to consumers' perceptions of a company's response to an issue such as climate change) for each sector, expressed as a proportion of market value.	• Airlines • Oil & Gas • Food & Beverage • Food Retail • Telecommunications • Banking	No reporting methodologies discussed.	The study looks into what part of the market value is at risk from consumer brand changes due to perceived company's response to climate change for several sectors. The most vulnerable are Air lines, having 50% of their market value is at risk, followed by the food and beverages sector at 10%. Other sectors have 2-3% of their market value at risk. This relates to the whole climate change related profile of the company. A number of other benefits are listed but not quantified.	No specific data provided although the market value at risk could be turned into a benefit for the best performing companies.	While this is an indication of the importance of GHG reporting, only a part of that market value at risk can be addressed through reporting alone.
Carbon Disclosure Project website 2010 (CDP2010 Reporting Guidance and other documents) LINKS:	Guidance to reporting (to the companies that would like to disclose their carbon emissions through the programme) are the most comprehensive part of the site. Not much information on costs of the reporting to the companies is given. Some benefits are listed in the introductory section.	Most sectors. Largest companies globally are targeted. Special focus on Oil and Gas, Electric Utilities, Auto and Auto Parts.	CDP advises the following available standards and protocols for the companies to report their emissions: • The Greenhouse Gas Protocol • The ISO	No data provided.	Main benefits for participating in CDP listed are: A) For the Investor CDP programme: • Increased transparency to shareholders, clients and the public • Identifying how the organization copes with threats arising from climate change • Highlighting the business opportunities available • Enhanced ability to increase efficiency and reduce unnecessary costs B) For the Supplier and public	As an additional benefit, the CDP is encouraging the responders to think about business risks arising from climate change and how to address these.

Data Source/Reference	Brief Description of the Document	Sectors Covered	Reporting Methods / Initiatives Covered	Summary of Risks and Costs Data	Summary of Benefits Data	Comments
https://www.cdproject.net/en-US/Respond/Documents/CDP%20Guidance%20FINAL%20Paper%20+%20Changes.pdf https://webadmin.cdproject.net/en-US/Respond/Pages/CDP2010-Reporting-Guidance-Risks.aspx			14064 and alignment with the DEFRA Guidance		procurement CDP programme: • Begins of calculating their carbon footprint • Managing the risks and opportunities from climate change • Identify scope for emissions and cost savings • Benchmark against peer group and showcases	
Carbon disclosure Project (2010) Advanced reporting platform LINK: https://www.cdproject.net/en-US/WhatWeDo/CDPNewsArticlePages/CDP-Global-Climate-Change-Data-and-Reporting-Platform.aspx	Press release on the CDP launching an advanced reporting platform, based on existing accountant and management tools and software solutions such as Accenture, Microsoft and SAP. This is viewed as the first step to integrate GHG reporting in standard business tracking and reporting activities, that will lower the costs of reporting and increase the analytical value of GHG accounting.			No data provided.	The common benefits are mentioned again: GHG reporting enables companies to lower costs by identifying efficiency measures, reduce climate change related risk and also reveal commercial opportunities and preparation for future regulation. The benefits of the new system are: · Improved understanding and management of greenhouse gas emissions · Preparation for future regulation by facilitating the collection of regulatory grade data · Streamlined reporting process with a single, fully accessible global reporting platform · Ability to benchmark against competitors	This development implies that the costs for GHG reporting are expected to decrease, as the GHG emissions become an integral part of standard business management solutions.

Data Source/Reference	Brief Description of the Document	Sectors Covered	Reporting Methods / Initiatives Covered	Summary of Risks and Costs Data	Summary of Benefits Data	Comments
USEPA 2009 Regulatory Impact Analysis for the Mandatory Reporting of Greenhouse Gas Emissions Final Rule (GHG Reporting) LINK: http://www.epa.gov/climatechange/emissions/downloads09/GHG_RIA.pdf	EPA's examination of the costs and benefits of the mandatory GHG reporting rule. Detailed costing calculation to the industry per each entity per different sectors with some alternatives is examined in addition to cost to the regulatory bodies. Regulatory implementation costs for the public sector are also estimated. Qualitative review of benefits to the society including the public, industry and the government. No macroeconomic impacts are anticipated.	• Energy sector • Metal and chemicals manufacturing		Regulatory costs to the public sector are estimated to be $17 million per year or $1675 per entity regulated ($3.5 million per year is for verification activities, and $13.5 million per year is for program implementation and developing and maintaining the data collection system). Detailed calculation of private sector costs, depending on monitoring options and the nature of company operations. EPA estimates that 10,152 entities would be covered by the rule. The total annualized costs incurred under the rule by these entities would be $132 million for the first year and $82 million for subsequent years, meaning on average $13,000 per company first year and $8,000 subsequent years. The biggest costs will be to stationary combustion sources, followed by the Landfills sector, Pulp and Paper Manufacturing and others. The cost-to-sales ratios are less than 1% for establishments owned by small businesses - meaning there will be no significant economic impact on a substantial number of small entities.	For the businesses: • Public relations: demonstrating appropriate environmental stewardship to the public • Potential cost savings: uncover wasteful processes, yielding cost-saving opportunities • Standardization: uniform industry standards would reduce the cost of reporting relative to non-uniform, jurisdiction-specific, and allow facilities to benchmark their performance against other similar facilities. For the society: • Reducing the emissions • Potential customer data for service industries: information about GHG-emitting firms will be useful for firms that market emissions-reduction technologies, and to insurance companies for assessing risk.	A very useful study with very detailed costs estimations (available in report). The regulatory costs, particularly those for verification appear to be low when compared to those for other schemes such as the EUIETS.

Data Source/Reference	Brief Description of the Document	Sectors Covered	Reporting Methods / Initiatives Covered	Summary of Risks and Costs Data	Summary of Benefits Data	Comments
DECC 2010 Final Impact Assessment on the Order to implement the CRC Energy Efficiency Scheme LINK: http://www.decc.gov.uk/en/content/cms/consultations/crc/crc.aspx	DECC assessment of socio-economic costs and benefits of the CRC regulation. CRC has been put in place to encourage carbon savings within large organisations, primarily by driving uptake of cost-effective end use energy efficiency measures. Its sets up obligatory carbon reporting for large companies an sets a 'cap and trade' emissions trading scheme.	All businesses using half hourly meter for electricity and exciding at least 6,000 MWh annual electricity consumption. Most represented sectors are Mechanical Engineering, Estate & business and Plastics. EU ETS (energy etc) excluded. Includes public sector.	CRC	Primary administrative activities generate costs to organisations. These are calculated to range from £5,000 p.a. for small companies to £20,500 p.a. for large companies with more than 50 sites. They include time used to understand scheme rules, initial collection and analysis of energy data, submitting data to coordinator and verifying data (external costs). The report assesses costs based on management days for these tasks, depending on the size of the company. The figures above include only the tasks common to GHG reporting (excluding allowance trading and registration fees). In addition to these there is an annual regulation charge of £1,290 per organisation and one-off registration fee of £950. Costs to society: the main costs are emissions control costs (around 50%) and admin costs (50%).Total costs to all stakeholders £ 34 m annually / £500 m over 15 years.	Very broadly defined as: • environmental benefits in terms of reduced emissions of CO_2; • monetary benefits to the participant organisations (savings on energy bills from investment in energy efficiency); • ancillary benefits in terms of improvements in local air quality The scheme claims that it " focuses on organisations for whom the private energy efficiency benefits should outweigh the administrative costs."	Attention needed to which costs are about allowances purchases and associated administration in comparison to reporting only.

Data Source/Reference	Brief Description of the Document	Sectors Covered	Reporting Methods / Initiatives Covered	Summary of Risks and Costs Data	Summary of Benefits Data	Comments
DEFRA 2009 Guidance on how to measure and report your greenhouse gas emissions LINK: http://www.defra.gov.uk/corporate/consult/greenhouse-gas/index.htm	DEFRA has published the Guidance on the measurement or calculation of GHG emissions under the CCA. They provide organisations with a range of annually updated GHG conversion factors that enable them to calculate their business emissions from transport and energy use easily. There is an impact assessment that specifically looks at the costs & benefits of the scheme.	All. Small and medium enterprises specifically targeted, as they are not part of any other incentives.	DEFRA guidance.	The report assesses one-off cost to the companies staring to report GHG following DEFRA guidelines and yearly costs (different for first year and subsequent years / companies already having GHG reporting experiences. The one-off costs - costs of familiarisation with the guidance document are very small. Yearly cost estimates based on administration hours are: £6,300 for large and £1,250 for small companies in first year. £4,750 for large and £950 for small companies in subsequent years. They include: - identifying operations and activities resulting in GHG emissions - collecting data from these activities - converting this data into GHG emissions - reporting the GHG emissions data in an appropriate format. Costs will also vary according to whether companies include discretionary scope 3. The calculations are based on responses received to the consultation. Hourly rates are taken from the Admin Burden template used by DEFRA.	The study lists benefits similar to other papers: costs savings and strengthening of the companies' green credentials to both customers and employees. The report also lists out the following case studies (although acknowledging fiscal benefits are not attributable to GHG reporting alone): • Damco: "10-15% cost reductions are usually achievable in the mid-term (1-3 years)." • Devonport Management Ltd (Source: Carbon Trust): 13% reduction in gas use; saving £500,000 (achieved through investments). • Westbury Dairies (Source: Carbon Trust): by appointing an energy manager targeting energy use, company saved app. £400,000 a year • Yorkshire Water (Source: BiTC): by developing a system to calculate operational and embedded carbon and using it in its investment decisions the company saved £1.2million in 2007 through energy efficiency schemes; • Meadowhall (Source: BiTC): During 2005 alone saved £80,944 by increasing awareness of energy efficiency in the company.	Financial benefits are hard to quantify. Case studies show that organisations that measure their GHG emissions save costs. It is difficult to separate out the contribution that reporting alone has made to the other ongoing initiatives, however 'what does not get measured does not get managed'. Although the cost savings and emission reductions detailed cannot be attributed to reporting alone, they provide an indication of the impact reporting can have when combined with emission reduction activities. The guidance is voluntary and external assurance is optional. DEFRA state that the cost of assurance varies from £15,000 to £100,000 depending on the type of assurance received and the consultants used to do it. Feedback from the consultation suggests that this is at the top end of estimates.
DEFRA 2009 Measuring and reporting environmental impacts/ SMALL BUSINESS USER GUIDE: Guidance on how to measure and report your greenhouse gas emissions / related articles	A short document related to DEFRA 2009 Guidelines aimed to inform businesses why and how to report.	All. Small and medium enterprises are specifically targeted.	DEFRA guidance	No data provided.	Mentions relevant benefits for a business in form of a better position to be considered: - in investment decisions by trustees (for example UK Pension fund) - for inclusion in the ethical indices such as the Dow Jones Sustainability Index and the FTSE4Good index Also lists general benefits:	The document acknowledges the need for clarity in the over-lapping climate change policy landscape (EEF)

Data Source/Reference	Brief Description of the Document	Sectors Covered	Reporting Methods / Initiatives Covered	Summary of Risks and Costs Data	Summary of Benefits Data	Comments
LINK: http://www.defra.gov.uk/environment/business/reporting/index.htm#why					• save money • generate new business • meet the information demands to customers	
WRI website / GHG protocol related material LINK: http://earthtrends.wri.org/features/view_feature.php?theme=5&fid=50	GHG Protocol related web pages from WRI. WRI is an environmental think tank founded in 1982 based in Washington, that developed GHG protocol jointly with WBCSB. This is reviewing GHG protocol related parts of their web pages.	All	GHG protocol	WRI did not undertake any quantitative costing research, but assume the costs are mostly associated with the consultancy charges to the companies reporting.	Most benefits the WRI mentioned are related to better understanding of the company's' potential GHG exposure in an expected carbon constrained economy: - Addressing heightened scrutiny by reinsurers - Addressing climate related shareholder resolutions - Knowledge to avoid increased costs (upstream) or reduced sales (downstream) from future GHG regulations - Better position for investor consideration	
WRI 2008 Bottom Line on Corporate GHG Inventories LINK: http://www.wri.org/publication/bottom-line-corporate-ghg-inventories	A short summary document on importance of GHG inventories to business.	All		Costs for developing a GHG inventory vary depending on the type and scale of the inventory, the degree to which inventory developers can draw on existing data collection systems (as opposed to implementing new ones), as well as the complexity of the methodology. Companies often can develop useful inventories on a limited budget, or with additional funds, can develop sophisticated inventories with more specific GHG data. WRI argues that the variety of free tools available to gather and calculate GHG emissions lower the costs to companies.	GHG inventories enable companies to identify their emission sources and track changes over time. Information presented in a GHG inventory can help inform corporate strategies and prioritize actions to reduce emissions, as well as provide benchmarks against which the success of these activities can be measured.	
WRI 2008 ChevronTexaco: The SANGEA(TM) accounting and reporting system LINK:	A short document desribing ChevronTexaco's development of an energy utilization and GHG estimation and reporting software consistent with the GHG Protocol Corporate	Energy	GHG protocol	By using a systematic solution like ChevronTexaco reduced their GHG accounting costs for 70%.	No data provided.	

Data Source/Reference	Brief Description of the Document	Sectors Covered	Reporting Methods / Initiatives Covered	Summary of Risks and Costs Data	Summary of Benefits Data	Comments
http://www.wri.org/publication/content/8694	Standard.					
World Business Council for Sustainable Development (WBCSD) website LINKS: http://www.wbcsd.org/web/publications/ghg-protocol.pdf http://www.wbcsd.org/DocRoot/LJQWshKWnR84DNoH97iL/TranslatingESG.pdf http://www.wbcsd.org/plugins/DocSearch/details.asp?ObjectId=Mzc2NTM http://www.wbcsd.org/DocRoot/wrHqIUtkoNq4sC2wodX8/linkages.pdf http://www.wbcsd.org/plugins/DocSearch/details.asp?txtDocTitle=verification&txtDocText=verification&DocTypeId=-1&ObjectId=Mzc1MTc&URLBack=result%2Easp%3FtxtDocTitle%3Dverification%26txtDocText%3Dverification%26DocTypeId%3D%2D1%26SortOrder%3D%26CurPage%3D1	General GHG Protocol related web pages from WBCSD. WBCSD is a global association of international companies dealing with business and sustainable development. Developed GHG protocol jointly with WRI.	All	GHG protocol	One of the potential risks of GHG reporting is that companies focus most of their attention on this issue and therefore shift resources away from other environmental issues.	The four categories of business goals most frequently listed by companies as reasons for compiling a GHG inventory are the following: • GHG risk management • public reporting/participation in voluntary initiatives • GHG markets • regulatory/government reporting Further documents also stress the importance and role of GHG reporting in a form of an accepted measurement and reporting protocol for establishing a global carbon market.	The motto of the WBCSD is that business is good for sustainable development and sustainable development is good for business.
Ethical Corporation 2008 **Corporate greenhouse gas emissions reporting (summary)** LINK:	The document was produced by interviewing some companies currently engaged in GHG reporting. It is aimed for business to get insight on the relative costs, benefits, and	Consulting, Energy, Financial services, Regulatory bodies, IT, Electronics, Media, Mining, Manufacturing, Oil	34 protocols and guidelines for reporting emissions.	Estimated costs of collecting data and calculating GHG Protocol Scope 1 GHG emissions for the companies questioned varied between €75,000 and €800,000. The lowest and highest verification costs were €50,000 and	Report suggests that for better value of GHG reporting to stakeholders, it should be: - better standardised (increased standardisation among industry sectors regarding emissions-intensity indicators)	The paper notes a total of 34 protocols and guidelines for reporting emissions in the responses of FT500 companies to CDP5, of which the most widely used is the

Data Source/Reference	Brief Description of the Document	Sectors Covered	Reporting Methods / Initiatives Covered	Summary of Risks and Costs Data	Summary of Benefits Data	Comments
http://www.ethicalcorporationinstitute.com/docs/GHG_Report_Summary_2008.pdf	long-term value of available GHG emissions and reporting protocols and its implications.	and gas, Pharmaceuticals and health care, Retail, Steal and raw materials, Telecoms, Tobacco, Transportation		€500,000 respectively.	- greater link between carbon-performance reporting and financials	WBCSD/WRI GHG Protocol.
World Bank website LINK: http://beta.worldbank.org/climatechange/node/5218	The world bank is involved in GHG reporting in several ways: 1. It may choose to support GHG reporting of the emitters in the developed countries. 2. It is developing tools and indexes for better transparency to investors 3. It is developing tools to footprint their own projects and operations. This review is focusing on their launch of the First Carbon Efficient Index for Emerging Markets - the goal is to provide equity investors information on GHG emissions from the companies to help them make informed decision.	All	CDP (The Greenhouse Gas Protocol, ISO 14064) + Alignment with the DEFRA Guidance	While the World Bank financially supports the Carbon Disclosure Project and works in partnership with it, it did not seem to investigate the costs and benefits of GHG reporting / disclosing. IFC is developing new methods to calculate the carbon footprint of its investments, to be revealed in detail later in 2010.	Investors gain exposure to emerging markets and benefit from local rates-of-return while reducing the carbon footprint of their portfolios by 24 percent. A powerful tool for investors seeking to reduce their carbon exposure in a broad portfolio covering emerging markets.	
Confederation of British Industry (CBI) 2009 All together now: a common business approach for greenhouse gas emissions reporting LINK: http://climatechange.cbi.org.uk/reports/00195/ LINK: http://www.ethicalcorporationinstitute.com/docs/GHG_Report_Summa	A campaign for a common approach in GHG reporting, including sector specific rules for sector specific 'Scope 3' emissions.	All	Focusing on GHG protocol	Scope 3 emissions are advanced practice in emissions reporting and are costly and challenging for many businesses to report as comprehensive methodologies and conversion factors have not yet been established. Changes brought about with a lack of consultation can impose significant costs on businesses. The CBI believes it is crucial government fully consults with business prior to updating or changing national conversion factors. A big shift (e.g. new tools and more simplified/common standards) is needed if large numbers of businesses are to effectively capture emissions	The CBI believes measuring emissions is the first step any business takes to managing them. Measurement can show where there are inefficiencies in business processes, in the building stock or the transport of goods. It also allows a business to compare its energy and emissions data with peers. The reporting process can also drive behavioural change. Putting in place the systems and processes to capture emissions data will develop employees' carbon management skills, as well as provide a focus for management attention on the specific investments needed. This affects all parties – investors	The report identifies a number of questions that need to be answered before government considers making reporting mandatory. It also highlights what kind of support businesses will need from government and the other partners to be able report their emissions at scale.

Data Source/Reference	Brief Description of the Document	Sectors Covered	Reporting Methods / Initiatives Covered	Summary of Risks and Costs Data	Summary of Benefits Data	Comments
ry_2008.pdf LINK: http://www.climatesmartbusiness.com/home/clients/faqs				data and publicly report them. Reporting protocols are not sufficiently specific to deliver consistent reporting across companies.	seeking to assess the financial implications of climate change for the companies in which they are invested, stakeholders wishing to understand companies' GHG emissions performance, and companies trying to differentiate between suppliers or partners on the basis of environmental performance.	
Kim E.H. and Lyon T.P. (University of Michigan) 2008 **When Does Institutional Investor Activism Pay?: The Carbon Disclosure Project** LINK: http://webuser.bus.umich.edu/tplyon/Kim%20Lyon%20CDP%20June%202008.pdf	A paper empirically tests the fiscal benefits of institutional investor activism towards climate change. The study compares the shares values of companies reporting under CDP and those not reporting on days of specific events such as the CDP emissions publishing day and the day Russia ratified Kyoto protocol (which increased the probability of more stringent climate regulation).	All	CDP	No data provided.	CDP participation paid when the likelihood of climate change regulation rose. To the consortium with total $57 trillion in assets in 2008, a conservative estimate was that the total value created by participating in CDP was $2.7 billion, about 27% of the size of the carbon market in 2005. Corporate governance theory suggests that since CDP participation increases informational profile of the company, investors will more likely invest - firms' CDP participation is good news and may positively affect their stock prices around the date of CDP disclosure. The empirical evidence suggests that investors viewed firms with more extensive prior disclosures as better prepared for possible future environmental regulations. Institutional investor activism towards issues seemingly unrelated to shareholder value can indeed be value-increasing under certain circumstances.	This paper shows an interesting approach to measure the indirect benefits of GHG reporting. They reflect in better risk management for potential stringent regulation, which that shows a in increased stock prices. A greater likelihood of regulation increase the value of environmental information disclosure.
UNEP Finance Initiative 2006 **Show Me The Money: Linking Environmental, Social and Governance Issues to Company Value** LINK:	The document combined several companies reports on their successful transfer of the ESG to business values. It is aimed for investors as a case that ESG performance of companies is integral to their financial performance.	Automobile sector and property securities	Not stated	Direct external costs associated with Green House Gas (GHG) emissions and water use reporting, taxes and markets are estimated to have an impact ranging from below 1 to 3.5 per cent of Earnings Before Interest, Taxes, Depreciation and Amortization (EBITDA).	Poor Environmental disclosure can be a liability - investors seek to assess a company's future competitiveness and liabilities. Green policies are also profitable, but further metrics are needed.	The report looks at a range of Environmental, Social and Governance Issues, not GHG exclusively. It does touch upon the value of reporting in general for some sectors.

Data Source/Reference	Brief Description of the Document	Sectors Covered	Reporting Methods / Initiatives Covered	Summary of Risks and Costs Data	Summary of Benefits Data	Comments
http://www.unepfi.org/fileadmin/documents/show_me_the_money.pdf						

Based on the literature review, a listing of the major types of risks, costs and benefits (monetized where possible) is shown in Tables 5.10 and 5.11.

Table 5.10 Listing of Major Types of Risks and Costs Identified in Literature Review

Risks and Costs Identified	Monetised Values	Reference
• USEPA GHG Reporting Rule - company average total annual costs: Total annual costs are made up of: o Performing the monitoring o Record keeping o Reporting activities	€8,000 per entity in the first year €4,800 per entity in subsequent years Highly variable costs €1,300 per entity €400 per entity	USEPA 2009 GHG reporting RIA
• USEPA GHG Reporting Rule – regulatory public sector annual costs: Total annual costs are made up of: o Verification activities o Program implementation and developing and maintaining the data collection system	€1,290 per entity regulated €270 per entity regulated €1,020 per entity regulated	USEPA 2009 GHG reporting RIA
• UK CRC scheme - company average total annual costs: Total annual costs are made up of: o Understanding the scheme rules o Initial collection and analysis of energy data o Submitting data to coordinator o Verifying data (external costs)	€11,600 on average, ranges from: €5,900 for small companies to €24,100 for large companies €2,100 €3,100 €1,400 €5,000	DECC 2010 CRC RIA
• DEFRA UK GHG Guidance - company average total annual costs: Total annual costs are made up of: o Identifying which of its operations the organisation should include to measure its GHG emissions o Identifying the activities undertaken by the organisation which release GHGs o Collecting data from these activities o Converting data into GHG emissions and reporting in an appropriate format o Cost of independent assurance (optional)	€1,500 to €7,400 per company in first year; €1,100 to €5,600 per company in subsequent years No split of costs available No split of costs available No split of costs available No split of costs available Highly variable from <€17,000 to £118,000 per annum (not included in total above)	DEFRA 2009 Guidance RIA
• Costs of collecting data and calculating GHG Protocol Scope 1 emissions annually • Annual GHG Reporting verification costs	Range from €75,000 to €800,000 per company Range from €50,000 to €500,000 per company	Ethical Corporation 2008
• Direct external costs associated with GHG emissions and reporting, taxes and markets	Impact ranging from below 1 to 3.5 per cent of EBITDA	UNEP 2006
• Profit exposures from other climate change related regulation	10% for the Building Materials and Bulk Commodity Chemicals sectors; from zero up to 5% for the other sectors studied; power sector expected to increase profit overall	Carbon Trust 2006
• Market value is at risk from consumer brand changes due to perceived company's response to climate change overall	Airlines 50% of market value at risk; food and beverages sector 10% at risk; other sectors have 2-3% of market value at risk.	Carbon Trust 2005
• Other environmental issues can be neglected	No cost data available	WBCSD website
• Reporting protocols are not sufficiently specific to deliver consistent reporting across companies. • There is a common consensus that scope 3 emissions are more costly	No cost data available	CBI Report 2009

Risks and Costs Identified	Monetised Values	Reference
to report. It is proposed to divide scope 3 in Scope 3a (required) and 3b (optional) to reduce reporting costs.		
• Companies are struggling to comprehend the thirty-odd number of guidelines for reporting their carbon footprints • Organisations typically have twice as many people looking at carbon compared with all other environmental issues combined	No cost data available	Environmental Finance article, 25 February 2010
• Potential confidentiality problems with GHG disclosure	No cost data available	EnvironmentalLeader.com - review of USEPA GHG Rule

Table 5.11 Listing of Major Types of Benefits Identified in Literature Review

Benefits Identified	Monetised Values	Reference
• GHG measurement is a first step in reducing energy consumption and emissions. Previously unmeasured wasteful processes may be uncovered. Electricity and fuel cost savings can be made through behavioural change and through meeting internally or externally set GHG/energy targets.	Energy cost savings in the range of 10% are usually achievable	DEFRA 2009
• Companies with better GHG information are automatically prioritised in investor decisions. Particularly public funds (example UK Pension Fund) include environmental reporting as one of the indicators. Inclusion in ethical indices such as the Dow Jones Sustainability Index may bring additional investors.	Participation in CDP created €2.1 billion of added market value (an increase in value of 0.005%) for participating companies through higher investment interest (conservative estimate)	Kim and Lyon 2008
• Improved consumer brand value and public reputation, basis for eco-labeling and certification.	Between 2-50% market value is at risk (depending on the sector) from climate change associated perception - this can be turned into a benefit/competitive edge for the best performing companies.	Carbon Trust 2005
• Transparent GHG reporting can help investors to assess a company's future competitiveness and liabilities.	No quantified benefits data available	UNEP 2006
• The most commonly quoted benefits of GHG reporting include: o Improving staff morale and attracting employees that have environmental values o Improving reputation with business customers and suppliers o Meeting requests of organisations seeking information from their suppliers on GHG emissions o Improved reputation with regulators and a stronger voice in shaping climate change policy o Addressing heightened scrutiny by insurers o Improving reputation with investors and addressing climate related shareholder resolutions o Understanding climate change related risks and exposure in a carbon constrained economy o Taking advantages of new market opportunities. or even creating own market niches o Anticipation of mandatory reporting and more stringent environmental regulation o Opportunity for internal/external benchmarking o Ability to set meaningful internal GHG targets and track and report progress o Identifying GHG risks and reduction opportunities in the value chain o Basis for involvement in voluntary NGO and government climate change programs o Supports compliance with regulatory reporting/permitting requirements (e.g. EU IPPC; EU PRTR)	No quantified benefits data available	WBCSD; WRI; DEFRA 2009; Carbon Trust 2005
• Benefits of common GHG reporting standards with public disclosure include: o Public relations: having independent, verifiable data to present to the public would demonstrate appropriate environmental	No quantified benefits data available	USEPA 2009 GHG reporting RIA

Benefits Identified	Monetised Values	Reference
stewardship. o Standardisation: uniform industry standards would reduce the cost of reporting relative to non-uniform, jurisdiction-specific, and allow facilities to benchmark their performance against other similar facilities. o Potential cost savings: mandatory monitoring may uncover previously unmeasured wasteful processes, yielding cost-saving conservation opportunities that would offset some of the costs of monitoring. o Potential customer data for service industries: information about GHG-emitting firms will be useful for firms that market emissions-reduction technologies, and to insurance companies for assessing risk.		
• The CDP identify a key benefit as company-wide understanding of climate change related risks and opportunities such as cost-saving improvements. The benefits of the new CDP advanced reporting platform are states as: o Improved understanding and management of GHG emissions o Preparation for future regulation by facilitating the collection of regulatory grade data o Streamlined reporting process with a single, fully accessible global reporting platform o Ability to benchmark against competitors and stand out as a leader among suppliers	No quantified benefits data available	CDP 2010
• Specifically for SMEs, DEFRA identify the following benefits of GHG reporting: o SAVE MONEY – Helps you identify which of your business activities use a lot of energy and so helps you reduce energy and resource use. o GENERATE NEW BUSINESS – If you reduce your costs you can become more competitive and bring in new customers. o MEET THE INFORMATION DEMANDS OF YOUR CUSTOMERS – Helps you to meet customer requests for information on your GHG emissions. This is becoming an increasingly important element of the procurement process. o DO YOUR BIT – Understand the contribution your business is making to climate change and reduce it.	No quantified benefits data available	DEFRA SME guidance 2009
• The WEF document identifies the following issues which can be partially addressed through participation in the GHG Registry : o Stakeholders are becoming increasingly interested in corporate disclosure of GHG information. Investors in particular, are starting to take the risks of climate change very seriously. o Reporting on climate change has primarily been a communication issue but is increasingly a risk management and financial concern. o As the global agenda is shifting towards the internalisation of key environmental impacts, corporate reporting and accounting of GHG emissions need to reflect this. o GHG disclosure not only has a potential effect on brand reputation and market perception, but also risk ratings, cost of capital, as well as direct cash flows and earnings.	No quantified benefits data available	World Economic Forum - GHG Register Value Proposition 2004
• Benefits of GHG reporting include: o cost savings by identifying inefficiencies and eliminating waste o addressing emissions requirements in procurement criteria o meeting requirements of consumers seeking environmentally responsible products and services o enabling policymakers to make more informed decisions regarding where to focus policy attention o behavioural changes necessary to help us move towards a low-carbon economy	No quantified benefits data available	CBI Report 2009

5.10 Observations from Literature Review of Data

The observations arising from the literature review of risks, costs and benefits are as follows:

- **Risks and Costs of GHG Reporting**

- A number of risks arising from failure to disclosure GHG emissions are repeatedly quoted such as: profit exposure; market value at risk; brand value at risk; stakeholder reputational risk; insurance/credit rating risks; and, investor relationships.
- There appears to be increasing recognition of the risks on non-disclosure, although the pressure on SMEs is significantly less than for larger companies.
- Companies may be responding to a number of mandatory and voluntary GHG reporting schemes, each of which has different requirements, and this is resource intensive and costly for companies to address.
- Reporting protocols are not sufficiently specific or harmonised to deliver consistent reporting across companies.
- Companies are struggling to comprehend the thirty-odd number of guidelines for reporting their GHG emissions.
- Market value at risk and brand value at risk for climate change issues is found to be significant as a whole but the assessments do not focus specifically on the contribution of GHG reporting.
- There is a very wide range of private sector costs quoted for GHG reporting ranging from €1,000 per annum (for a small company in the UK CRC) to €800,000 per annum (FTSE500 company highest cost quoted in CDP5 responses).
- In addition, verification and voluntary assurance costs per company range from €5,000 to €500,000 per annum, although the top figure seems to be excessively high and is not well referenced.
- The USEPA GHG Reporting Rule Impact Assessment estimates annual public sector costs of €1,290 per entity regulated. This cost covers verification activities, program implementation and developing and maintaining the data collection system. However, the level of verification activity under the USEPA scheme is lower than in schemes such as the EU ETS (since allowances are not being traded). The USEPA does not require third party verification but participants must keep records to allow EPA to verify reported emissions if required.
- There is evidence that the costs of GHG reporting are not linearly related to the size of the company or the magnitude of GHG emissions, although larger and more complex organisations will typically have higher reporting costs than small companies with few emission sources.
- Most cost estimates fail to fully account for company staff and management time and consultant costs to prepare and sign-off GHG reports.
- Overall, little detailed work has been done to quantify the costs of GHG reporting and some of the costs data seem to be either too low or too high to be considered representative. To be useful cost data needs to be split by reporting scheme type, company size and sector, including a breakdown of the total costs by task (e.g. data collection, reporting, assurance).

➢ **Benefits of GHG Reporting**

- Several of the benefits of GHG reporting arise from addressing the risks related to non-disclosure. These include reduced profit exposure; enhanced market value; increased brand value; improved stakeholder/customer reputation; reduced insurance premiums, and, improved credit ratings.
- The benefits of GHG reporting appear to vary according to the size of the company, sector and reporting scheme concerned (and are linked to the company's overall stance of the importance of tackling climate change issues).
- A number of reputable organisations have repeatedly stated a wide range of benefits related to addressing wider climate change issues and GHG reporting is seen as a crucial first step in this process. This first step allows companies to set meaningful internal GHG targets and demonstrate progress to stakeholders.
- In relation to harmonisation, stakeholders identify but do not quantify the benefits of streamlined reporting processes, standard reporting platforms and benchmarking.
- The benefits for SMEs appear to be of a lower order of magnitude than for larger companies, although further research is needed in this area.
- There is limited data available to quantify the benefits of GHG reporting in monetary terms. Some anecdotal evidence is available on potential energy savings and market value gains.
- One study conservatively estimated that participation in the CDP created €2.1 billion of added market value for the participants (an increase of 0.005%).
- There appear to be no one concise and robust 'business case' template for GHG reporting that can be used to gain senior management buy-in.

5.11 Contribution of SMEs: Data on Company Size and Emissions

Introduction

A specific issue of concern for this study is the contribution of small and medium-sized enterprises (SMEs) to total EU27 GHG emissions and their current low uptake rate of GHG reporting methods and initiatives. This section provides a brief overview of the relationships between GHG emissions and company size and sector, using selected examples. It is not intended to be a comprehensive assessment but is provided to supplement the company interviews and other risks and benefits data that has been collected.

SME Definition

On 6 May 2003 the Commission adopted Recommendation 2003/361/EC regarding the SME definition which replaced Recommendation 96/280/EC as from 1 January 2005. The revision takes account of the economic developments since 1996 and the

lessons drawn from the application of the definition. For clarity, the SME definition is repeated below (Table 5.12) along with summary statistical data on the numbers of companies in each category (Table 5.13). Figure 5.1 indicates the employment numbers by company size in each main sector.

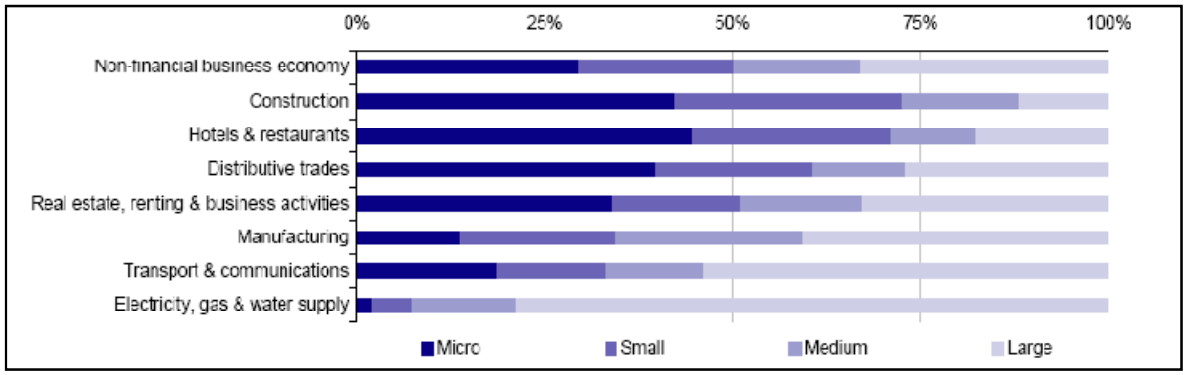
Table 5.12 EC SME Definition (EC 2010)

Enterprise category	Headcount	Turnover	or Balance sheet total
Medium-sized	< 250	≤ € 50 million	≤ € 43 million
Small	< 50	≤ € 10 million	≤ € 10 million
Micro	< 10	≤ € 2 million	≤ € 2 million

Table 5.13 EC Data on Numbers of Companies by Size in EU27 Countries (EC 2010)

	Total	SMEs	Micro	Small	Medium	Large
Number of enterprises (millions)	19.65	19.60	18.04	1.35	0.21	0.04
Share in total (%)	*100.0*	*99.8*	*91.8*	*6.9*	*1.1*	*0.2*
Persons employed (millions)	126.7	85.0	37.5	26.1	21.3	41.7
Share in total (%)	*100.0*	*67.1*	*29.6*	*20.6*	*16.8*	*32.9*
Value added (EUR billion)	5 360	3 090	1 120	1 011	954	2 270
Share in total (%)	*100.0*	*57.6*	*20.9*	*18.9*	*17.8*	*42.4*
Apparent labour productivity (EUR 1 000 per person employed)	42.3	36.4	29.9	38.7	44.8	54.4
Relative to total (%)	*100.0*	*86.1*	*70.7*	*91.5*	*105.9*	*128.6*

Figure 5.1 EC Data on Employment Percentage Share by Company Size and Sector in EU27 Countries (EC 2010)



From the above tables and figure it is apparent that:

- There are almost 20 million SMEs in the EU27 countries, compared to 40,000 large companies;
- The majority of employees (and also the largest number of companies) in energy-intensive sectors are represented by large or medium-sized companies; and,

- In the non-energy intensive sectors the majority of employees (and also the largest number of companies) are represented by SMEs.

GHG Emissions and Company Size

The GHG emissions arising from a company's activities are not necessarily correlated with its size. In addition to size, company emissions clearly depend on a wide range of factors such as the energy intensity of the activities carried out and the fuels, processes and technologies in use. In terms of magnitude of GHG emissions companies, one possible approach is to split companies into those which are energy intensive (e.g. oil & gas, cement, mining & metals, power and transport sectors) and those which are non-energy intensive (e.g. retail, financial, services and leisure sectors). To indicate the wide range in magnitude of emissions, selected examples of company GHG emissions data are shown in Table 5.14 (data is taken from recent company CSR reports/websites and values are for the 'direct carbon footprint' – scope 1 and 2). The company examples are not intended to be comprehensive but serve to illustrate the variation in absolute GHG emissions and in emissions intensity.

Table 5.14 Selected Examples of Company GHG Data and Emissions Intensity

Company ID [1]	Company Size	Key Activities	Energy Intensive?	GHG Emissions Sources	GHG Emissions Data	tCO_2e per Employee (per €million turnover)
A	Micro (10 employees, turnover £1.4 million/annum, one site in UK)	Manufacturer of speciality steel wire	No	Heat and power for machinery and offices	30tCO_2e in 2008 (estimated)	3 (19)
B	Small (25 employees, estimated turnover £2 million/annum, one site in UK)	Provision of leisure facilities	No	Heat and power for building	340 tCO_2e in 2008	14 (155)
C	Small (50 employees, turnover £8 million/annum, one production site in UK)	Brewing of alcoholic beverages	No	Heat and power for brewing process	600 tCO_2e in 2008 (estimated)	12 (68)
D	Medium (152 employees, turnover £15.7 million in 2008, one production site in UK)	Commercial printing services	No	Heat and power for printing presses and office	270 tCO_2e in 2008	2 (16)
E	Medium (200 employees, £25 million turnover in 2008, one production site in UK)	Design and production of office furniture	No	Heat and power for production line and head office	2,000 tCO_2e in 2007 (estimated)	10 (73)
F	Medium (64 employees, £35 million turnover in 2007, one production site in UK)	Processing of aluminium alloys	Yes	Heat and power for metal processing	7,000 tCO_2e in 2008 (estimated)	109 (182)
G	Large (3,000 employees, turnover of $695 million in 2008,130 offices globally)	Environmental, Health and Safety Consultancy	No	Office energy use and staff business travel	12,000 tCO_2e in 2008	4 (25)
H	Large (2,700 staff, £47.9 million turnover in 2006, 3.8 million passengers per year)	Taxi passenger transport in London	No	Fuel use by taxis and head offices heat and power	24,000 tCO_2e in 2008	9 (455)
I	Large (1,300 employees, turnover £676 million in 2008, 9.2 million travellers per year)	European high speed rail services	No	Use of grid electricity for trains, power and heat for depots	38,000 tCO_2e in 2009	29 (51)
J	Large (8,300 employees in UK, £6,662 million turnover in 2008, 235,000 vehicles produced per annum)	Passenger vehicle manufacture	Yes	Vehicle assembly lines and R&D operations	206,000 tCO_2e in 2007	25 (28)
K	Large (325,000 employees, operating income $88,571 million in 2008, operations in 86 countries)	Financial services and banking	No	Office energy use and staff business travel	787,000tCO_2e in 2008	2 (13)
L	Large multinational (470,000 employees in 14 countries, sales of £59,426 million in 2009)	Retail of groceries and consumer goods	No	Transport of goods, warehousing, and store operations	4.9 million tCO_2e in 2009	10 (75)
M	Large multinational (92,000 employees, sales of £361,143 million in 2008, exploration and production in 29 countries)	Oil & gas exploration and production	Yes	Oil & gas extraction, power generation, refinery operations	61.4 million tCO_2e in 2008	667 (155)
N	Large multinational (94,000 employees, sales of €86,753 million in 2008, power plants in 30 countries)	Electricity supply	Yes	Oil, gas and coal combustion for power generation	147.5 milliontCO_2e in 2008	1569 (1546)

Notes:

[1] Company names are confidential. These selected examples are not intended to be comprehensive but serve to illustrate the variation in absolute emissions and in emissions intensity. Data is taken from recent company CSR reports/websites and values are for the 'direct carbon footprint'.

Based on the limited data in these selected company examples, it is apparent that:

- Company absolute emissions vary from less than 100 tCO_2e to over 100 million tCO_2e per annum (i.e. six orders of magnitude variation for all those companies listed, or three orders of magnitude for only the SMEs listed);
- Annual GHG emissions per employee appear to vary by two to three orders of magnitude (from 2 to 1,569 tCO_2e/annum per employee for all companies listed, or 2 to 109 tCO_2e/annum per employee for SMEs only); and,
- Comparison of GHG emissions against company turnover indicates a similarly wide range of values (from 13 to 1,545 tCO_2e per €million turnover for all companies listed, or 2 to 182 per €million turnover for SMEs only) with large differences even within the same sector.

Within a sector a comparison of GHG emissions per tonne of product or other indicator of activity level may indicate a lesser but still significant variation. For example, ERM research on European supermarket carbon benchmarks indicates that GHG emissions range from 0.51 to 1.03 tCO_2e/annum per square metre of sales area. This indicates a significant two-fold variation in supermarket GHG emissions intensity based on floor area (n.b. data on supermarket GHG emissions per €million turnover and per employee varies less widely). The larger supermarket operators tend to have lower GHG intensity which is partly due to economies of scale.

Based on the above limited data, the overall trend is that large-sized companies tend to have GHG emissions above 10,000 tCO_2e per annum level, whilst SMEs generally have emissions below this level. It is also noted that energy-intensive companies with high emissions per employee also tend to be large-sized. This evidence indicates that SMEs tend to have less 'significant' emissions in this context. However, this trend is countered by the fact that there are millions of SMEs across Europe, giving a 'significant' collective SME contribution to total European GHG emissions. For example in the UK, it is estimated that SMEs account for nearly half of annual CO_2 emissions from business and represent around 20% of the country's total CO_2 emissions (Carbon Trust 2009).

Emissions Significance Level

Whilst any definition of 'significance' levels for GHG emissions may be arbitrary without reference to a specific policy context, it is useful to consider some examples of different levels (or thresholds) for GHG reporting purposes:

- A reporting threshold in the range 10,000 to 50,000 tCO_2e per annum is applied in several national GHG reporting schemes (e.g. US Environmental Protection Agency; Canadian Ministry of Environment);
- A emissions 'significance' level of 10,000 tCO_2e/annum would capture few SMEs and would focus on large companies;
- An emissions level of 10,000 tCO_2e per annum represents less than 0.1% of national total GHG emissions for 24 of the EU27 Member States (and less than 0.01% of national total GHG emissions for each of the 11 highest emitting Member States - which together represent 87% of EU27 total GHG emissions);

- A lower emissions 'significance' level of 1,000 tCO_2e/annum would capture most medium-sized companies but not small and micro-sized companies;
- The UK Carbon Reduction Commitment covers 5,000 large non-energy intensive organizations. The threshold for participation is 6000 MWh/annum of grid electricity use which is equivalent to GHG emissions of approximately 3,240 tCO_2e/annum;
- The general threshold for EU ETS participation is combustion capacity of 20 MW, which is equivalent to GHG emissions of approximately 28,560 tCO_2e/annum (assuming natural gas fuel and an 80% load factor) ;
- In setting the reporting threshold the USEPA reviewed existing capacity-based (e.g. 25 MW) and emissions-based thresholds used in other GHG emissions programs (e.g. California's 25,000 tCO_2e/annum) and the 10,000 tCO_2e levels used in some voluntary programs, such as the Department of Energy's (DOE's) 1605b program. Following a formal consultation a GHG reporting threshold of 25,000 tCO_2e/annum was chosen;
- Large industrial processes are regulated under the Integrated Pollution Prevention and Control (IPPC) Directive (originally 96/61/EC and updated in 2008/1/EC) if they meet certain production or thermal input thresholds (e.g. 50 MW). These installations tend to have 'significant' GHG emissions and must report annual emissions data to the European Pollutant Release and Transfer Register (E-PRTR); and,
- It is noted that in 2007 the average EU27 GHG emissions per head of population (direct and indirect) was 10.2 tCO_2e/annum. The range of emission values for individual Member States is 5.3 to 26.9 tCO_2e/annum per capita. Clearly some micro and small-sized companies have direct emissions of a similar magnitude to this per capita level.

As noted in Section 5.9 the costs of GHG reporting are not linearly related to size of company or magnitude of emissions. From the above assessment it appears that smaller companies, particularly those in non-energy intensive sectors, generally have less 'significant' emissions. Taking this evidence together, it appears that the balance of risks, costs and benefits of GHG reporting may depend strongly upon the size of the company, the sector and the relative magnitude of emissions. Further examination of GHG emissions 'significance' levels and possible reporting thresholds under different policy scenarios is given in Section 6 of this report.

5.12 Summary of Phase II - Analysis of Risks and Benefits

Phase II of the study has focused on the identification and assessment of risks costs and benefits of company GHG reporting. It is noted that the assessment is not comprehensive but is intended to give an overview of the range of data available. **In particular the cost data on mandatory schemes such as the EU ETS should be treated with caution when comparing with the costs of voluntary schemes since the scope and purpose of the schemes may be entirely different.** Phase II of the study can be summarised as follows:

- A number of data sources have been drawn upon including: telephone interviews with a range of private sector companies; questionnaire survey of methodology and initiative owners; examination of company websites and public reports; review of literature from key international sources; and, ERM expert inputs.
- A number of selection criteria were used to identify companies for interview that spanned a range of sectors, company sizes, Member States and reporting methods. From the shortlist of 35 companies invited to interview, 15 companies responded positively within the six-week interview deadline (giving a 43% response rate), providing a useful range of viewpoints and data for the assessment of risks, costs and benefits.
- Questionnaires were sent to the 30 major reporting method/initiative owners. Six responded with formal written comments during May 2010, whilst five others expressed an interest in participating in the questionnaire but did not ultimately respond. Whilst the response rate was low, useful evidence was provided by key stakeholders that did formally respond.
- Representatives from seven major methodology/initiative owners had previously joined a Webinar in March 2010 to discuss and comment on the study.
- A number of risks and costs were identified that are relevant to companies, policy makers, investors and other stakeholders (see Sections 5.5, 5.8 and 5.10). A limited amount of useful quantitative data on costs was found to be available. ERM experience indicates that GHG measurement, reporting and verification costs tend to be under-estimated.
- A number of benefits of GHG measurement and reporting were identified although these are rarely quantified in monetary terms (see Sections 5.5, 5.8 and 5.10). This is an area requiring further work by methodology and initiative owners (wishing to promote their schemes), companies (wishing to develop a business case for GHG reporting) and policy makers (wishing to assess cost-effectiveness of different polices).

6. Future Scenario Development and Gap Analysis

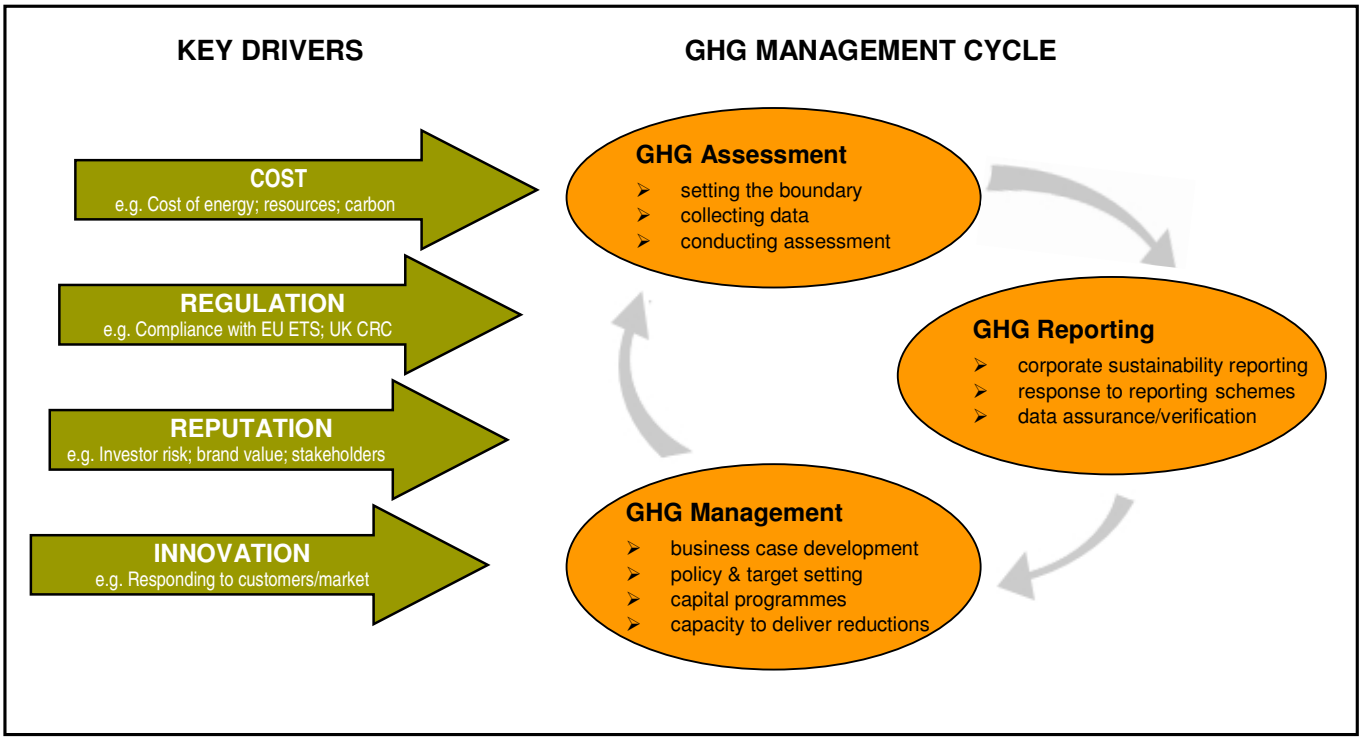
6.1 Introduction

Phase III of the study into company GHG reporting methods and initiatives is focused on the analysis of potential future policy scenarios. This will build upon the findings from Phases I and II of the study. The analysis first defines a range of possible future policy scenarios for company GHG measurement and reporting (e.g. voluntary measurement for internal management purposes, voluntary public reporting, mandatory reporting, statement of minimum reporting requirements, incentives based on reporting, etc.). Each scenario will then be expanded, tested against a number of criteria. Using evidence from Phases I and II the scenarios will be thoroughly examined to identify strengths and gaps, risks, costs and benefits to help inform the policy debate.

6.2 The Role of GHG Reporting

Before examining possible future policy scenarios in detail it is important to briefly review the role that company GHG reporting has in terms of reducing GHG emissions. The ultimate objective of the major GHG reporting methods and initiatives is to ensure that companies measure and decrease their GHG emissions over time. Little international research has been carried out to quantify the links between the uptake of company GHG reporting and the achievement of incremental emissions reduction. Anecdotal evidence from a number of sources suggests that a strong link does exist but that GHG reporting in itself is insufficient to bring about emissions reductions in the absence of other drivers. This hypothesis is summarised in Figure 6.1 and is based on recent ERM research for DEFRA (DEFRA 2009).

Figure 6.1 Hypothetical Framework for Relationship Between GHG Reporting and Emissions Reductions



The four key drivers (cost, regulation, reputation and innovation) were identified in the ERM research for DEFRA through a process of stakeholder interviews. Whilst there is no clear hierarchy of drivers, they are inter-linked (e.g. regulatory pressures can lead to stronger cost drivers; innovation drivers may arise through schemes like the CDP Supply Chain Initiative where customers responding to reputational drivers ask their suppliers to report). These findings from the DEFRA study have been re-affirmed by the Phase I and II research completed during this EC study.

The hypothetical framework was developed to understand the influence that the four recognised drivers have on the GHG management cycle, including:

- Uptake of the GHG measurement/assessment tool;
- Calculation of the GHG emissions inventory;
- Development of a GHG strategy;
- Setting of GHG reduction targets; and,
- Working towards/achieving GHG emission reductions.

Through engaging with case study companies, ERM collected evidence to support the hypothesis that:

- GHG emissions reductions result from the combined influence of the key drivers;
- In the absence of any one of the drivers, the incentives for GHG reporting and emissions reduction are weakened;
- GHG reporting methods/initiatives are fundamental enablers of GHG emission reductions (through enabling companies to measure, report and manage their emissions); and,
- GHG measurement/assessment tools are not likely to deliver those reductions on their own.

Additional evidence collected during Phases I and II of this study also support the conclusion that GHG measurement and reporting can often enable company programmes to reduce GHG emissions (through allowing an understanding of the emissions inventory and therefore allowing companies to actively manage their emissions). As such GHG reporting methodologies and initiatives act as an essential tool/enabler which can be used by companies through the GHG management cycle.

6.3 Key Factors to Consider for Possible Policy Scenarios

In order to meet the aims and objectives of Phase III of the study it is important to define the business as usual (BAU) or baseline scenario. A range of possible future policy scenarios can then be evaluated against the BAU case in terms of the incremental risks, costs and benefits. In developing these possible future policy options it is important to:

- Consider **different timescales** which may involve either gradual changes in policy (e.g. a voluntary initiative phased in over say 3-7 years) or step changes in policy (e.g. a mandatory scheme implemented at a specific point in time);

- Examine the differences between **voluntary versus mandatory approaches** [8] in terms of likely uptake, key success factors, provision of financial and non-financial incentives and penalties, strength of legal basis, impact on the environment (e.g. decrease in GHG emissions) and competitive impacts;
- Address concerns of companies, business leaders, policy makers and NGO stakeholders regarding the lack of **comparability and compatibility** (e.g. minimum standards on scope 3 boundaries, treatment of renewables and offsets) in existing GHG reporting methods and initiatives;
- Assess the **stakeholder views and support levels** which can strongly influence the development, adoption and ultimate success of the policy (n.b. different stakeholder groups such as companies, investors, customers, NGOs and policy makers may have different needs and expectations);
- Recognise that important contribution that **methodology/initiative owners** have made in this area and build upon best practices aiming to fill any gaps identified (i.e. how well do existing methods/initiatives meet the policy scenario needs and what modifications may be needed);
- Identify the EC and Member State **resources that would be required** to implement the policy;
- Include policy options which distinguish between a requirement to **measure/calculate** GHG emissions for internal management purposes and those which also require **public disclosure** of GHG emissions (as these alternatives address different drivers and risks/costs/benefits);
- Consider the possible **thresholds and sectoral coverage** for inclusion of companies under each policy scenario (e.g. priority sectors, coverage of SME's);
- Consider policy scenarios which may or may not place some specific requirements on the company regarding **GHG emissions reductions**.
- Examine the **interaction between** each possible future policy scenario and existing/planned EU legislation;
- Consider the **potential to expand** or strengthen any measurement reporting and reduction guidance in future to cover other environmental aspects (e.g. water use, resource consumption, waste recycling, land use) [9];
- **Maximise benefits** of the future policy scenarios for companies and policy makers by building upon best practices in GHG reporting methods and initiatives and address gaps that have been identified; and,
- **Minimise risks and costs** for companies and policy makers by ensuring ease of use, reducing compliance costs, aligning with existing EU and MS policies and existing reporting regimes, addressing potential competitive impacts and enhancing comparability and compatibility.

It is important to consider policy scenarios also from the point of view of the objective for which the Commission might intervene. This would include:

[8] It is noted that recent EC policy experience regarding car manufacturer CO_2 targets indicates that a mandatory approach is often required when voluntary initiatives have failed (see Regulation (EC) No 443/2009). Whilst some voluntary GHG reporting methods/initiatives have been successful (e.g. WBCSD GHG Protocol and CDP) there are clear gaps remaining (e.g. around setting minimum reporting standards and GHG reduction targets) which may require a mandatory approach. It is also noted that in the US, CO_2 has recently been classified as an air pollutant for the first time, invoking a series of mandatory reporting requirements for the first time regarding US company GHG emissions (see http://www.epa.gov/climatechange/emissions/ghgrulemaking.html).

[9] It is noted that the CDP has recently launched a Water Disclosure programme. This builds upon the success of the GHG Disclosure programme using a similar reporting platform and annual company reporting questionnaires with specific guidance.

- **Reducing the GHG emissions** of all companies (especially those not covered by current legislation such as the EU ETS);
- Ensuring a **'level playing field'** for organisations (remove any potential discriminations on any basis other than environmental performance; providing EU-wide transparency and comparability in GHG reporting); and,
- The eventual **coordination role** of the Commission in the development of any common methodology/initiative.

It is also noted that there are a number of legislative instruments available to the EC. Those instruments which may be appropriate for implementation of policies on company GHG reporting are:

- **The Recommendation** – which is a suggested approach without legal force and is negotiated and voted on according to the appropriate procedure. Recommendations are an instrument of indirect action aiming at preparation of legislation in Member States, differing from the Directive only by the absence of obligatory power.
- **The Directive** – which binds Member States to achieve a certain result without dictating the means of achieving that result. Directives set out the objectives and scope of the policy and have to be transposed into the national legal framework. They normally leave a certain amount of leeway as to the exact method of Member State adoption.
- **The Regulation** – which becomes law in all Member States once it comes into force, without the requirement for any implementing measures and automatically overrides any conflicting domestic policies. Regulations are binding in their entirety and ensure the most level implementation throughout all Member States.

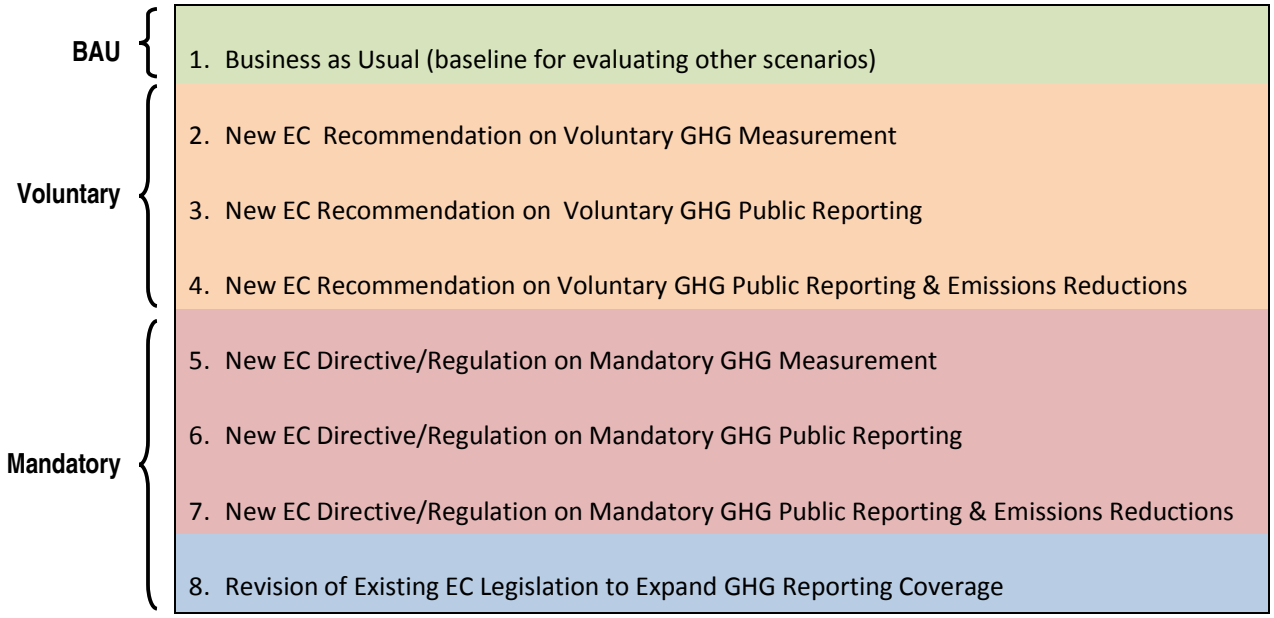
In the context of company GHG reporting it is considered that a Recommendation would be required to support voluntary schemes, whilst a Directive or Regulation would be required to implement a mandatory scheme.

The analysis of policy scenarios will draw upon the evidence collected during Phases I and II of the study to address these points and meet the overall study aims and objectives. It is recognised that the theoretical 'ideal' policy scenario to address all of the above factors may be difficult to develop and implement in practice. Any practical policy option is likely to be a compromise and would require significant resources (e.g. financial, legal, technical) and would involve a considerable timescale to develop and implement. Whilst this study can only begin the work to assess some of these aspects it should provide a sound basis for further work by the EC on this important policy issue.

6.4 Possible Future GHG Reporting Policy Scenarios

Taking into account the research completed in Phases I and II of the study and considering the aims of Phase III of the study, ERM identified a range of high-level options for possible future EC company GHG reporting policy scenarios, as shown in Figure 6.2.

Figure 6.2 High-level EC Company GHG Reporting Policy Scenarios for Consideration



A summary description of the proposed scope of each policy scenario and initial brief notes on the potential pros (advantages) and cons (disadvantages) is shown in Figure 6.3.

Figure 6.3 Summary Description of Proposed Policy Scenarios 1 to 8 for Consideration

Scenario 1 - Business as Usual (baseline for evaluating other scenarios)

This scenario involves no central European policy change from the current picture whereby the EC does not have any specific voluntary or mandatory GHG reporting policy beyond the EU ETS. Gradual changes in company GHG reporting practices would occur over time due to national Member State policy developments, increased uptake of voluntary reporting and improvements made by the leading methodology/initiative owners (e.g. increased uptake of WBCSD/WRI product and supply chain protocol, development of UK policy on mandatory GHG reporting). This represents the 'do nothing' option or status quo in terms of EC action.

Pros: No action required the EC, companies continue to report using existing methods/initiatives.

Cons: Member States may take unilateral action creating competitive distortions, industry leaders concerns (e.g. CBI) regarding lack of standardisation are not addressed.

Scenario 2 – New EC Recommendation on Voluntary GHG Measurement

Summary: This scenario would involve the EC developing a targeted initiative via a Recommendation to increase the level of support (i.e. resources, incentives, tools) available to European based companies for voluntary GHG measurement for internal management purposes. This may involve the EC working with the owners of the leading GHG reporting methodologies to improve and standardise GHG calculation methods for a number of sectors. This scenario is focused on helping companies produce a tCO_2e figure for their operations according to some best practice standards regarding boundaries, emission factors, materiality, etc. It may simplify the guidance and provide a central resource for companies which is reputable, easy to use and is consistent with other existing schemes. This policy option is similar to the methods/initiatives by the WBCSD/WRI, UK Carbon Trust, DEFRA UK and Bilan Carbone/ADEME that have been developed in recent years but involves the provision of additional EC support to improve uptake and strengthen best practices.

Pros: Likely to be acceptable to stakeholders and is a low risk option.

Cons: Unlikely to drive significant change in uptake rates, public reporting or GHG emission reductions.

Scenario 3 – New EC Recommendation on Voluntary GHG Public Reporting

Summary: This scenario would (in addition to the measures under policy scenario 2) involve the EC developing a targeted initiative via a Recommendation to increase the level of support (i.e. resources, incentives, reporting platform) available to European based companies for voluntary GHG public reporting. This may involve the EC working with the owners of the leading GHG reporting initiatives to develop common guidelines and a web-based platform for reporting. This scenario is focused on helping companies publicly report their GHG emissions in a transparent manner according to some best practice standards regarding boundaries, emission factors, materiality, independent assurance/verification, etc. It may also link with existing public reporting platforms such as the PRTR, CDP and CITL, strengthen the reputational drivers and aid comparisons between companies on GHG reporting.

Pros: Likely to link with reputational drivers, acceptable to stakeholders and is a low to medium risk option.

Cons: Unlikely to drive significant change in uptake rates, may be less successful than established platforms such as CDP.

Scenario 4 – New EC Recommendation on Voluntary GHG Public Reporting & Emissions Reductions

Summary: This scenario would (in addition to the measures under policy scenarios 2 and 3) involve the EC developing a targeted initiative via a Recommendation to increase the level of support (i.e. resources, incentives, reporting platform) available to European based companies for voluntary GHG emissions reductions target setting and reporting of progress. This may involve the EC working with the owners of the leading GHG reporting initiatives which have leadership indexes (e.g. UK CRC, USEPA climate leaders index, CDP leadership index) to develop a common platform for reporting of GHG emissions reductions against voluntary targets. This scenario is focused on helping companies publicly report their GHG emissions reduction achievements in a transparent manner under a "league table" and to adopt best practice standards regarding target setting, benchmarking, tracking performance and reporting progress. It may also link with existing reporting platforms such as the CDP and UK CRC, strengthen the reputational drivers and aid comparisons between companies on GHG emission reduction performance. Whilst the scheme would be voluntary it may include an element of financial and non-financial penalties and rewards for participants.

Pros: Addresses a clear gap in current methods and initiatives, links with reputational drivers, and is a low to medium risk option.

Cons: Unlikely to drive significant change in uptake rates, may be less successful than established platforms such as CDP.

Scenario 5 – New EC Directive/Regulation on Mandatory GHG Measurement

Summary: This scenario would involve the EC developing a new Directive or Regulation on mandatory GHG measurement for European based companies. The Directive/Regulation would not require public disclosure but it would require companies to establish their own policies/processes for GHG measurement for internal management purposes by following a defined standard/protocol. This may involve the EC working with the owners of the leading GHG reporting methodologies to improve and standardise GHG calculation methods for a number of sectors. This scenario is focused on requiring companies produce a tCO_2e figure for their operations according to some minimum standards regarding boundaries, emission factors, materiality, etc. It may simplify the guidance and provide a central resource for companies which is reputable, easy to use and is consistent with other existing schemes. This policy option is similar to the methods/initiatives such as ISO14064 and DEFRA UK guidance (which may become mandatory in the UK in 2011) but involves harmonisation and a mandatory basis to improve uptake and strengthen best practices. Some simple form of compliance checks would be required (e.g. self-certification with periodic audits)

Pros: Addresses a clear gap in current methods and initiatives around minimum standards, may drive a significant improvement in uptake rates.

Cons: May be opposed by some stakeholders, may add to reporting burdens and is a medium risk option.

Scenario 6 – New EC Directive/Regulation on Mandatory GHG Public Reporting

Summary: This scenario would involve the EC developing a new Directive or Regulation on mandatory GHG public reporting for European based companies. This scenario would (in addition to the measures under policy scenario 5) involve the EC developing a platform for public reporting of company GHG emissions. This may involve the EC working with the owners of the leading GHG reporting initiatives to develop common guidelines and a web-based platform for reporting. This scenario is focused on requiring companies to publicly report their GHG emissions in a transparent manner according to some best practice standards regarding boundaries, emission factors, materiality, independent assurance/verification, etc. It may also link with existing public reporting platforms such as the PRTR, CDP and CITL, strengthen the reputational drivers and aid comparisons between companies on GHG reporting. Some form of verification would be required (e.g. limited assurance)

Pros: Addresses a clear gap in current reporting initiatives around minimum standards, comparability and compatibility, may drive a significant improvement in uptake rates.

Cons: May be opposed by some stakeholders, may add to reporting burdens and is a medium risk option.

Scenario 7 – New EC Directive/Regulation on Mandatory GHG Public Reporting & Emissions Reductions

Summary: This scenario would involve the EC developing a new Directive or Regulation on mandatory GHG emissions reduction reporting for European based companies. This scenario would (in addition to the measures under policy scenarios 5 and 6) involve the EC developing a platform for public reporting of company GHG emissions targets and reductions. This may involve the EC working with the owners of the leading GHG reporting initiatives which have leadership indexes (e.g. UK CRC, USEPA climate leaders index, CDP leadership index) to develop a platform for reporting of GHG emissions reductions against mandatory targets or benchmarks. This scenario is focused on requiring companies to publicly report their GHG emissions reduction achievements in a transparent manner under a "league table" and to adopt best practice standards regarding target setting, benchmarking, tracking performance and reporting progress. It may also link with existing reporting platforms such as the CDP and UK CRC, strengthen the reputational drivers and aid comparisons between companies on GHG emission reduction performance. Although not a fully-fledged emission trading scheme it may include an element of financial and non-financial penalties and rewards for participants. Some form of verification would be required (e.g. limited assurance).

Pros: Addresses a clear gap in current reporting initiatives around GHG reduction targets, comparability and compatibility, may drive a significant improvement in GHG emission reduction rates.

Cons: May be opposed by some stakeholders, may add to reporting burdens and is a higher risk option.

Scenario 8 – Revision of Existing EC Legislation to Expand GHG Reporting Coverage

Summary: This scenario would involve the EC revising existing legislation which relates to company GHG emissions to improve coverage of sectors/sources (not only GHG-related legislation could be expanded, but for example the Accounting Directive could be modified to include obligatory reporting on GHG measurement and other environmental factors). One option would involve revisions of the EU ETS and/or IPPC/IED Directives regarding industrial emissions of air pollutants (specifically CO_2). This scenario would involve the EC developing revised guidelines regarding GHG reporting requirements for a wider range of sectors (expanding EU ETS MRV guidance and IPPC BREF guidance) to ensure that those emitters that do not meet the current EU ETS thresholds do still have some minimum mandatory GHG reporting requirements and possibly also some GHG emissions reduction targets. This scenario is focused on requiring companies that are not part of the current EU ETS to publicly report their GHG emissions and achieve defined GHG emission reductions. It may also link with existing reporting platforms such as the CDP and UK CRC, strengthen the reputational drivers and aid comparisons between companies on GHG emission reduction performance. Although not a fully-fledged emission trading scheme (but - like the UK CRC - a streamlined extension of the EU ETS) it may include an element of financial and non-financial penalties and rewards for participants. Some form of verification would be required (e.g. limited assurance).

Pros: Addresses a clear gap in current reporting initiatives around GHG reduction targets, comparability and compatibility, may drive a significant improvement in GHG emission reduction rates.

Cons: May be opposed by some stakeholders, may add to reporting burdens and is a higher risk option.

Clearly there are many variations, sub-options and combinations of the above proposed policy scenarios 1-8 that might also be considered. However, for the purpose of this initial study these high-level scenarios will be analysed to gain insights into the balance of risks, costs and benefits that may exist.

It is noted that under Scenarios 2, 3 and 4 a reference should be made to the new EMAS Regulation [10]. For EMAS registered organisations it is obligatory to publish a report on their environmental performance. Sectoral guides will be provided for more structured and comparable reporting. Core indicators include energy efficiency; material efficiency; water; waste; biodiversity; and, emissions. Cross-sector reference documents will also be prepared and may include GHG measurement and reporting. Continuous improvement is at the heart of the EMAS system and so GHG reduction targets fit well with its philosophy.

In addition to the above scenarios it is also recognised that other types of policy scenario which might also help to achieve the overall objective of reducing the GHG emissions of all companies in Europe over time. A listing of these alternative options might include, but is not limited to:

- Additional taxation on fossil fuels and energy use;
- Energy efficiency covenants/agreements;
- Introduction of a carbon taxation on operators, goods or services;
- Improved incentives for renewable power and low-carbon technologies;
- Targeted loans and incentives for SMEs to support GHG emissions reduction measures;
- Additional support for sustainable biofuels, energy-from-waste and fuel cell technologies;
- Development of carbon labeling systems for companies, products and services;
- Structural changes to financial accounting standards to monetise and internalise the cost of carbon in company accounts; and,
- Additional support for carbon offsetting schemes, carbon capture and storage (CCS) and international emissions trading (IET).

However, these options are not considered further as they are outside the defined scope of this study.

6.5 Assessment of Future Policy Scenarios

In order to assess the ability of each policy scenario to meet the overall objectives of the study, and to begin to address the key factors listed in Section 6.3, a number of criteria headings have been developed as follows:

1. Basis and coverage of the policy measure
2. Ability to meet policy needs
3. Links with existing measures
4. Risks and costs

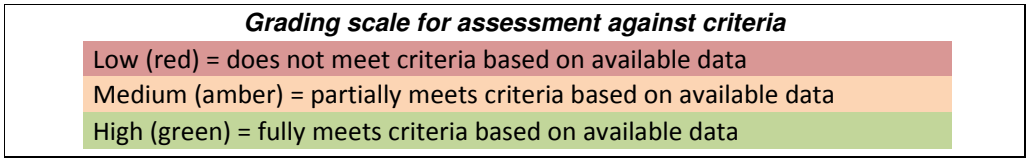
[10] In 2009 the EMAS Regulation on the voluntary participation by organisations in a Community eco-management and audit scheme (EMAS) was revised and modified for the second time leading to the EMAS III Regulation (Regulation (EC) No. 1221/2009).

5. Benefits (incentives, savings, GHG reductions, potential to expand)

A total of 19 individual criteria were chosen under these headings. These criteria are designed take into account the findings from Phase I and II of the study in terms of the features that would be required to address the gaps identified and meet the overall study objectives. They also attempt to reflect the key factors listed in Section 6.3, although it is not possible within the scope of this study to address all of the key factors, as further more detailed assessment would be required. In order to allow assessment of the policy scenarios using these criteria, a simple grading scale combined with colour coding was applied as shown in Figure 6.4.

It is noted that the policy scenarios have been outlined in terms of possible basis and scope in Figure 6.3 for the purpose of this study. Further work would be required to refine the specific details and sub-options under each scenario taking into account legal counsel, economic impact assessments and expert technical-policy advice (which are outside the scope of this initial study). Therefore, the assessment of each policy scenario against the criteria is made based upon the potential to meet the criteria, taking into account previous precedents in EC policy making and findings from Phase I and II.

Figure 6.4 Grading Scale for Assessment of Policy Scenarios Against Criteria



The aim of the grading system is to help identify strengths and limitations of each policy scenario under the five criteria headings. The overall grades for each policy scenario help to identify how well the scenario addresses the criteria at an aggregate level. No weighting of the individual criteria grades or criteria headings has been applied in calculating an overall grade. In making the assessments, a number of current best practice examples were referred to as shown in Table 6.2.

Table 6.1 Criteria for Assessment of Policy Scenarios

Category	Criteria	Features Required
1. Basis and Coverage	**1a.** Which sectors and GHGs are covered and over what timescales?	• Ability to cover a wide range of sectors and GHGs, possibility for a relatively short implementation timescale or a phased approach
	1b. What thresholds apply for inclusion, including SME's?	• Inclusion of meaningful participation thresholds and provision for coverage of SME's
	1c. Is the measure mandatory or voluntary with strong incentives for adoption?	• Mandatory with a legal basis for implementation or voluntary with strong MS/stakeholder support for adoption [(11)]
	1d. Is a high level of uptake possible?	• Strong incentives for uptake, economy-wide potential coverage, provision of a reporting platform
2. Ability to Meet Needs	**2a.** Sets minimum standards?	• Clearly defines boundaries, emission factors, verification/assurance and public reporting requirements
	2b. Ensures comparability and compatibility?	• Provides a consistent basis for GHG measurement and public reporting to allow comparison between participants, possibly using a GHG leadership index or league table
	2c. Connects to key GHG management drivers?	• Aligns with regulatory, reputation, cost and innovation drivers of GHG management cycle
	2d. Facilitates GHG emission reductions?	• Sets minimum standards for GHG emissions reductions, provides for benchmarking and target setting
3. Links with Existing Measures	**3a.** Aligns with existing EC and Member State legislation and climate change policies?	• Is compatible with existing legislation or provides a natural extension to strengthen existing climate change policy measures
	3b. Aligns with existing major GHG reporting methods and initiatives?	• Is compatible with existing reporting methods and initiatives, building on strengths and filling gaps
	3c. Minimises additional reporting required by companies?	• Reduces the reporting burden through harmonisation of existing multiple standards, allows extraction of reports for different purposes
4. Risks and Costs	**4a.** Minimises GHG reporting costs whilst meeting needs?	• Minimises costs for participants and regulators whilst meeting essential policy needs. Allows for streamlining of existing GHG reporting requirements and provides tools to simplify calculation and reporting.
	4b. Reduces risks for participants and regulators?	• Provides regulatory certainty, transparency and a 'level playing field' for company GHG reporting, provides a clear coordination role for the EC
	4c. Minimises competitive impacts?	• Does not discriminate on any basis other than GHG reporting and emission reduction performance within the EU
5. Benefits	**5a.** Maximises benefits to participants and other stakeholders?	• Allows companies to identify savings, conforms to best practices, is easy to use and provides value for investors and other stakeholders
	5b. Provides a basis for large GHG emission reductions beyond BAU?	• Provides large potential scope for emissions reductions across the economy, follows a defined process to report GHG savings
	5c. Can be extended to other environmental aspects?	• Potential for extending the reporting scheme to cover other aspects such as water, waste, resources and land use
	5d. Provides incentives for participants and penalties for poor performance?	• Provides a system of penalties and rewards (financial and non-financial) which incentivises good performance

[(11)] The Recommendation is a suggested approach without legal force and is negotiated and voted on according to the appropriate procedure. Recommendations are an instrument of indirect action aiming at preparation of legislation in Member States, differing from the Directive only by the absence of obligatory power. The Directive requires Member States to achieve a certain result without dictating the means of achieving that result. Directives set out the objectives and scope of the policy but normally leave a certain amount of leeway as to the exact method of Member State adoption. The Regulation becomes law in all Member States once it comes into force, without the requirement for any implementing measures and automatically overrides any conflicting domestic policies. Regulations ensure the most level implementation throughout all Member States.

Table 6.2 Best Practice Examples for Assessment of Policy Scenarios

Category	Criteria	Current Best Practice Examples
1. Basis and Coverage	**1a.** Which sectors and GHGs are covered and over what timescales?	• WBCSD/WRI GHG Protocol sector-specific adaptations; EU ETS phases; UK CRC introductory period
	1b. What thresholds apply for inclusion, including SME's?	• UK CRC energy use threshold; DEFRA streamlined guidance for SMEs
	1c. Is the measure mandatory or voluntary with strong incentives for adoption?	• Mandatory – EU ETS and UK CRC; Voluntary – CDP and WBCSD/WRI GHG Protocol
	1d. Is a high level of uptake possible?	• CDP investor support level; WBCSD/WRI GHG Protocol flexibility and recognition; CDP reporting platform success
2. Ability to Meet Needs	**2a.** Sets minimum standards?	• EU ETS MRV guidance; DEFRA GHG guidance
	2b. Ensures comparability and compatibility?	• DEFRA GHG Guidance; UK CRC league table; CDP public reporting platform/leadership index
	2c. Connects to key GHG management drivers?	• CDP reputational links; UK CRC revenue recycling; Bilan Carbone scope 3 coverage
	2d. Facilitates GHG emission reductions?	• Elements of EU ETS NAP process; UK CRC; USEPA Climate Leaders Index
3. Links with Existing Measures	**3a.** Aligns with existing EC and Member State legislation and climate change policies?	• EU ETS; UK CRC; Bilan Carbone regulatory alignment
	3b. Aligns with existing major GHG reporting methods and initiatives?	• CDP and DEFRA refer back to WBCSD/WRI GHG Protocol
	3c. Minimises additional reporting required by companies?	• EU ETS CITL and E-PRTR links; CDP feeds into other investor indexes
4. Risks and Costs	**4a.** Minimises GHG reporting costs whilst meeting needs?	• DEFRA GHG Guidance is simple to apply; Bilan Carbone training courses are relatively low cost; WBCSD/WRI GHG Protocol and calculation tools are free of charge
	4b. Reduces risks for participants and regulators?	• CDP is transparent and has global coverage; WBCSD/WRI GHG Protocol is widely recognised
	4c. Minimises competitive impacts?	• UK CRC is non-discriminatory; USEPA Climate Leaders Index
5. Benefits	**5a.** Maximises benefits to participants and other stakeholders?	• UK CRC revenue recycling; CDP leadership index reputational benefits; ISO14064 reputational benefits; USEPA Climate Leaders Index GHG savings
	5b. Provides a basis for large GHG emission reductions beyond BAU?	• EU ETS large emitter coverage; CDP Global 500 emissions coverage; USEPA climate leaders target setting
	5c. Can be extended to other environmental aspects?	• CDP extension to water disclosure project
	5d. Provides incentives for participants and penalties for poor performance?	• UK CRC league table; USEPA Climate Leaders Index

Tables to 6.3 to 6.7 summarise the results of the assessment of each policy scenario against the individual criteria. It is noted that the results of the assessment against certain criteria is the same or similar for a number of the scenarios and the full text is repeated in the tables for clarity. The strengths and limitations of each scenario are summarised in Table 6.8. The assessment takes into account findings from Phases I and II of the study in arriving at each grading.

Table 6.3 Assessment of Policy Scenarios Against Criteria – 1. Basis and Coverage

Criteria / Policy Scenario	1. Basis and Coverage			
	1a. Which sectors and GHGs are covered and over what timescales?	**1b.** What thresholds apply for inclusion, including SME's?	**1c.** Is the measure mandatory or voluntary with strong incentives for adoption?	**1d.** Is a high level of uptake possible?
1. Business as Usual (baseline)	Existing GHG reporting methods/initiatives cover a wide range of sectors and the basket-of-six GHGs. Typically the methods/initiatives are updated/reviewed every 3 to 5 years and there are no fixed timescales for implementation.	Existing GHG reporting methods/initiatives generally lack any thresholds (with a few exceptions, e.g. the EU ETS) and tend to exclude SME's by their complex and resource-intensive nature.	Existing GHG reporting methods/initiatives are generally voluntary. Most are successful in gaining participation within their limited target stakeholder groups. In Europe the EU ETS and UK CRC are the only mandatory schemes.	A gradual increase in uptake of company GHG reporting is likely under BAU, although SME uptake is likely to remain low in the absence of any new policy measures.
2. New EC Recommendation on Voluntary GHG Measurement	The measure could be focused on sectors which are not already covered by the EU ETS. A Recommendation on GHG calculation methods would be made, which MS's may wish to adopt. Coverage of the basket-of-six GHGs would be recommended. A phased implementation approach to cover these sectors could be applied over a 2 to 5 year period.	A recommended threshold for application of the measure could be set (e.g. 10,000 tCO_2e/annum based on Phase I and II research) below which streamlined guidance is applicable (largely for SME's).	This policy scenario is voluntary for stakeholders to implement, although linking with CDP and GHG protocol would provide some incentives for adoption. Implementation would be achieved through a Recommendation on company GHG reporting. Based on Phase I and II study findings, voluntary schemes, which rely on reputational drivers are less able to achieve the overall policy objectives.	Whilst a high level of uptake might be possible, it is unlikely to be a significant improvement beyond BAU due to the voluntary nature of this measure.
3. New EC Recommendation on Voluntary GHG Public Reporting	The measure could be focused on sectors which are not already covered by the EU ETS. A Recommendation on GHG calculation methods and public reporting would be made, which MS's may wish to adopt. Coverage of the basket-of-six GHGs would be recommended. A phased implementation approach to cover these sectors could be applied over a 2 to 5 year period.	A recommended threshold for application of the measure could be set (e.g. 10,000 tCO_2e/annum based on Phase I and II research) below which streamlined guidance is applicable (largely for SME's).	This policy scenario is voluntary for stakeholders to implement, although linking with CDP and GHG protocol would provide some incentives for adoption. Implementation would be achieved through a Recommendation on company GHG reporting. Based on Phase I and II study findings, voluntary schemes, which rely on reputational drivers are less able to achieve the overall policy objectives.	Whilst a high level of uptake might be possible, it is unlikely to be a significant improvement beyond BAU due to the voluntary nature of this measure.
4. New EC Recommendation on Voluntary GHG Public Reporting & Emissions Reductions	The measure could be focused on sectors which are not already covered by the EU ETS. A Recommendation on GHG calculation methods, public reporting and GHG target setting would be made, which MS's may wish to adopt. Coverage of the basket-of-six GHGs would be recommended. A phased implementation approach to cover these sectors could be applied over a 2 to 5 year period.	A recommended threshold for application of the measure could be set (e.g. 10,000 tCO_2e/annum based on Phase I and II research) below which streamlined guidance is applicable (largely for SME's).	This policy scenario is voluntary for stakeholders to implement, although linking with CDP and GHG protocol would provide some incentives for adoption. Implementation would be achieved through a Recommendation on company GHG reporting. Based on Phase I and II study findings, voluntary schemes, which rely on reputational drivers are less able to achieve the overall policy objectives.	Whilst a high level of uptake might be possible, it is unlikely to be a significant improvement beyond BAU due to the voluntary nature of this measure.

Criteria / Policy Scenario	1. Basis and Coverage			
	1a. Which sectors and GHGs are covered and over what timescales?	**1b.** What thresholds apply for inclusion, including SME's?	**1c.** Is the measure mandatory or voluntary with strong incentives for adoption?	**1d.** Is a high level of uptake possible?
5. New EC Directive/Regulation on Mandatory GHG Measurement	The measure could be focused on sectors which are not already covered by the EU ETS. A new Directive/Regulation would be introduced to implement the measure. Coverage of the basket-of-six GHGs would be mandatory. A phased implementation approach to cover these sectors could be applied over a 3 to 7 year period (a longer timescale than a voluntary scheme due to legal aspects).	A mandatory threshold for participation would be set (e.g. 10,000 tCO_2e/annum based on Phase I and II research) below which streamlined requirements are applicable (largely for SME's).	This policy scenario is mandatory for the target sectors to adopt. It would be implemented via a new Directive/Regulation on company GHG reporting. Based on Phase I and II study findings, mandatory schemes, with their strong legal basis are able to achieve the overall policy objectives.	By definition a mandatory scheme ensures high uptake amongst the target sectors, provided that participation thresholds are met. Penalties for non-conformance may also be applied.
6. New EC Directive/Regulation on Mandatory GHG Public Reporting	The measure could be focused on sectors which are not already covered by the EU ETS. A new Directive/Regulation would be introduced to implement the measure. Coverage of the basket-of-six GHGs would be mandatory. A phased implementation approach to cover these sectors could be applied over a 3 to 7 year period (a longer timescale than a voluntary scheme due to legal aspects).	A mandatory threshold for participation would be set (e.g. 10,000 tCO_2e/annum based on Phase I and II research) below which streamlined requirements are applicable (largely for SME's).	This policy scenario is mandatory for the target sectors to adopt. It would be implemented via a new Directive/Regulation on company GHG reporting. Based on Phase I and II study findings, mandatory schemes, with their strong legal basis are able to achieve the overall policy objectives.	By definition a mandatory scheme ensures high uptake amongst the target sectors, provided that participation thresholds are met. Penalties for non-conformance may also be applied.
7. New EC Directive/Regulation on Mandatory GHG Public Reporting & Emissions Reductions	The measure could be focused on sectors which are not already covered by the EU ETS. A new Directive/Regulation would be introduced to implement the measure. Coverage of the basket-of-six GHGs would be mandatory. A phased implementation approach to cover these sectors could be applied over a 3 to 7 year period (a longer timescale than a voluntary scheme due to legal aspects).	A mandatory threshold for participation would be set (e.g. 10,000 tCO_2e/annum based on Phase I and II research) below which streamlined requirements are applicable (largely for SME's).	This policy scenario is mandatory for the target sectors to adopt. It would be implemented via a new Directive/Regulation on company GHG reporting. Based on Phase I and II study findings, mandatory schemes, with their strong legal basis are able to achieve the overall policy objectives.	By definition a mandatory scheme ensures high uptake amongst the target sectors, provided that participation thresholds are met. Penalties for non-conformance may also be applied.
8. Revision of Existing EC Legislation to Expand GHG Reporting Coverage	The measure could be focused on sectors which are not already covered by the EU ETS. Modifications to existing Directives/Regulations (e.g. IPPC/IED) would be made to implement the measure. Coverage of the basket-of-six GHGs would be mandatory. A phased implementation approach would be required over a 4 to 9 year period due to the complexities of adding new sectors and fixed timescales for periodic review/amendment of existing legislation.	A mandatory threshold for participation would be set (e.g. 10,000 tCO_2e/annum based on Phase I and II research) below which streamlined requirements are applicable (largely for SME's). Existing Directives/Regulations (e.g. EU ETS, IPPC/IED) generally do not cover SME's as so some special provisions would be required to ensure their inclusion.	This policy scenario is mandatory for the target sectors to adopt. It would be implemented via modifications to existing Directives/Regulations (e.g. IPPC/IED) to include company GHG reporting. Based on Phase I and II study findings, mandatory schemes, with their strong legal basis are able to achieve the overall policy objectives.	By definition a mandatory scheme ensures high uptake amongst the target sectors, provided that participation thresholds are met. Penalties for non-conformance may also be applied.

Table 6.4 Assessment of Policy Scenarios Against Criteria – 2. Ability to Meet Needs

Criteria / Policy Scenario	2. Ability to Meet Needs			
	2a. Sets minimum standards?	**2b.** Ensures comparability and compatibility?	**2c.** Connects to key GHG management drivers?	**2d.** Facilitates GHG emission reductions?
1. Business as Usual (baseline)	Existing GHG reporting methods/initiatives tend to be flexible. Whilst setting out the key principles of GHG reporting, they do not generally set minimum standards for boundaries, emission factors and verification/assurance (with a few exceptions).	Existing GHG reporting methods/initiatives allow companies to draw different reporting boundaries and treat renewables and offsets differently. This limits the true comparability of company results. An exception is schemes which have a leadership index or league table (e.g. CDP; UK CRC). The different schemes in current use are also not directly compatible due to different rules that apply.	Existing voluntary GHG reporting methods/initiatives are generally good at connecting with reputational drivers but do not address the cost driver. On the basis of Phase I and II findings, the BAU case does not connect strongly enough with all of the drivers for the GHG management cycle.	A gradual increase in uptake of company GHG reporting is likely under BAU, although SME uptake is likely to remain low in the absence of any new policy measures.
2. New EC Recommendation on Voluntary GHG Measurement	A voluntary scenario might take the form of a Recommendation regarding minimum standards (e.g. boundaries, emission factors and verification/assurance) which MS's may wish to adopt. Such a common EC methodology would help to set a benchmark for minimum standards in internal GHG reporting for example but their application would not be mandatory.	A voluntary scenario might take the form of a Recommendation from the EC which helps to ensure compatibility and comparability. Compatibility may be achieved by aligning any guidance with existing schemes (e.g. CDP and GHG Protocol). Comparability may be achieved by defining which emission sources companies should include and what calculation methods should be applied.	Voluntary GHG reporting methods/initiatives are generally good at connecting with reputational drivers but do not address the cost driver. On the basis of Phase I and II findings, this policy scenario does not connect strongly enough with all of the drivers for the GHG management cycle. The absence of public reporting and GHG targets would weaken the reputational, innovation and cost drivers.	Whilst this voluntary scenario might help to increase the uptake of company GHG measurement, the lack of mandatory requirements and exclusion of GHG reporting and target setting guidance would limit its effectiveness in achieving GHG emission reductions.
3. New EC Recommendation on Voluntary GHG Public Reporting	A voluntary scenario might take the form of a Recommendation regarding minimum standards (e.g. boundaries, emission factors and verification/assurance) which MS's may wish to adopt. Such a common EC methodology would help to set a benchmark for minimum standards in (CDP submissions for example) but their application would not be mandatory.	A voluntary scenario might take the form of a Recommendation from the EC which helps to ensure compatibility and comparability. Compatibility may be achieved by aligning any guidance with existing schemes (e.g. CDP and GHG Protocol). Comparability may be achieved by defining which emission sources companies should include and what calculation methods should be applied.	Voluntary GHG reporting methods/initiatives are generally good at connecting with reputational drivers but do not address the cost driver. On the basis of Phase I and II findings, this policy scenario does not connect strongly enough with all of the drivers for the GHG management cycle. The absence of GHG targets would weaken the innovation and cost drivers.	Whilst this voluntary scenario might help to increase the uptake of company GHG measurement and public reporting, the lack of mandatory requirements and exclusion of GHG target setting guidance would limit its effectiveness in achieving GHG emission reductions.
4. New EC Recommendation on Voluntary GHG Public Reporting & Emissions Reductions	A voluntary scenario might take the form of a Recommendation regarding minimum standards (e.g. boundaries, emission factors and verification/assurance) which MS's may wish to adopt. Guidance on GHG target setting would also be provided. Such a common EC methodology would help to set a benchmark for minimum standards (e.g. in CDP submissions) and company GHG targets for example but their application would not be mandatory.	A voluntary scenario might take the form of a Recommendation from the EC which helps to ensure compatibility and comparability. Compatibility may be achieved by aligning any guidance with existing schemes (e.g. CDP and GHG Protocol). Comparability may be achieved by defining which emission sources companies should include and what calculation methods should be applied.	Voluntary GHG reporting methods/initiatives are generally good at connecting with reputational drivers but do not address the cost driver. On the basis of Phase I and II findings, this policy scenario does not connect strongly enough with all of the drivers for the GHG management cycle. Whilst the inclusion of GHG emission reduction targets would tend to strengthen the cost and innovation drivers, the absence of a mandatory basis would not address the regulation driver and would reduce the scope of the cost driver.	Whilst this voluntary scenario might help to increase the uptake of company GHG measurement, the lack of mandatory requirements would limit its effectiveness in achieving GHG emission reductions.

Criteria / Policy Scenario	2. Ability to Meet Needs			
	2a. Sets minimum standards?	**2b.** Ensures comparability and compatibility?	**2c.** Connects to key GHG management drivers?	**2d.** Facilitates GHG emission reductions?
5. New EC Directive/Regulation on Mandatory GHG Measurement	A mandatory scheme would take the form of a Directive/Regulation which clearly defines the minimum standards (e.g. boundaries, emission factors and verification/assurance) which companies must apply in calculating their GHG emissions for internal management purposes.	A Directive/Regulation would be formulated to ensure comparability and compatibility in GHG reporting across Europe. Compatibility may be achieved by aligning any reporting standards guidance with existing schemes (e.g. CDP and GHG Protocol). Comparability may be achieved by setting minimum standards for which emission sources companies must include and what calculation methods must be applied.	Mandatory schemes connect directly with cost and regulation drivers. On the basis of Phase I and II findings, this policy scenario does not connect strongly enough with all of the drivers for the GHG management cycle. Whilst it addressed the regulation driver, the absence of public reporting and GHG targets would weaken the reputational, innovation and cost drivers.	This mandatory scenario would ensure that companies start to measure their GHG emissions but the lack of standards for public reporting and GHG target setting would limit its effectiveness in achieving GHG emission reductions.
6. New EC Directive/Regulation on Mandatory GHG Public Reporting	A mandatory scheme would take the form of a Directive/Regulation which clearly defines the minimum standards (e.g. boundaries, emission factors and verification/assurance) which companies must apply in calculating their GHG emissions. A platform for public reporting would also be required and this may build upon existing schemes (e.g. CDP)	A Directive/Regulation would be formulated to ensure comparability and compatibility in GHG reporting across Europe. Compatibility may be achieved by aligning any reporting standards guidance with existing schemes (e.g. CDP and GHG Protocol). Comparability may be achieved by setting minimum standards for which emission sources companies must include, what calculation methods must be applied and defining a process for public reporting.	Mandatory schemes connect directly with cost and regulation drivers. On the basis of Phase I and II findings, this policy scenario does not connect strongly enough with all of the drivers for the GHG management cycle. Whilst it addressed the reputation driver through public reporting, the absence of GHG targets would weaken the innovation and cost drivers.	This mandatory scenario would ensure that companies start to measure and publicly report their GHG emissions but the lack of standards for GHG target setting would limit its effectiveness in achieving GHG emission reductions.
7. New EC Directive/Regulation on Mandatory GHG Public Reporting & Emissions Reductions	A mandatory scheme would take the form of a Directive/Regulation which clearly defines the minimum standards (e.g. boundaries, emission factors and verification/assurance) which companies must apply in calculating their GHG emissions. A platform for public reporting would also be required and this may build upon existing schemes (e.g. CDP). Publication of GHG targets and emissions reductions achieved would become mandatory.	A Directive/Regulation would be formulated to ensure comparability and compatibility in GHG reporting across Europe. Compatibility may be achieved by aligning any reporting standards guidance with existing schemes (e.g. CDP and GHG Protocol). Comparability may be achieved by setting minimum standards for which emission sources companies must include and what calculation methods must be applied and defining a process for public reporting and GHG target setting.	Mandatory schemes connect directly with cost and regulation drivers. On the basis of Phase I and II findings, this policy scenario connects strongly with all of the drivers for the GHG management cycle. In particular the inclusion of GHG emission reduction targets would strengthen the cost and innovation drivers.	This mandatory scenario would ensure that companies start to measure and publicly report their GHG emissions and reduction targets and is therefore most likely to be effective in achieving GHG emission reductions.
8. Revision of Existing EC Legislation to Expand GHG Reporting Coverage	A mandatory scheme would take the form of modifications to existing Directives/Regulations which clearly define the minimum standards (e.g. boundaries, emission factors and verification/assurance) which companies must apply in calculating and reporting their GHG emissions. This option would extend environmental reporting requirements under existing legislation (e.g. under IPPC/IED) to cover company GHG emissions.	Existing Directives/Regulations would be modified to ensure comparability and compatibility in GHG reporting across Europe. Compatibility may be achieved by aligning any reporting standards guidance with existing schemes (e.g. CDP and GHG Protocol). Comparability may be achieved by setting minimum standards for which emission sources companies must include and what calculation methods must be applied and defining a process for public reporting.	Mandatory schemes connect directly with cost and regulation drivers. On the basis of Phase I and II findings, this policy scenario could be formulated to connect with all of the drivers for the GHG management cycle. However, the complexities of modifying existing Directives/Regulations to link with all of the GHG management drivers may limit the effectiveness of this option.	This mandatory scenario would ensure that companies start to measure and publicly report their GHG emissions but since it is integrated with a raft of other environmental reporting requirements, there may not be a strong focus on GHG target setting and is likely to have limited e effectiveness in achieving GHG emission reductions.

Table 6.5 Assessment of Policy Scenarios Against Criteria – 3. Links with Existing Measures

Criteria / Policy Scenario	3. Links with Existing Measures		
	3a. Aligns with existing EC and Member State legislation and climate change policies?	**3b.** Aligns with existing major GHG reporting methods and initiatives?	**3c.** Minimises additional reporting required by companies?
1. Business as Usual (baseline)	Existing GHG reporting methods/initiatives are not strongly aligned with existing EC and MS legislation or climate change policies, although they do help companies to identify their contribution to climate change. The exception is the UK CRC and EU ETS which target specific sectors to reduce their GHG emissions. SMEs are typically not targeted since the majority of reporting schemes were set up with a focus on large companies (e.g. CDP).	Existing voluntary GHG reporting methods/initiatives are generally aligned with the WBCSD/WRI GHG Protocol. However, the various adaptations and interpretations of the GHG Protocol reduce the level of alignment between existing schemes. The GHG Protocol does not align well with the major EU mandatory schemes (UK CRC and EUETS). Some schemes have a leadership index or league table (e.g. CDP; UK CRC) but there is little alignment on this aspect. In terms of stakeholder recognition, the Phase I and II study findings indicate that that alignment with the WBCSD/WRI GHG Protocol and the CDP is of paramount importance for any policy scenario.	There are multiple existing voluntary GHG reporting methods/initiatives which tend to overlap and have slightly different requirements, although most refer back to the WBCSD/WRI GHG Protocol principles. In addition the UK CRC and EU ETS mandatory schemes have separate requirements. On the basis of Phase I and II findings, the BAU case does not minimise the burden of company GHG reporting but is considered to be reasonable given the largely voluntary nature of the schemes and the importance of addressing climate change issues.
2. New EC Recommendation on Voluntary GHG Measurement	A Recommendation could be formulated to align GHG measurement standards more closely with existing EC and MS legislation and climate change policies. It may also align with the EMAS Regulation on environmental reporting. However, the lack of public reporting requirements and GHG target setting would limit alignment with policies such as the European Climate Change Programme, the UK Climate Change Programme and the French Grenelle II.	A Recommendation could be formulated to align with the WBCSD/WRI GHG Protocol and further indicate best practices or clarify grey areas in how to calculate GHG emissions.	A Recommendation could be formulated to align closely with existing GHG measurement practices, thereby minimizing any additional reporting burden and possibly streamlining the situation of multiple standards by providing a single reference standard. It may be possible to develop tools which allow extraction of data sub-sets for different purposes (e.g. EU ETS, UK CRC) whilst still conforming to the overall standard.
3. New EC Recommendation on Voluntary GHG Public Reporting	A Recommendation could be formulated to align GHG measurement standards more closely with existing EC and MS legislation and climate change policies. It may also align with the EMAS Regulation on environmental reporting. However, the lack of GHG target setting requirements would limit alignment with policies such as the European Climate Change Programme, the UK Climate Change Programme and the French Grenelle II.	A Recommendation could be formulated to align with the WBCSD/WRI GHG Protocol and further indicate best practices or clarify grey areas in how to calculate GHG emissions. It could also suggest use of a recognised reporting platform such as the CDP.	A Recommendation could be formulated to align closely with existing GHG measurement and reporting practices, thereby minimizing any additional reporting burden and possibly streamlining the situation of multiple standards by providing a single reference standard. It may be possible to develop tools which allow extraction of reports for different purposes (e.g. EU ETS, UK CRC) whilst still conforming to the overall standard.
4. New EC Recommendation on Voluntary GHG Public Reporting & Emissions Reductions	A Recommendation could be formulated to align GHG measurement standards more closely with existing EC and MS legislation and climate change policies. It may also align with the EMAS Regulation on environmental reporting. However, some MS's may not adopt the measure and this would limit alignment with policies such as the European Climate Change Programme.	A Recommendation could be formulated to align with the WBCSD/WRI GHG Protocol and further indicate best practices or clarify grey areas in how to calculate GHG emissions. It could also suggest use of a recognised reporting platform such as the CDP and encourage GHG target setting and use of league tables such as the CDP/USEPA leadership indices.	A Recommendation could be formulated to align closely with existing GHG measurement and reporting practices, thereby minimizing any additional reporting burden and possibly streamlining the situation of multiple standards by providing a single reference standard. It may be possible to develop tools which allow extraction of reports for different purposes (e.g. EU ETS, UK CRC) whilst still conforming to the overall standard. Addition of GHG targets and emission reduction reporting could potentially increase the reporting burden in some sectors.

Criteria / Policy Scenario	3. Links with Existing Measures		
	3a. Aligns with existing EC and Member State legislation and climate change policies?	**3b.** Aligns with existing major GHG reporting methods and initiatives?	**3c.** Minimises additional reporting required by companies?
5. New EC Directive/Regulation on Mandatory GHG Measurement	A new Directive/Regulation could be formulated to align GHG measurement standards more closely with existing EC and MS legislation and climate change policies. However, the lack of public reporting requirements and GHG target setting would limit alignment with policies such as the European Climate Change Programme, the UK Climate Change Programme and the French Grenelle II.	A new Directive/Regulation could be formulated to align with the WBCSD/WRI GHG Protocol and specify in further detail how to calculate GHG emissions. However, this would tend to reduce the flexibility in the GHG Protocol and would potentially conflict with the voluntary nature of the WBCSD/WRI GHG Protocol programme.	A new Directive/Regulation could be formulated to align closely with existing GHG measurement practices, thereby minimizing any additional reporting burden and possibly streamlining the situation of multiple standards by providing a single mandatory Protocol. It may be possible to develop tools which allow extraction of data sub-sets for different purposes (e.g. EU ETS, UK CRC) whilst still conforming to the Protocol. However, due to the mandatory nature of this option it is likely to impose additional reporting burdens on some sectors.
6. New EC Directive/Regulation on Mandatory GHG Public Reporting	A new Directive/Regulation could be formulated to align GHG measurement standards more closely with existing EC and MS legislation and climate change policies. However, the lack of GHG target setting requirements would limit alignment with policies such as the European Climate Change Programme, the UK Climate Change Programme and the French Grenelle II.	A new Directive could be formulated to align with the WBCSD/WRI GHG Protocol and specify in further detail how to calculate GHG emissions. It could also require companies to report publicly under the CDP. However, this would tend to reduce the flexibility in the GHG Protocol and would potentially conflict with the voluntary nature of the WBCSD/WRI GHG Protocol and CDP programmes.	A new Directive/Regulation could be formulated to align closely with existing GHG measurement and reporting practices, thereby minimizing any additional reporting burden and possibly streamlining the situation of multiple standards by providing a single mandatory Protocol. It may be possible to develop tools which allow extraction of reports for different purposes (e.g. EU ETS, UK CRC) whilst still conforming to the Protocol. However, due to the mandatory nature of this option it is likely to impose additional reporting burdens on some sectors.
7. New EC Directive/Regulation on Mandatory GHG Public Reporting & Emissions Reductions	A new Directive/Regulation could be formulated to align GHG measurement standards more closely with existing EC and MS legislation and climate change policies such as the European Climate Change Programme, the UK Climate Change Programme and the French Grenelle II. However, there are complexities in aligning with numerous MS specific policies such as the UK Climate Change Programme and the French Grenelle II.	A new Directive/Regulation could be formulated to align with the WBCSD/WRI GHG Protocol and specify in further detail how to calculate GHG emissions. It could also require companies to report publicly under the CDP and set GHG targets or enter league tables. However, this would tend to reduce the flexibility in the GHG Protocol and would potentially conflict with the voluntary nature of the WBCSD/WRI GHG Protocol and CDP programmes.	A new Directive/Regulation could be formulated to align closely with existing GHG measurement and reporting practices, thereby minimizing any additional reporting burden and possibly streamlining the situation of multiple standards by providing a single mandatory Protocol. It may be possible to develop tools which allow extraction of reports for different purposes (e.g. EU ETS, UK CRC) whilst still conforming to the Protocol. However, due to the mandatory nature of this option and the inclusion of GHG targets and emission reduction reporting it is likely to impose additional reporting burdens on some sectors.
8. Revision of Existing EC Legislation to Expand GHG Reporting Coverage	Existing Directives/Regulations could be modified to align GHG measurement standards more closely with existing EC and MS legislation and climate change policies such as the European Climate Change Programme, the UK Climate Change Programme and the French Grenelle II. However, there are complexities in aligning with numerous MS specific policies such as the UK Climate Change Programme and the French Grenelle II.	Modifications to existing Directives/Regulations could be formulated to align with the WBCSD/WRI GHG Protocol and specify in further detail how to calculate GHG emissions. This scenario could also require companies to report publicly under the CDP. However, this would tend to reduce the flexibility in the GHG Protocol and would potentially conflict with the voluntary nature of the WBCSD/WRI GHG Protocol and CDP programmes.	Modifications to existing Directives/Regulations could be formulated to align closely with existing GHG measurement and reporting practices, thereby minimizing any additional reporting burden and possibly streamlining the situation of multiple standards by providing a single mandatory Protocol. It may be possible to develop tools which allow extraction of reports for different purposes (e.g. EU ETS, UK CRC) whilst still conforming to the Protocol. However, due to the mandatory nature of this option it is likely to impose additional reporting burdens on some sectors.

Table 6.6 Assessment of Policy Scenarios Against Criteria – 4. Risks and Costs

Criteria / Policy Scenario	4. Risks and Costs		
	4a. Minimises GHG reporting costs whilst meeting needs?	**4b.** Reduces risks for participants and regulators?	**4c.** Minimises competitive impacts?
1. Business as Usual (baseline)	Existing GHG reporting methods/initiatives tend to be flexible and are voluntary, thereby helping to minimise costs. Some also include streamlined SME guidance to help reduce costs. However, they do not always meet policy needs in terms of achieving GHG emissions reductions and so the true costs are not fully borne by participants under BAU (with a few exceptions such as EU ETS and UK CRC participants). Cost to companies: no change from current case of reporting against multiple schemes – resource intensive. Cost to regulators: no change from current case. Cost to NGOs: no change from current case of funding/backing for voluntary schemes.	Existing GHG reporting methods/initiatives do not ensure comparability and compatibility and potentially give differing results for similar companies due to a wide choice of boundaries and emission factors. They also allow varying degrees of assurance/verification and public disclosure. This may give rise to risks for investors, customers, suppliers and policy makers that rely on the reported data. Multinational companies also suffer from regulatory uncertainty with different legislation applying in different MS's. Therefore the BAU case does not create a low level of risk for stakeholders.	Existing GHG reporting methods/initiatives do not ensure comparability and compatibility. This may lead to competitive distortions given that two similar companies might report significantly differing GHG data. Some MS's may implement their own mandatory GHG reporting requirements in future (e.g. UK CRC) and this may lead to competitive impacts in some sectors. In addition, the lack of global standards for GHG reporting can lead to competitive distortions in some sectors. Therefore the BAU case does not avoid competitive impacts, although based on the Phase I and II study findings these impacts are not currently of sufficient magnitude to be material.
2. New EC Recommendation on Voluntary GHG Measurement	A Recommendation could be formulated to align with existing methods/initiatives whilst clarifying some of the grey areas and defining best practices. A common EC standard/method could help to marginally reduce reporting costs by saving staff time required for interpretation of existing guidelines. Cost to companies: initial increase in costs to modify reporting systems but then possible reduced future costs due to voluntary harmonised reporting standards. Cost to regulators: increase in costs to develop the Recommendation and support/monitor uptake. Cost to NGOs: initial increase in costs to align reporting guidelines but then reduced future costs due to harmonised reporting standards.	A Recommendation could be formulated to address some of the gaps in existing methods/initiatives. This may help to reduce the risks for stakeholders and also for companies which perform well under the standards. In particular robust GHG data may allow companies to better manage their business risks due to climate change. Due to its voluntary nature, this option is relatively low risk for regulators (unlikely to be opposed) but leaves some risk for other stakeholders as adoption is not mandatory. Overall, the risks may not be minimised in the case of low uptake under this voluntary option (although alignment with leading existing methods may help to ensure high uptake).	A Recommendation could be formulated to ensure a level playing field by defining a set of common standards for GHG measurement. This may help to reduce the competitive impact of multiple GHG standards. However, since uptake is not mandatory and public reporting is not covered, some distortions will remain.
3. New EC Recommendation on Voluntary GHG Public Reporting	A Recommendation could be formulated to align with existing methods/initiatives whilst clarifying some of the grey areas and defining best practices. A common EC standard/method could help to marginally reduce reporting costs by saving staff time required for interpretation of existing guidelines. The addition of public reporting guidelines could also help to reduce costs, compared to the current situation of multiple reporting initiatives.	A Recommendation could be formulated to address some of the gaps in existing methods/initiatives. This may help to reduce the risks for stakeholders and also for companies which perform well under the standards. In particular robust GHG reporting standards may allow companies to better manage their reputational risks due to climate change. Due to its voluntary nature, this option is low to medium risk for regulators (may be opposed by some due to public reporting requirements) but leaves some risk for other stakeholders as	A Recommendation could be formulated to ensure a level playing field by defining a set of common standards for GHG measurement. This may help to reduce the competitive impact of multiple GHG standards. However, since uptake is not mandatory, some distortions will remain.

Criteria / Policy Scenario	4. Risks and Costs		
	4a. Minimises GHG reporting costs whilst meeting needs?	**4b.** Reduces risks for participants and regulators?	**4c.** Minimises competitive impacts?
	Cost to companies: initial increase in costs to modify reporting systems and publicly report but then possible reduced future costs due to voluntary harmonised reporting standards. Cost to regulators: increase in costs to develop the Recommendation and support/monitor uptake and public reporting. Cost to NGOs: initial increase in costs to align reporting guidelines and reporting platforms but then reduced future costs due to harmonised reporting standards.	adoption is not mandatory. Overall, the risks may not be minimised in the case of low uptake under this voluntary option (although alignment with leading existing methods may help to ensure high uptake).	
4. New EC Recommendation on Voluntary GHG Public Reporting & Emissions Reductions	A Recommendation could be formulated to align with existing methods/initiatives whilst clarifying some of the grey areas and defining best practices. A common EC standard/method could help to marginally reduce reporting costs by saving staff time required for interpretation of existing guidelines and reporting initiatives. The addition of GHG targets and emission reduction reporting could increase reporting costs. Cost to companies: initial large increase in costs to modify reporting systems, publicly report and set GHG targets but possible reduced future costs due to harmonised reporting standards. Achievement of GHG targets may lead to significant cost savings. Cost to regulators: increase in costs to develop the Recommendation and support/monitor uptake, public reporting and GHG targets. Cost to NGOs: initial large increase in costs to align reporting guidelines and reporting platforms and add introduce GHG targets but possible reduced future costs due to harmonised reporting standards.	A Recommendation could be formulated to address some of the gaps in existing methods/initiatives. This may help to reduce the risks for stakeholders and also for companies which perform well under the standards. Robust GHG reporting and emission reduction standards may allow companies to better manage their reputational risks due to climate change. Emissions reduction guidance may also help companies to reduce their risks under other carbon related policies (e.g. EU ETS). Due to its voluntary nature, this option is low to medium risk for regulators (may be opposed by some due to public reporting and GHG target setting requirements) but leaves some risk for other stakeholders as adoption is not mandatory. Overall, the risks may not be minimised in the case of low uptake under this voluntary option (although alignment with leading existing methods may help to ensure high uptake).	A Recommendation could be formulated to ensure a level playing field by defining a set of common standards for GHG measurement. This may help to reduce the competitive impact of multiple GHG standards. The inclusion of GHG emissions reduction reporting and target setting guidance may also help to remove any distortions due to lack of transparency on environmental performance. However, since uptake is not mandatory, some distortions will remain but at a reduced level.

Criteria / Policy Scenario	4. Risks and Costs		
	4a. Minimises GHG reporting costs whilst meeting needs?	**4b.** Reduces risks for participants and regulators?	**4c.** Minimises competitive impacts?
5. New EC Directive/Regulation on Mandatory GHG Measurement	A new Directive/Regulation could be formulated to align with existing methods/initiatives whilst clarifying some of the grey areas and defining best practices. There may be some cost savings from streamlining existing multiple standards. However, it is likely to give rise to additional costs for some sectors. Specific measures to minimise SME costs would be required. Cost to companies: initial increase in costs to modify reporting systems but then certainty of reduced future costs due to harmonised mandatory reporting standards. Cost to regulators: increase in costs to develop the Directive/Regulation and ensure its implementation Cost to NGOs: initial increase in costs to align reporting guidelines but then certainty of reduced future costs due to harmonised mandatory reporting standards.	A new Directive/Regulation could be formulated to address some of the gaps in existing methods/initiatives. This may help to reduce the risks for stakeholders and also for companies which perform well under the standards. In particular robust GHG data may allow companies to better manage their business risks due to climate change. Due to its mandatory nature, this option is medium risk for regulators (likely to be opposed by some stakeholders) but provides regulatory certainty for companies. Due to a lack of public reporting requirements it does not provide reliable data for other stakeholders.	A new Directive/Regulation could be formulated to ensure a level playing field by defining a common Protocol for GHG measurement. This may help to reduce the competitive impact of multiple GHG standards. Since uptake is mandatory competitive distortions will be reduced. However, due the lack of public reporting requirements, some distortions will remain.
6. New EC Directive/Regulation on Mandatory GHG Public Reporting	A new Directive/Regulation could be formulated to align with existing methods/initiatives whilst clarifying some of the grey areas and defining best practices. There may be some cost savings from streamlining existing multiple standards. However, it is likely to give rise to additional costs for some sectors, particularly for public reporting. Specific measures to minimise SME costs would be required. Cost to companies: initial increase in costs to modify reporting systems and publicly report but then certainty of reduced future costs due to harmonised mandatory reporting standards. Cost to regulators: increase in costs to develop the Directive/Regulation and ensure its implementation Cost to NGOs: initial increase in costs to align reporting guidelines and public disclosure platforms but then certainty of reduced future costs due to harmonised mandatory reporting standards.	A new Directive/Regulation could be formulated to address some of the gaps in existing methods/initiatives. This may help to reduce the risks for stakeholders and also for companies which perform well under the standards. In particular robust GHG reporting may allow companies to better manage their business risks due to climate change. Due to its mandatory nature, this option is medium risk for regulators (likely to be opposed by some stakeholders) but provides regulatory certainty and reliable data for other stakeholders.	A new Directive/Regulation could be formulated to ensure a level playing field by defining a common Protocol for GHG measurement and reporting. This may help to reduce the competitive impact of multiple GHG standards. Since uptake is mandatory competitive distortions will be reduced. Public reporting will also help to improve transparency.

Criteria / Policy Scenario	4. Risks and Costs		
	4a. Minimises GHG reporting costs whilst meeting needs?	**4b.** Reduces risks for participants and regulators?	**4c.** Minimises competitive impacts?
7. New EC Directive/Regulation on Mandatory GHG Public Reporting & Emissions Reductions	A new Directive/Regulation could be formulated to align with existing methods/initiatives whilst clarifying some of the grey areas and defining best practices. There may be some cost savings from streamlining existing multiple standards. However, it is likely to give rise to additional costs for some sectors, particularly for public reporting of emission reductions. Specific measures to minimise SME costs would be required. Cost to companies: initial increase in costs to modify reporting systems, publicly report and set GHG targets but then certainty of reduced future costs due to harmonised mandatory reporting standards. Achievement of mandatory GHG targets likely to lead to significant cost savings. Cost to regulators: increase in costs to develop the Directive/Regulation and ensure its implementation Cost to NGOs: initial increase in costs to align reporting guidelines and public disclosure platforms, including addition of GHG targets but then certainty of reduced future costs due to harmonised mandatory reporting standards.	A new Directive/Regulation could be formulated to address some of the gaps in existing methods/initiatives. This may help to reduce the risks for stakeholders and also for companies which perform well under the standards. In particular robust GHG reporting may allow companies to better manage their business risks due to climate change. Due to its mandatory nature, this option is relatively high risk for regulators (likely to be opposed) but provides regulatory certainty and reliable data for other stakeholders. The inclusion of GHG emissions reduction reporting may meet with opposition from participants also gives certainty to investors and regulators regarding GHG savings.	A new Directive/Regulation could be formulated to ensure a level playing field by defining a common Protocol for GHG measurement and reporting. This may help to reduce the competitive impact of multiple GHG standards. Since uptake is mandatory competitive distortions will be reduced. Public reporting will also help to improve transparency. The inclusion of GHG emissions reduction reporting and target setting requirements may also help to remove any distortions due to lack of transparency on environmental performance.
8. Revision of Existing EC Legislation to Expand GHG Reporting Coverage	Existing Directives/Regulations could be modified to align with existing methods/initiatives whilst clarifying some of the grey areas and defining best practices. There may be some cost savings from streamlining existing multiple standards. However, it is likely to give rise to additional costs for some sectors, particularly for public reporting. Specific measures to minimise SME costs would be required. Cost to companies: initial increase in costs to modify reporting systems and publicly report but then certainty of reduced future costs due to harmonised mandatory reporting standards. Possible additional costs to interpret potentially complex changes to existing Directives/Regulations. Cost to regulators: increase in costs to modify existing Directives/Regulations and ensure its implementation. Possible additional costs due to complexity of making changes to existing Directives/Regulations. Cost to NGOs: initial increase in costs to align reporting guidelines and public disclosure platforms but then certainty	Existing Directives/Regulations could be modified to address some of the gaps in existing methods/initiatives. This may help to reduce the risks for stakeholders and also for companies which perform well under the standards. In particular robust GHG reporting may allow companies to better manage their business risks due to climate change. Due to its mandatory nature, and recognising the complexities of modifying existing Directives/Regulations, this option is relatively high risk for regulators (likely to be opposed) but provides regulatory certainty and reliable data for other stakeholders.	Existing Directives/Regulations could be modified to ensure a level playing field by defining a common Protocol for GHG measurement and reporting. This may help to reduce the competitive impact of multiple GHG standards. Since uptake is mandatory competitive distortions will be reduced. Public reporting will also help to improve transparency. However, since existing Directive/Regulation focus on a limited number of sectors and exclude SME's, some competitive distortions could remain.

Criteria / Policy Scenario	4. Risks and Costs		
	4a. Minimises GHG reporting costs whilst meeting needs?	**4b.** Reduces risks for participants and regulators?	**4c.** Minimises competitive impacts?
	of reduced future costs due to harmonised mandatory reporting standards.		

Table 6.7 Assessment of Policy Scenarios Against Criteria – 5. Benefits

Criteria / Policy Scenario	5. Benefits			
	5a. Maximises benefits to participants and other stakeholders?	**5b.** Provides a basis for large GHG emission reductions beyond BAU?	**5c.** Can be extended to other environmental aspects??	**5d.** Provides incentives for participants and penalties for poor performance?
1. Business as Usual (baseline)	Existing GHG reporting methods/initiatives tend to be flexible and generate significant benefits for participants. However, to maximise these benefits the issue of compatibility and comparability must be addressed. In addition, to achieve the benefits of energy and GHG savings then guidance on setting emission reduction targets must be provided. Benefits to companies: no change from current case of reporting against multiple schemes to gain reputational benefits. Benefits to regulators: no change from current case of GHG savings achieved under existing schemes. Benefits to NGOs: no change from current case of GHG savings achieved by existing voluntary schemes.	Existing voluntary GHG reporting methods/initiatives allow companies to draw different reporting boundaries, particularly for Scope 3 emissions, and most do not set emission reduction targets. SME's also tend to be excluded. Therefore, with the exception of the EU ETS and UK CRC, the BAU case itself does not provide a strong basis for large GHG emission reductions across the economy based on the Phase I and II study findings.	Existing voluntary GHG reporting methods/initiatives are focused on GHG emissions, with the exception of the CDP (new water disclosure project) and the GRI (covers a range of environmental indicators). It is conceivable that new voluntary Protocols for reporting on water, waste, resources and land use will emerge under the BAU case. These may be based upon principles similar to those for GHG reporting (e.g. boundaries, resource intensity factors).	Existing voluntary GHG reporting methods/initiatives provide a range of penalties and rewards but their strength varies considerably. Most voluntary schemes rely upon reputational benefits and do not include any financial instruments. The EU ETS and UK CRC provide financial reward and penalties which are effective. Based on the phase I and II findings, under BAU poor performance is not penalized and good performance is not strongly rewarded.
2. New EC Recommendation on Voluntary GHG Measurement	A Recommendation could be formulated to maximise benefits by providing calculation tools, streamlining and clarifying guidance and addressing comparability and compatibility issues. However, as the measure is voluntary and does not cover public disclosure or GHG targets the benefits for investors and other stakeholders may not be maximised. Benefits to companies: possible reduced costs for GHG measurement due to harmonised guidance. Benefits of standardised public reporting platforms and GHG savings not fully realised under this voluntary option. Benefits to regulators: provides a coordination role in a move towards standardized GHG measurement with a possible improvement from the current case of GHG savings achieved under existing voluntary schemes.	A Recommendation could be formulated to maximise economy-wide GHG reductions by targeting specific sectors and including SME's. However, without a mandatory basis or public reporting and GHG target setting guidance, the saving potential would be limited based on the Phase I and II study findings. Overall, the benefits may not be maximised in the case of low uptake under this voluntary option (although alignment with leading existing methods may help to ensure high uptake).	A Recommendation on GHG measurement could be formulated to include provision for extension to other environmental impacts in future, although doing so would add complexity.	A Recommendation on GHG measurement could be formulated to strengthen the incentives and penalties through establishing common standards. However, the lack of mandatory basis and exclusion of GHG reporting and target setting guidance is likely to significantly limit the scope to reward good performance.

Criteria / Policy Scenario	5. Benefits			
	5a. Maximises benefits to participants and other stakeholders?	**5b.** Provides a basis for large GHG emission reductions beyond BAU?	**5c.** Can be extended to other environmental aspects??	**5d.** Provides incentives for participants and penalties for poor performance?
	Benefits to NGOs: improved credibility and compatibility across schemes due to harmonised guidance, with a possible improvement from the current case of GHG savings achieved under existing voluntary schemes.			
3. New EC Recommendation on Voluntary GHG Public Reporting	A Recommendation could be formulated to maximise benefits by defining standard calculation methods, streamlining and clarifying guidance and addressing comparability and compatibility issues. However, as the measure is voluntary and does not cover GHG targets the benefits for investors and other stakeholders may not be maximised. Benefits to companies: possible reduced costs for GHG reporting due to harmonised guidance. Benefits of GHG savings not fully realised under this voluntary option due to lack of guidance on GHG targets. Benefits to regulators: provides a coordination role in a move towards standardised GHG reporting with a possible improvement from the current case of GHG savings achieved under existing voluntary schemes. Benefits to NGOs: improved credibility and compatibility across schemes due to harmonised reporting platforms, with a possible improvement from the current case of GHG savings achieved under existing voluntary schemes.	A Recommendation could be formulated to maximise economy-wide GHG reductions by targeting specific sectors and including SME's. However, without a mandatory basis or GHG target setting guidance, the saving potential would be limited based on the Phase I and II study findings. Overall, the benefits may not be maximised in the case of low uptake under this voluntary option (although alignment with leading existing methods may help to ensure high uptake).	A Recommendation on GHG measurement and reporting could be formulated to include provision for extension to other environmental impacts in future, although doing so would add complexity. It may build upon the CDP advanced reporting platform/questionnaire approach for example.	A Recommendation on GHG measurement and reporting could be formulated to strengthen the incentives and penalties through establishing common standards. However, the lack of mandatory basis and exclusion of GHG target setting guidance is likely to limit the scope to reward good performance.
4. New EC Recommendation on Voluntary GHG Public Reporting & Emissions Reductions	A Recommendation could be formulated to maximise benefits by defining standard calculation methods, streamlining and clarifying guidance and addressing comparability and compatibility issues. However, as the measure is voluntary the benefits for investors and other stakeholders may not be maximised. Benefits to companies: possible reduced costs	A Recommendation could be formulated to maximise economy-wide GHG reductions by targeting specific sectors and including SME's. However, without mandatory uptake, the saving potential would be limited based on the Phase I and II study findings. Overall, the benefits may not be maximised in the case of low uptake under this voluntary option (although alignment with leading existing methods may help to	A Recommendation on GHG measurement and reporting could be formulated to include provision for extension to other environmental impacts in future, although doing so would add complexity. It may build upon the CDP advanced reporting platform/questionnaire approach for example and could allow for target setting.	A Recommendation on GHG measurement and reporting could be formulated to strengthen the incentives and penalties through establishing common standards. Whilst inclusion of GHG target setting and public reporting will give some incentives, the lack of a mandatory basis is likely to limit the scope to reward good performance.

Criteria / Policy Scenario	5. Benefits			
	5a. Maximises benefits to participants and other stakeholders?	**5b.** Provides a basis for large GHG emission reductions beyond BAU?	**5c.** Can be extended to other environmental aspects??	**5d.** Provides incentives for participants and penalties for poor performance?
	for GHG reporting due to harmonised guidance. Cost savings may be realised by implementing guidance on GHG targets. Benefits to regulators: provides a coordination role in a move towards standardised GHG reporting and target setting with a possible improvement in GHG savings. Benefits to NGOs: improved credibility and compatibility across schemes due to harmonised reporting platforms, with a possible improvement in GHG savings achieved under new target setting guidance.	ensure high uptake).		
5. New EC Directive/Regulation on Mandatory GHG Measurement	A new Directive/Regulation could be formulated to maximise benefits by defining standard calculation methods, streamlining and clarifying guidance and addressing comparability and compatibility issues. As the measure is mandatory it would help to ensure the benefits are delivered to all target sectors, including SME's. Since this measure does not cover public disclosure or GHG targets the benefits for investors and other stakeholders may not be maximised. Benefits to companies: possible reduced costs for GHG measurement due to mandatory harmonised guidance. Benefits of standardised public reporting platforms and GHG savings not fully realised under this option. Benefits to regulators: provides a coordination role in a mandatory GHG measurement with a possible improvement from the current case of GHG savings achieved under existing voluntary schemes. Benefits to NGOs: improved credibility and compatibility across schemes due to alignment with mandatory standards, with a possible improvement from the current case of GHG	A new Directive/Regulation could be formulated to maximise economy-wide GHG reductions by targeting specific sectors and including SME's. Whilst the mandatory basis would ensure high uptake, the absence of public reporting and GHG target setting requirements would limit the saving potential based on the Phase I and II study findings.	A Recommendation on GHG measurement could be formulated to include provision for extension to other environmental impacts in future, although doing so would add complexity.	A new Directive/Regulation on GHG measurement could be formulated to strengthen the incentives and penalties through establishing common standards. Whilst a mandatory basis will strengthen the incentives, the lack of guidance on public reporting and GHG target setting is likely to limit the scope to reward good performance.

Criteria / Policy Scenario	5. Benefits			
	5a. Maximises benefits to participants and other stakeholders?	**5b.** Provides a basis for large GHG emission reductions beyond BAU?	**5c.** Can be extended to other environmental aspects??	**5d.** Provides incentives for participants and penalties for poor performance?
	savings achieved under existing voluntary schemes.			
6. New EC Directive/Regulation on Mandatory GHG Public Reporting	A new Directive/Regulation could be formulated to maximise benefits by defining standard calculation methods, streamlining and clarifying guidance and addressing comparability and compatibility issues. As the measure is mandatory it would help to ensure the benefits are delivered to all target sectors, including SME's. Since this measure does not cover GHG targets the benefits for investors and other stakeholders may not be maximised. Benefits to companies: possible reduced costs for GHG measurement and reporting due to mandatory harmonised guidance. Benefits of GHG savings not fully realised under this option. Benefits to regulators: provides a coordination role in a mandatory GHG reporting with a possible improvement from the current case of GHG savings achieved under existing voluntary schemes. Benefits to NGOs: improved credibility and compatibility across schemes due to alignment with mandatory standards, with a possible improvement from the current case of GHG savings achieved under existing voluntary schemes.	A new Directive/Regulation could be formulated to maximise economy-wide GHG reductions by targeting specific sectors and including SME's. Whilst the mandatory basis would ensure high uptake, the absence of GHG target setting requirements would limit the saving potential based on the Phase I and II study findings.	A new Directive/Regulation on GHG measurement could be formulated to include provision for extension to other environmental impacts in future, although doing so would add complexity. A specified reporting platform could include provision for such future development.	A new Directive/Regulation on GHG measurement and reporting could be formulated to strengthen the incentives and penalties through establishing common standards. Whilst a mandatory basis will strengthen the incentives, the lack of guidance on GHG target setting is likely to marginally reduce the scope to reward good performance.
7. New EC Directive/Regulation on Mandatory GHG Public Reporting & Emissions Reductions	A new Directive/Regulation could be formulated to maximise benefits by defining standard calculation methods, streamlining and clarifying guidance and addressing comparability and compatibility issues. As the measure is mandatory and covers GHG emission reduction targets it would help to ensure the benefits are delivered to all target sectors, including SME's. Benefits to companies: possible reduced costs	A new Directive/Regulation could be formulated to maximise economy-wide GHG reductions by targeting specific sectors and including SME's. The mandatory basis would ensure high uptake, which combined with public reporting and GHG target setting would maximise the saving potential based on the Phase I and II study findings.	A new Directive/Regulation on GHG measurement and reporting could be formulated to include provision for extension to other environmental impacts in future, although doing so would add complexity. A specified reporting platform could include provision for target setting on other environmental impacts.	A new Directive/Regulation on GHG measurement and reporting could be formulated to strengthen the incentives and penalties through establishing common standards. A mandatory basis will strengthen the incentives and the inclusion of GHG targets will maximise the scope to reward good performance.

Criteria / Policy Scenario	5. Benefits			
	5a. Maximises benefits to participants and other stakeholders?	**5b.** Provides a basis for large GHG emission reductions beyond BAU?	**5c.** Can be extended to other environmental aspects??	**5d.** Provides incentives for participants and penalties for poor performance?
	for GHG measurement and reporting due to mandatory harmonised guidance. Improvement in GHG savings (and longer term cost savings) achieved due to mandatory nature of GHG targets. Benefits to regulators: provides a coordination role in a mandatory GHG reporting with a significant improvement in GHG savings achieved due to mandatory nature of GHG targets. Benefits to NGOs: improved credibility and compatibility across schemes due to alignment with mandatory standards. Improvement in GHG savings achieved due to mandatory nature of GHG targets.			
8. Revision of Existing EC Legislation to Expand GHG Reporting Coverage	Existing Directives/Regulations could be modified to maximise benefits by defining standard calculation methods, streamlining and clarifying guidance and addressing comparability and compatibility issues. As the measure is mandatory it would help to ensure the benefits are delivered to all target sectors, including SME's. Since existing Directives/Regulations are already complex and not focused on GHG reporting, the benefits for investors and other stakeholders may not be maximised. Benefits to companies: possible reduced costs for GHG measurement and reporting due to mandatory harmonised guidance. Benefits of GHG savings not fully realised under this option as existing legislation is not focused on GHGs. Benefits to regulators: provides a coordination role in a mandatory GHG reporting with a possible improvement from the current case of GHG savings achieved under existing voluntary schemes. Benefits to NGOs: improved credibility and	Existing Directives/Regulations could be modified to maximise economy-wide GHG reductions by targeting specific sectors. Whilst the mandatory basis would ensure high uptake, the lack of focus on GHG reporting and exclusion of SME's in existing Directives/Regulations may limit the saving potential based on the Phase I and II study findings.	Existing Directives/Regulations could be modified to include GHG reporting with the flexibility to extend to other environmental impacts in future, although doing so would add complexity. Some reporting platforms (e.g. E-PRTR) already cover other environmental impacts.	Existing Directives/Regulations could be modified to include GHG measurement and reporting, strengthening the incentives and penalties through establishing common standards. Whilst a mandatory basis will strengthen the incentives, existing Directives/Regulations may not have the scope to include new types of incentive or penalty without adding significant complexity and/or incurring legal challenges.

Criteria / Policy Scenario	5. Benefits			
	5a. Maximises benefits to participants and other stakeholders?	**5b.** Provides a basis for large GHG emission reductions beyond BAU?	**5c.** Can be extended to other environmental aspects??	**5d.** Provides incentives for participants and penalties for poor performance?
	compatibility across schemes due to alignment with mandatory standards, with a possible improvement from the current case of GHG savings achieved under existing voluntary schemes.			

Table 6.8 Summary of Key Strengths and Limitations of Policy Scenarios

Policy Scenario	Summary of unique features and key strengths	Summary of key limitations and areas for development
1. Business as Usual (baseline)	Existing GHG reporting methods and initiatives are generally voluntary and rely on reputational benefits for uptake; the WBCSD/WRI GHG Protocol and CDP are the most widely recognised schemes and provide value participating companies, investors and other stakeholders. The EU ETS and UK CRC are mandatory schemes targeted at specific sectors with the potential to make significant GHG emission reductions.	Existing voluntary GHG reporting methods and initiatives generally lack any strong incentives or penalties and potentially create competitive distortions due to a lack of comparability and compatibility (minimum standard setting). SME's also tend to be excluded. The scope of the EU ETS and UK CRC mandatory schemes is limited. Under the BAU case the benefits of GHG reporting are not maximised and the risks are not minimised. Overall, the policy need to ensure GHG emission reductions across the economy is not met as most schemes do not set GHG targets.
2. New EC Recommendation on Voluntary GHG Measurement	This option provides EC backing (via a Recommendation which MS's may wish to adopt) for a common standard on GHG measurement. It builds upon the success of the WBCSD/WRI GHG Protocol and strengthens minimum standards (e.g. boundary setting, emission factor choice, treatment of offsets).	This option lacks any real incentives or penalties beyond BAU due to its voluntary nature. Since it does not cover public disclosure or GHG target setting, it fails to link strongly with the GHG management cycle drivers. Competitive distortions are not reduced. Costs may be reduced due to harmonisation. Benefits are good but are not maximised due to lack of guidance on public reporting and GHG targets. Overall, the risks may not be minimised in the case of low uptake under this voluntary option.
3. A New EC Recommendation on Voluntary GHG Public Reporting	This option provides EC backing (via a Recommendation which MS's may wish to adopt) for a common standard on GHG measurement and specific standards for public disclosure. It builds upon the success of the WBCSD/WRI GHG Protocol and strengthens minimum standards (e.g. boundary setting, emission factor choice, treatment of offsets). It also supports public disclosure platforms such as the CDP.	This option lacks any real incentives or penalties beyond BAU due to its voluntary nature. Whilst it does cover public disclosure, it excludes GHG target setting then it, it fails to link strongly with all of the GHG management cycle drivers. Competitive distortions are not reduced. Costs may be reduced due to harmonisation. Benefits are good but are not maximised due to lack of guidance on GHG targets. Overall, the risks may not be minimised in the case of low uptake under this voluntary option.
4. A New EC Recommendation on Voluntary GHG Public Reporting & Emissions Reductions	This option provides EC backing (via a Recommendation which MS's may wish to adopt) for a common standard on GHG measurement and public disclosure. It builds upon the success of the WBCSD/WRI GHG Protocol and CDP by strengthening minimum standards. It also provides for reporting of GHG emission reduction and target setting, over and above the BAU case.	This option has some incentives beyond BAU due to the setting of GHG targets and public disclosure of performance. However, due to its voluntary nature there are no penalties for poor performance other than reputational risks. Competitive distortions may be reduced but companies and MS's may still wish to opt out of the measure. Costs may be reduced due to harmonisation. Benefits are good but a lack of mandatory participation requirements limits the full potential of this option. Overall, the risks may not be minimised in the case of low uptake under this voluntary option.
5. New EC Directive/Regulation on Mandatory GHG Measurement	This option provides an EC-wide mandatory basis (via a new Directive/Regulation) for a common standard on GHG measurement. It builds upon the success of the WBCSD/WRI GHG Protocol and clearly defines minimum standards (e.g. boundary setting, emission factor choice, treatment of offsets). The mandatory basis of this option ensures good uptake.	This option lacks any real incentives or penalties beyond BAU since it does not cover public disclosure or GHG target setting. For this reason it fails to link strongly with all of the GHG management cycle drivers. Competitive distortions are not reduced. Costs may be reduced due to harmonisation. Benefits are good but are not maximised due to lack of requirement for public reporting and GHG targets.
6. New EC Directive/Regulation on Mandatory GHG Public Reporting	This option provides an EC-wide mandatory basis (via a new Directive/Regulation) for a common standard on GHG measurement and reporting . It builds upon the success of the WBCSD/WRI GHG Protocol and clearly defines minimum standards (e.g. boundary setting, emission factor choice, treatment of offsets). It specifies standard for public disclosure, building on platforms such as the CDP. It strengthens the reputational drivers and helps to reduce competitive distortions. Costs are reasonable but are not minimised. Benefits are good but are not maximised. The mandatory basis of this option ensures good uptake.	This option may be opposed by some stakeholders and be seen to increase reporting burdens. The issue of streamlined guidance for SME's would need special attention to minimise reporting costs. Alignment with existing EC and MS policy measures would need to be carefully considered. Costs may be reduced due to harmonisation. Benefits are good but are not maximised due to lack of requirement for GHG targets.
7. New EC Directive/Regulation on Mandatory GHG Public Reporting & Emissions Reductions	This option provides an EC-wide mandatory basis (via a new Directive/Regulation) for a common standard on GHG measurement and reporting . It builds upon the success of the WBCSD/WRI GHG Protocol and CDP clearly defines minimum standards. It strengthens the reputational drivers and helps to reduce competitive distortions. It maximise the GHG emission reduction potential by including a GHG target setting process for participants. Costs may be reduced due to harmonisation. Benefits are good due to the GHG savings achievable under this option. The mandatory basis of this option ensures good uptake.	This option is likely to be more strongly opposed by some stakeholders, particularly due to GHG targets being set, and is likely to be seen as increasing reporting burdens. The issue of streamlined guidance for SME's would need special attention to minimise reporting costs. Alignment with existing EC and MS policy measures would need to be carefully considered. The process for GHG target setting may be complex.

Policy Scenario	Summary of unique features and key strengths	Summary of key limitations and areas for development
8. Revision of Existing EC Legislation to Expand GHG Reporting Coverage	This option involves the modification of existing Directives/Regulations (e.g. IPPC/IED and the Accounting Directive) to provides an EC-wide mandatory basis for a common standard on GHG measurement and reporting. It may also include an element of GHG target setting. It strengthens the reputational drivers and helps to reduce competitive distortions. The mandatory basis of this option ensures good uptake (within the sectors covered by the modified legislation).	This option is likely to be more strongly opposed by some stakeholders, particularly due to GHG targets being set, and is likely to be seen as increasing reporting burdens. The issue of streamlined guidance for SME's would need special attention to minimise reporting costs. Alignment with existing EC and MS policy measures would need to be carefully considered. The process for modification of existing Directives/Regulations may be complex. Costs may be reduced due to harmonisation. Benefits are good but are not maximised since existing legislation does not focus on GHGs and may be difficult to adapt.

6.6 Observations from the Assessment of Future Policy Scenarios

Based on the above assessment of the eight policy scenarios against the criteria, the following observations can be made:

- ***1. Basis and Coverage***

- The BAU scenario, with its multiplicity of reporting methods and public disclosure initiatives allows coverage of a wide range of sectors, company sizes, business operations and geographies. Companies can choose which measurement methods to apply (e.g. WBCSD/WRI GHG Protocol; Bilan Carbone; DEFRA guidelines) and which voluntary public reporting schemes to participate in (e.g. CDP; Climate Registry; GRI). Two existing mandatory schemes (EU ETS and UK CRC) are targeted at specific sectors and company sizes (CRC covers UK operations only).
- Under BAU there is likely to be a gradual improvement in uptake over time, including by SMEs under supply chain initiatives. Methodology and initiative owners are also likely to refine their guidance and standards over time. However, maximum coverage and uptake is not ensured due to the voluntary nature of the BAU scenario.
- Policy scenarios 2 to 4 involving a new EC Recommendation on company GHG measurement and reporting may help to ensure increased uptake through harmonisation of standards. However, the lack of incentives and voluntary nature of these scenarios may limit the maximum coverage of sectors and company sizes (low uptake is a risk).
- Policy scenarios 5 to 7 involving a new EC Directive or Regulation on company GHG measurement and reporting will ensure increased uptake through harmonisation of standards and mandatory participation for target sectors. However, there may be trade-offs between maximising coverage (via sector-specific guidance) and streamlining of standards (to ensure ease of use).
- Scenarios 4 and 7 add in specific requirements for companies to set GHG emission reduction targets and monitor/report progress. This specific feature is an important extension of GHG reporting requirements which is covered by few schemes under BAU. This extension of coverage may be seen positively by some stakeholders and negatively by others (particularly under mandatory scenario 7).

- Policy scenario 8 involving modifications to existing EC legislation on company GHG measurement and reporting will ensure increased uptake through harmonisation of standards and mandatory participation. However, the complexity of modifying legislation which is not GHG focused may limit the eventual coverage of sectors and company sizes under this scenario.

➢ ***2. Ability to Meet Needs***

- The BAU scenario provides limited scope for setting minimum GHG measurement and reporting standards. Compatibility between methods and comparability of company results is not ensured. Links with the regulation, cost and innovation drivers for GHG management are not maximised although the BAU schemes clearly do facilitate the achievement of GHG emission reductions. Overall, GHG emission reductions are not maximised across the economy under BAU.
- Policy scenarios 2 to 4 involving a new EC Recommendation on company GHG measurement and reporting help to meet needs through the setting of minimum standards. However, a multiplicity of standards may still remain in use as implementation is voluntary.
- Policy scenarios 5 to 8 involving a new or revised EC Directive or Regulation on company GHG measurement and reporting will ensure minimum standards are met due to mandatory uptake. However, GHG reductions are unlikely to be maximised unless the policy sets GHG targets and requires public disclosure of performance.

➢ ***3. Links with Existing Measures***

- The BAU scenario provides limited direct links with EU and MS climate change policies, although there is some alignment with the overall objective of reducing economy wide GHG emissions. There are significant differences between existing methods and initiatives (although most do refer back to the principles of the WBCSD/WRI GHG Protocol) meaning that companies have to respond to multiple reporting requirements.
- Policy scenarios 2 to 4 involving a new EC Recommendation on company GHG measurement and reporting may improve the links with EC and MS policies by drawing upon best practices and harmonising standards to meet policy objectives. These scenarios will help to align existing methodologies and initiatives, although uptake will be voluntary. They may also align with the EMAS Regulation on environmental reporting.
- Policy scenarios 5 to 7 involving a new or EC Directive or Regulation will improve the links with EC and MS policies by drawing upon best practices and harmonising standards to meet policy objectives. These scenarios will also help to align existing methodologies and initiatives as uptake will be mandatory. However, there may be significant complexity in achieving alignment in practice whilst minimising reporting burdens.
- Policy scenario 8 involving modifications to existing EC legislation on company GHG measurement and reporting may help to align various environmental reporting requirements. However, the complexity of modifying existing legislation to incorporate GHG reporting may limit the feasibility of this option.

➢ ***4. Risks and Costs***

- The BAU scenario does not minimise the risks and costs of GHG reporting for stakeholders overall. In particular, there is uncertainty for companies in

which standards to use and how to apply them. Costs for responding to multiple standards are not minimised. Investors, policy makers and other stakeholders who rely on GHG reports also face risks due to lack of comparability between GHG reports under BAU.

- Policy scenarios 2 to 4 involving a new EC Recommendation on company GHG measurement and reporting may reduce the risks and costs for stakeholders by streamlining the multiplicity of standards in current use. However, there is a risk of low uptake under these voluntary options and a lack of GHG target setting may lead to higher long-term costs in tackling climate change (i.e. impact of delayed action on GHG abatement [12]).
- Policy scenarios 5 to 7 involving a new or EC Directive or Regulation reduce the risks and costs for stakeholders by streamlining the multiplicity of standards in current use.
- Policy scenario 8 involving modifications to existing EC legislation on company GHG measurement and reporting may help to reduce costs by aligning various environmental reporting requirements. However, the risks involved in modifying complex existing legislation (e.g. the IPPC/IED Directives) may limit the feasibility of this option.

➢ ***5. Benefits***

➢ The BAU scenario does not maximise the benefits of GHG reporting for stakeholders overall. In particular, the potential cost savings from achieving GHG reduction targets (e.g. energy cost savings) and the reputation and innovation benefits (e.g. arising from league tables which have wide participation across Member States, sectors and SMEs) are not fully realised.

➢ Policy scenarios 2 to 4 involving a new EC Recommendation on company GHG measurement and reporting may help to maximise the benefits for stakeholders by strengthening reputational and innovation drivers (through improved comparability under harmonised standards). However, there is a risk of low uptake under these voluntary options and a lack of GHG target setting means that cost benefits from GHG reductions may not be fully realised.

➢ Policy scenarios 5 to 8 involving a new or revised EC Directive or Regulation maximise the benefits for stakeholders by strengthening reputational and innovation drivers (through improved comparability under harmonised standards). To maximise the benefits, GHG target setting must be included, such that companies are required to make GHG reductions beyond BAU.

➢ Each of the policy scenarios has the potential to be designed to reduce burdens associated with GHG reporting and GHG reduction measures. This would involve development of easy-to-use GHG reporting tools and streamlined guidance to help reduce GHG measurement and reporting burdens.

It is suggested that this initial assessment should be refined and updated by the EC as the policy scenarios are further developed.

[12] For example, see the Stern Review (2006) which concludes that the benefits of strong, early action on climate change outweigh the costs (see http://www.hm-treasury.gov.uk/sternreview_index.htm).

6.7 Gap Analysis for Development of Policy Options

From the above assessment of policy scenarios it is clear that further more detailed work would be required (beyond the scope of this study) to provide a robust basis for any final decision-making regarding the relative strengths and weakness of each policy option.

A key issue is to identify how well existing GHG reporting methods and initiatives align with each policy scenario, how they might be adapted and what gaps remain. In section 4 of this report, a number of major methods and initiatives were shortlisted and assessed in detail, as follows:

- Carbon Disclosure Project (CDP)
- WBCSD/WRI GHG Protocol Corporate and Scope 3 Standards
- ISO 14064: 2006 (Parts 1 and 3)
- French Bilan Carbone
- UK Carbon Reduction Commitment (CRC)
- DEFRA Company GHG Guidance
- US EPA Climate Leaders Inventory Guidance
- US GHG Protocol Public Sector Standard

Using evidence from Phases I to III of the study, the relevance of each shortlisted method/initiative to the policy scenarios can be assessed at a high level. The initial assessment, shown in Table 6.9 indicates how well aligned the methods/initiatives are to each policy on a simple 'Low-Medium-High' scale. This preliminary assessment indicates that:

- For reference, the BAU scenario is evaluated in terms of how successful each method/initiative is (relatively) in the current European company GHG reporting arena in terms of uptake amongst target sectors, recognition by stakeholders and ability to provide a basis for GHG emissions reductions.
- Existing methods/initiatives have some alignment with policy scenarios 2 and 3. This is because standards such as the WBCSD/WRI GHG Protocol and the CDP reporting platform provide a good basis for a new (voluntary) EC Recommendation on GHG reporting provided that some modifications are made.
- None of the methods/initiatives have high alignment with policy scenarios 4-8. This is because standards such as the WBCSD/WRI GHG Protocol would require significant modification to form the basis of a new (mandatory) EC Directive/Regulation on GHG reporting, particularly with regard to GHG target setting (policy scenario 7).
- Mandatory schemes such as the UK CRC do not appear to provide high alignment with the policy scenarios 2 to 8 since their basis and scope are considerably different (e.g. exclusion of SME's, differences in sectors covered). However, under policy scenario 8 there is scope to modify existing EC policies to ensure alignment with mandatory GHG reporting schemes such as the UK CRC.

- Public sector standards do not appear to provide a strong basis for the policy scenarios as they are not focused on company GHG reporting.
- For each policy scenario there is no one single method or initiative which aligns perfectly well with the policy scenario needs.
- It is therefore important to recognise the strengths and gaps of the existing methods and initiatives and to draw upon a combination of best practices to develop each policy scenario further.

There remain a number of areas of uncertainty, gaps in available data and areas for further research arising from assessment of the policy options. These include:

- Further detailed work is required to fully assess how well existing methods and initiatives align with these policy options and identify the adaptations that may be required;
- More robust data on the uptake and GHG emissions savings arising from existing methods/initiatives is required;
- Further data is needed on the risks and costs of GHG reporting;
- Further data is needed on the benefits of GHG reporting;
- There is some uncertainty as to the feasibility and complexity involved in the modification of existing EC Directives/Regulations (such as the IED and Accounting Directive) to incorporate GHG reporting (policy scenario 8);
- The level of stakeholder support for each policy scenario requires further assessment, including feedback on the practicality (technical, legal, economic) of each option;
- Learning from the development of policy measures in other environmental areas and world regions must be incorporated into any decision-making process on GHG reporting options;
- Further sub-options under each policy scenario must be identified and examined; and,
- A full and detailed cost-benefit analysis of the options will be required to support decision-making.

To allow fully informed decision-making regarding possible future policy measures for company GHG reporting, it is recommended that the EC conduct further work (outside the scope of this study) to address these gaps in due course. Overall it is clear that significant EC and stakeholder resources would be required to develop and implement a chosen policy measure. The scale and complexity of introducing new measures for company GHG reporting must not be under-estimated. The need for action must be recognised and is underlined by the failures (legal, technical and economic) that are apparent in the BAU scenario.

Table 6.9 Relevance of Shortlisted GHG Reporting Methods/Initiatives to Development of European Policy Scenarios

Method/Initiative Policy Scenario	CDP	GHG Protocol Corporate and Scope 3	ISO 14064	Bilan Carbone	UK CRC	DEFRA Guidance	US EPA Leadership Index	US Public Sector Standard
1. Business as Usual (baseline)	**High -** CDP is a major BAU scheme	**High -** the GHG Protocol is a major BAU scheme	**High** - ISO14064 is a major BAU scheme	**High** - Bilane Carbone is a major BAU scheme	**High -** the CRC is a major BAU scheme in the UK	**High -** the DEFRA guidance is a major BAU method which simplifies reporting guidance	**Medium** - whilst a major BAU scheme, this is focused on US based companies	**Low -** the scheme focuses on the public sector and is not easily adapted to the private sector
2. New EC Recommendation on Voluntary GHG Measurement	**Medium -** elements of the CDP (e.g. scope 1, 2 and 3 questions) may support this policy option	**High -** the GHG Protocol could provide a framework for this policy option	**Medium** - elements of ISO14064 (e.g. independent verification) may support this policy option	**Medium -** elements of the Bilan Carbone guidance (e.g. EFs, scope 3 coverage) may be adapted for this policy option	**Medium -** the UK CRC has some elements (e.g. leadership index) which could be utilised in this policy scenario	**High -** the DEFRA guidance is a major BAU method which simplifies reporting guidance	**Medium -** the USEPA leadership index has some best practice elements which support this policy option	**Low -** the scheme focuses on the public sector and is not easily adapted to the private sector
3. New EC Recommendation on Voluntary GHG Public Reporting	**High** - the CDP provides a strong platform for voluntary public reporting	**Medium -** the GHG Protocol could provide a framework for this policy option but does not cover disclosure in detail	**Medium** - elements of ISO14064 (e.g. independent verification) may support this policy option	**Medium** - elements of the Bilan Carbone guidance (e.g. EFs, scope 3 coverage) may be adapted for this policy option	**Medium -** the UK CRC has some elements (e.g. leadership index) which could be utilised in this policy scenario	**High -** the DEFRA guidance is a major BAU method which simplifies reporting guidance	**Medium -** the USEPA leadership index has some best practice elements which support this policy option	**Low -** the scheme focuses on the public sector and is not easily adapted to the private sector
4. New EC Recommendation on Voluntary GHG Public Reporting & Emissions Reductions	**Medium -** elements of the CDP (e.g. reporting platform) may support this policy option but guidance on target setting is limited	**Medium -** the GHG Protocol could provide a framework for this policy option but does not cover target setting in detail	**Medium** - elements of ISO14064 (e.g. independent verification) may support this policy option	**Medium -** elements of the Bilan Carbone guidance (e.g. EFs, scope 3 coverage) may be adapted for this policy option	**Medium -** the UK CRC has some elements (e.g. leadership index) which could be utilised in this policy scenario	**Medium –** the DEFRA guidance is a major BAU method which simplifies reporting guidance but does not cover target setting in detail	**Medium -** the USEPA leadership index has some best practice elements which support this policy option	**Low -** the scheme focuses on the public sector and is not easily adapted to the private sector
5. New EC Directive/Regulation on Mandatory GHG Measurement	**Medium -** elements of the CDP (e.g. scope 1, 2 and 3 questions) may support this policy option	**Medium –** elements of the GHG Protocol could provide a framework for this policy option	**Medium** - elements of ISO14064 (e.g. independent verification) may support this policy option	**Medium -** elements of the Bilan Carbone guidance (e.g. EFs, scope 3 coverage) may be adapted for this policy option	**Medium -** the UK CRC has some elements (e.g. leadership index) which could be utilised in this policy scenario	**Medium –** elements of the DEFRA guidance (e.g. standard EFs) may be adapted for this policy option	**Medium -** the USEPA leadership index has some best practice elements which support this policy option	**Low -** the scheme focuses on the public sector and is not easily adapted to the private sector
6. New EC Directive/Regulation on Mandatory GHG Public Reporting	**Medium -** elements of the CDP (e.g. reporting platform) may support this policy option	**Medium -** elements of the GHG Protocol could provide a framework for this policy option	**Medium** - elements of ISO14064 (e.g. independent verification) may support this policy option	**Medium -** elements of the Bilan Carbone guidance (e.g. EFs, scope 3 coverage) may be adapted for this policy option	**Medium -** the UK CRC has some elements (e.g. leadership index) which could be utilised in this policy scenario	**Medium** - elements of the DEFRA guidance (e.g. standard EFs) may be adapted for this policy option	**Medium -** the USEPA leadership index has some best practice elements which support this policy option	**Low -** the scheme focuses on the public sector and is not easily adapted to the private sector
7. New EC Directive/Regulation on Mandatory GHG Public Reporting & Emissions Reductions	**Medium -** elements of the CDP (e.g. reporting platform) may support this policy option	**Medium -** elements of the GHG Protocol could provide a framework for this policy option	**Medium** - elements of ISO14064 (e.g. independent verification) may support this policy	**Medium -** elements of the Bilan Carbone guidance (e.g. EFs, scope 3 coverage) may be adapted for	**Medium -** the UK CRC has some elements (e.g. leadership index) which could be utilised in this policy	**Medium** - elements of the DEFRA guidance (e.g. standard EFs) may be adapted for this	**Medium -** the USEPA leadership index has some best practice elements which support this policy	**Low -** the scheme focuses on the public sector and is not easily adapted to the private sector

Method/Initiative Policy Scenario	CDP	GHG Protocol Corporate and Scope 3	ISO 14064	Bilan Carbone	UK CRC	DEFRA Guidance	US EPA Leadership Index	US Public Sector Standard
			option	this policy option	scenario	policy option	option	
8. Revision of Existing EC Legislation to Expand GHG Reporting Coverage	**Medium -** elements of the CDP (e.g. reporting platform) may support this policy option	**Medium -** elements of the GHG Protocol could provide a framework for this policy option	**Medium** - elements of ISO14064 (e.g. independent verification) may support this policy option	**Medium -** elements of the Bilan Carbone guidance (e.g. EFs, scope 3 coverage) may be adapted for this policy option	**Medium -** the UK CRC has some elements (e.g. leadership index) which could be utilised in this policy scenario	**Medium -** elements of the DEFRA guidance (e.g. standard EFs) may be adapted for this policy option	**Medium -** the USEPA leadership index has some best practice elements which support this policy option	**Low -** the scheme focuses on the public sector and is not easily adapted to the private sector

6.8 Stakeholder Workshop Outputs

The draft final study report was submitted to over 100 stakeholders for comment during July 2010 and these stakeholders were also invited to a half-day workshop. The Stakeholder Workshop was held on the 8th July 2010 at the EC's office in Brussels. Over 50 stakeholders attended the event including: representatives from private companies; methodology & initiative owners; NGOs; and government/ Member State representatives. The purpose of the event was to disseminate the draft findings of the study into company GHG reporting and allow stakeholders to provide comment/feedback on the key issues raised. In addition, a total of 16 stakeholder organisations submitted comments/feedback in writing during July 2010.

A summary of the feedback from the group discussions held at the Stakeholder Workshop is given in Appendix F. Stakeholder feedback on the draft final report which was received in writing during July 2010 is summarised in Appendix G. This feedback has been incorporated into the report where relevant whilst ensuring that the analysis remains evidence-based and un-biased.

The key messages/themes from the stakeholders feedback and comments as follows:

- There is general support for harmonisation of company GHG reporting standards by building upon existing best practices.
- There are some reservations regarding how harmonisation in Europe can be achieved in practice whilst ensuring that the needs of multinationals, individual sectors and SMEs are met.
- There was recognition that existing leading methods (e.g. the WBCSD/WRI GHG Protocol) might form the foundation for any new harmonised standard which would clarify the 'grey areas' and reduce the options available to ensure comparability.
- There was some skepticism regarding the voluntary and mandatory policy options and how they could be designed to avoid additional reporting burdens for companies who also operate outside the EU-27.
- There is a perceived need for the EC to clarify its coordination role in company GHG reporting and set out a road map with clear milestones.

This feedback may be used to help inform the further development and refinement of possible future policy scenarios for company GHG reporting.

6.9 Summary of Phase III - Analysis of Analysis of Possible Future Policy Scenarios

Phase III of the study has focused on the development and assessment of a range of possible future policy scenarios for company GHG reporting. Phase III of the study can be summarised as follows:

- The important link between GHG measurement and reporting and the wider GHG management cycle has been reviewed. Leading GHG reporting methods and initiatives enable companies to connect to the drivers for emissions reduction (i.e. cost, regulation, reputation and innovation).
- The key factors to consider in developing possible future policy options for GHG measurement and reporting have been identified.
- It is important to consider policy scenarios also from the point of view of the objective for which the Commission might intervene.
- A total of 8 possible future policy scenarios, ranging from 'business as usual' through to 'voluntary support measures' and 'mandatory frameworks' have been set out at the high level.
- Each of these scenarios has been assessed against a range of criteria, enabling an assessment of their strengths and limitations.
- There remain a number of areas of uncertainty, gaps in available data and areas for further research arising from assessment of the policy options.
- It is apparent that the BAU scenario (i.e. the continued multiplicity of voluntary GHG measurement and reporting schemes) does not score highly against several of the criteria. However, the leading methods and initiatives demonstrate best practice in key areas and any future European policy scenario must build upon this strong foundation.
- It is apparent that no one policy option scores highly against all of the criteria and that each option has a number of strengths and limitations.
- There may also be alternative policy options which would address the overall objective of reducing GHG emissions across the economy (such as carbon taxation and energy efficiency agreements) but these are outside the scope of this study.
- Further development and assessment of the options (outside the scope of this study) would be required to help ensure fully informed decision-making. This would allow refinement of the policy options and sub-options taking into account legal counsel, economic impact assessments and expert technical-policy advice.
- This assessment, together with feedback from the Stakeholder Workshop, will inform the study's conclusions and recommendations.

7. Conclusions and Recommendations

7.1 Phase I Conclusions - Analysis of Methodologies and Initiatives

Based on the evidence that has been collected and analysed during Phase I of the study, the key conclusions are as follows:

- Features of the EU ETS and other mandatory and voluntary reporting and trading schemes are considered on a level basis in this study to avoid any bias in the analysis of leading methods and initiatives. This ensures that the full range of best practices for GHG reporting can be captured.
- A total over 80 company GHG reporting methods and initiatives were identified as being currently in use globally, many being sector-specific adaptations of other methods.
- A total of 30 'major' GHG reporting methods and initiatives have been identified as being in common use in Europe and globally. These have been reviewed against a number of key features to understand their commonalities and differences. A representative shortlist of 9 leading methods and initiatives has been assessed in further detail against a set of criteria.
- The assessment has enabled an analysis of the features, strengths, weaknesses and fields of application of leading methods and initiatives which informs Phase II (Analysis of risks and benefits) and Phase III (Analysis of scenarios of application) of the study.
- Companies, investors, policy makers and other stakeholders may face a number of problems when using and comparing the multiplicity of company GHG reporting methods and initiatives in current use. In general, there is a failure to set minimum standards and the major schemes lack compatibility (between themselves and EU and MS policies) and comparability (between company reports). In particular current guidance on setting of reporting boundaries, choice of emission factors, treatment of offsets/renewables and inclusion of Scope 3 emissions is typically open to a wide degree of interpretation by the user (see Section 3.3 of this report). Most standards recommend independent assurance/verification of GHG reports but do not require this and do not clearly define materiality thresholds. However, around half of the major schemes do refer back to the principles of the WBCSD/WRI GHG Reporting Protocol, providing some consistency.
- Whilst the general protocols set out the overall principles of GHG reporting (in terms of setting boundaries, selecting emission factors, calculating emissions, verification/assurance, etc.) the guidance is not specific enough to meet the needs of some sectors. Therefore a number of sector-specific standards have been developed by tailoring the general protocols to meet sector needs (e.g. the API/IPIECA GHG Compendium covers boundary issues, emission sources and emission factors which are unique to the Oil and Gas sector).
- Particular issues of variability in application by users of the leading standards are:

- choice of electricity emission factors for imported electricity (i.e. grid average, regional or supplier specific);
- treatment of sub-contracted activities, franchises, leased assets, renewables, land-use and carbon offsets varies considerably (i.e. included or excluded and choice of emission factors);
- coverage of Scope 3 emissions reporting (e.g. business travel, waste and product related emissions, etc.); and,
- updating of baselines and emission factors (i.e. when and how to do this on a consistent and transparent basis).

It is noted that leading methodology and initiative owners are currently addressing the issue of additional measurement and reporting guidance for Scope 3 emissions (e.g. the WBCSD/WRI and CDP Product and Supply Chain Initiatives).

- There are few methods and initiatives which include streamlined guidance for SMEs. The general protocols and reporting schemes (e.g. WBCSD/WRI GHG Protocol; Bilan Carbone; CDP) tend to be targeted at large companies and are overly complex and resource intensive for SMEs to apply. To address this concern, some methodology and initiative owners have recently developed SME tailored guidance (e.g. CDP; DEFRA).
- Only a few of the major methods and initiatives link GHG reporting to target setting (e.g. UK CRC league table; CDP leadership index) and most do not require information on GHG reduction measures or company GHG policy and GHG management systems. In terms of the overall policy objectives to minimise economy wide GHG emissions this is a clear gap to be addressed in future.
- Each existing method and initiative has a number of strengths and weaknesses. It may be possible to draw upon a combination of best practice elements from leading existing methods in formulating any new/revised European company GHG reporting standards.

7.2 Phase II Conclusions - Analysis of Risks and Benefits

A range of data sources on company GHG reporting risks, costs and benefits have been drawn upon including: telephone interviews with a range of private sector companies; questionnaire survey of methodology and initiative owners; examination of company websites and public reports; review of literature from key international sources; and, ERM expert inputs. Based on the evidence that has been collected and analysed during Phase II of the study, the key conclusions are as follows:

➢ **Risks and Costs of GHG Reporting**

- A number of risks and costs were identified that are relevant to companies, policy makers, investors and other stakeholders. A limited amount of useful quantitative data on costs was found to be available. Several barriers to uptake of GHG methodologies have been identified. These barriers range

from lack of understanding of reporting standards through to cost considerations and lack of resources.

- A number of risks arising from failure to disclosure GHG emissions are repeatedly quoted such as: profit exposure; market value at risk; brand value at risk; stakeholder reputational risk; insurance/credit rating risks; and, investor relationships. There appears to be increasing recognition of the risks on non-disclosure, although the pressure on SMEs is significantly less than for larger companies.
- There is a very wide range of private sector costs quoted for GHG reporting ranging from €1,000 per annum (for a small company in the UK CRC) to €800,000 per annum (FTSE500 company highest cost quoted in CDP5 responses). In addition, verification and voluntary assurance costs per company range from €5,000 to €500,000 per annum, although the top figure seems to be excessively high and is not well referenced.
- The USEPA GHG Reporting Rule Impact Assessment estimates annual public sector costs of €1,300 per entity regulated. This cost estimate appears to be low when compared to the costs of other schemes (although the level of verification required is much lower).
- There is evidence that the costs of GHG reporting are not linearly related to the size of the company or the magnitude of GHG emissions, although larger and more complex organisations will typically have higher reporting costs than small companies with few emission sources.
- Most cost estimates fail to fully account for company staff and management time and consultant costs to prepare and sign-off GHG reports. It is often difficult to separate out GHG reporting costs from wider environmental reporting costs. Overall, little detailed work has been done by stakeholders to quantify the costs of GHG reporting. To be useful, cost data needs to be split by reporting scheme type, company size and sector, including a breakdown of the total costs by task (e.g. data collection, reporting, assurance).

➢ **Benefits of GHG Reporting**

- Several of the benefits of GHG reporting arise from addressing the risks related to non-disclosure. These include reduced profit exposure; enhanced market value; increased brand value; improved stakeholder/customer reputation; reduced insurance premiums, and, improved credit ratings.
- Alignment of company GHG reporting with the leading methodologies allows companies to understand their GHG impacts and brings credibility to published results. The benefits of GHG reporting appear to vary according to the size of the company, sector and reporting scheme concerned (and are linked to the company's overall stance of the importance of tackling climate change issues). Benefits for SMEs appear to be of a lower order of magnitude than for larger companies, although further research is needed in this area.
- Based on feedback both from companies and methodology owners, GHG reporting is seen as a crucial first step in achieving benefits from GHG management processes. This first step allows companies to set meaningful internal GHG targets and demonstrate progress to stakeholders. Large-scale

reduction in GHG emissions is often driven by mandatory schemes but leading voluntary schemes have also demonstrated significant progress on GHG abatement.

- In relation to harmonisation, stakeholders identify but do not quantify the benefits of streamlined reporting processes, standard reporting platforms and benchmarking.
- It is noted that the assessment is not comprehensive but is intended to give an overview of the range of data available. In particular the cost data on mandatory schemes such as the EU ETS should be treated with caution when comparing with the costs of voluntary schemes since the scope and purpose of the schemes may be entirely different and the scope of data examined is limited.
- There is limited data available to quantify the benefits of GHG reporting in monetary terms. Some anecdotal evidence is available on potential energy savings and market value gains. One study conservatively estimated that participation in the CDP created €2.1 billion of added market value for the participants (an increase of 0.005%). However, there appears to be no one concise and robust 'business case' template for GHG reporting that can be used to gain senior management buy-in.
- Research has indicated that the costs of GHG reporting are not linearly related to size of company or magnitude of emissions. It appears that smaller companies, particularly those in non-energy intensive sectors, generally have less 'significant' emissions and the benefits of GHG reporting are often lower for SMEs than for larger companies (e.g. reputational benefits are less tangible). It is concluded that the balance of risks, costs and benefits of GHG reporting may depend strongly upon the size of the company, the sector and the relative magnitude of emissions.
- Assessment of benefits is an area requiring further work by methodology and initiative owners (wishing to promote their schemes), companies (wishing to develop a business case for GHG reporting) and policy makers (wishing to assess cost-effectiveness of different polices).

7.3 Phase III Conclusions - Analysis of Possible Future Policy Scenarios

Based on the evidence that has been collected and analysed during Phase III of the study, the key conclusions are as follows:

- It is clear that any possible future policy scenario must be complementary to the EU ETS. The EU ETS remains the primary policy instrument to reduce industrial CO_2 emissions in Europe. The EU ETS scheme rules and the associated Monitoring, Reporting and Verification guidance provide an important reference or baseline for this study. However, the EU ETS covers approximately 40% of EU-27 GHG emissions (being expanded to around 43% coverage in Phase III) and so the policy options must focus on reporting of

the remaining non-EU ETS GHG emissions (and also non-CO_2 GHG emissions from EU ETS covered installations).

- There is an important link between GHG measurement and reporting and the wider GHG management cycle. Leading GHG reporting methods and initiatives enable companies to connect to the drivers for emissions reduction (i.e. cost, regulation, reputation and innovation).
- A number of key factors to consider in developing possible future policy options for GHG measurement and reporting have been identified. It is important to consider policy scenarios from the point of view of the various stakeholders groups (e.g. companies, investors, NGOs, policy makers and customers) bearing in mind the objective for which the Commission might intervene (i.e. to achieve economy wide GHG emission reductions beyond business as usual).
- A total of 8 possible future policy scenarios, ranging from 'business as usual (BAU)' through to 'voluntary support measures' and 'mandatory frameworks' have been set out at the high level. Each of these scenarios has been assessed against a range of criteria, enabling an assessment of their strengths and limitations.
- It is apparent that the BAU scenario (i.e. the continued multiplicity of voluntary GHG measurement and reporting schemes) does not score highly against several of the criteria. However, the leading methods and initiatives demonstrate best practice in key areas and any future European policy scenario must build upon this strong foundation.
- It is apparent that no one policy option scores highly against all of the criteria and that each option has a number of strengths and limitations. There remain a number of areas of uncertainty, gaps in available data and areas for further research arising from assessment of the policy options. However, there are some key messages emerging from the analysis:
    - There is a significant risk of low uptake with any new voluntary European scheme. Whilst existing leading schemes have achieved good uptake in their target sectors (e.g. WBCSD/WRI GHG Protocol; CDP), their coverage is not economy-wide. To maximise participation rates, ensure a level playing field, minimise risks and maximise benefits, a mandatory approach may be required.
    - To ensure that the overall policy goal of maximising economy-wide GHG reductions is met, any new scheme must include strong measures aimed at setting company GHG reduction targets (measurement and reporting alone is not enough).
    - Further assessments would be required to fully understand the balance of risks and benefits for each policy option and the potential implications for various sectors and company sizes.
    - There is a possible risk of increased reporting burdens. Each of the policy scenarios has the potential to avert this risk. This would involve development of easy-to-use GHG reporting tools and streamlined guidance to help reduce GHG measurement and reporting burdens. However, it needs to be considered that there is

likely to be a trade-off between the robustness/accuracy of the GHG reporting method and its ease of use.

- Focusing on GHG reporting and mitigation might entail ignoring other environmental impacts (e.g. using biofuels to reduce emissions, without considering land use issues). On the other hand, reporting and managing GHG emissions might also have positive spillover effects on dealing with other environmental aspects in a company. No literature was identified to assess this issue. An analysis of implementation scenarios would be necessary, which goes beyond the scope of the current study. In case there is a risk of trade-offs between GHG reduction objectives and other environmental objectives, the application of sustainability criteria and life-cycle analysis can contribute to mitigate it.

- Each of the policy scenarios has the potential to be designed to reduce reporting burdens. This would involve development of easy-to-use GHG reporting tools and streamlined guidance to help reduce GHG measurement and reporting burdens.
- There may also be alternative policy options which would address the overall objective of reducing GHG emissions across the economy (such as carbon taxation and energy efficiency agreements) but these are outside the scope of this study.
- Further development and assessment of the policy options (outside the scope of this study) would be required to help ensure fully informed decision-making. This would allow refinement of the policy options and sub-options taking into account legal counsel, economic impact assessments and expert technical-policy advice.

7.4 Recommendations for Further Work

Based on the evidence that has been collected and analysed during Phases I-III of the study, the recommendations for further work (which are outside the scope of this study) are as follows:

- To further canvass stakeholder opinion on the relative strengths and limitations of the various policy options for company GHG reporting.
- To conduct further research to monetise the costs and benefits of company GHG reporting under each policy scenario (i.e. perform a detailed cost-benefit analysis).
- To further examine and refine the policy options and sub-options taking into account technical, economic and legal expert advice.
- To further examine the links between company GHG reporting and GHG emission reduction (for various sectors and company sizes) to help ensure that any future policy measure maximises the potential GHG savings across the economy.
- To study the hypothetical risk of trade-offs between climate change and other environmental objectives and of positive spillover effects of GHG reporting

and management on other environmental aspects through implementation scenarios.

- To conduct further stakeholder workshops and establish working groups to draft harmonised European company GHG reporting standards which draw upon the best practices of the current leading methodologies and initiatives.
- To allocate the required level of budgets and resources (which may be significant and on a scale equivalent to those required for the EU ETS development) and develop a detailed programme of work to address these areas, recognising that harmonisation of GHG reporting standards is likely to be a complex and iterative process involving a wide range of stakeholders over a period of several years.

Glossary

CCAR	California Climate Action Registry
CCS	Carbon Capture and Storage
CDM	Clean Development Mechanism (a Kyoto mechanism)
CDP	Carbon Disclosure Project
CH_4	Methane
CHP	Combined Heat and Power
CO_2	Carbon Dioxide
CRC	Carbon Reduction Commitment (UK)
CSR/CR	Corporate Social Responsibility or Corporate Responsibility
DEFRA	UK Department for Environment, Food and Rural Affairs
EC	European Commission
EMS	Environmental Management System (e.g. ISO 14001)
ETS	Emissions Trading Scheme
GHG	Greenhouse Gas
GRI	Global Reporting Initiative
GWP	Global Warming Potential (relative to CO_2)
HFC	Hydrofluorocarbon
IPCC	Intergovernmental Panel on Climate Change
IPPC	Integrated Pollution Prevention and Control
JI	Joint Implementation (a Kyoto mechanism)
KPI	Key Performance Indicator
LULUCF	Land Use, Land Use Change and Forestry
MRV	Monitoring, Reporting and Verification
N_2O	Nitrous Oxide
NAP	National Allocation Plan
PFC	Perfluorocarbon
RGGI	Regional Greenhouse Gas Initiative (US)
RIA	Regulatory Impact Assessment
ROC	Renewable Obligation Certificate
SF_6	Sulphur Hexafluoride
tCO_2e	Metric tonnes of CO_2 equivalent
UNFCCC	United Nations Framework Convention on Climate Change
UNEP	United Nations Environment Programme
USEPA	US Environmental Protection Agency
WBCSD	World Business Council for Sustainable Development
WRI	World Resources Institute

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Annex A – List of Additional GHG Reporting Methods and Initiatives Identified

No.	Method/Initiative Title	Justification to exclude from 'Major' list
31	World Bank methodologies for CDM projects	Project-specific emissions methodologies
32	IFC Carbon Emissions Estimator Tool	Project-specific emissions methodology
33	UK Regional Development Agency Carbon Assessment Tool	Project-specific emissions methodology
34	Corporate Register	Covers range of sustainability reporting, not GHG-specific
35	UNEP GHG Indicator Method	Similar to WBCSD/WRI GHG Protocol
36	UNEP/World Bank GHG Standard for Cities	Focus on cities, similar to IEAP and WRI/WBCSD initiatives
37	EBRD GHG Assessment Method	Similar to WBCSD/WRI GHG Protocol
38	UK Local Government Association Nottingham Declaration	An action plan rather than a reporting method/initiative
39	CAC40, DAX, NYSE and FTSE Disclosure Rules	Focus on CC financial risk aspects
40	UK Sustainable Development Commission Guidance	Adaptation of WBCSD/WRI GHG Protocol
41	UK Voluntary Emissions Trading Scheme	UK ETS ceased operation in 2006
42	BSI PAS 2050	Product footprint methodology
43	The Carbon Trust Footprint Company	Product footprint methodology
44	Int. Assoc. of Oil & Gas Producers (OGP) Protocol	Published in 1994, now withdrawn and being updated
45	New Zealand ETS	Similar to other emissions trading schemes
46	Swiss ETS	Similar to EUETS
47	CDM Executive Board methodologies	Project-specific emissions methodologies
48	IETA JI/CDM Validation and Verification Manuals	Project-specific methodologies
49	South African mandatory GHG reporting scheme	Similar to WBCSD/WRI GHG Protocol
50	Covenant of Mayors Climate Alliance	An action plan rather than a reporting method/initiative
51	Spanish MC3 calculation method	Academic paper, calculation based on land-use, limited uptake to date
52	US/Canada Western Climate Initiative (WCI)	Similar to US RGGI ETS
53	US Midwestern Greenhouse Gas Accord	Similar to US RGGI ETS
54	London Green500 Initiative	An action plan rather than a reporting method/initiative
55	ISO14067	Product footprint standard
56	Carbon Trust SME Guidance	Based on DFEFRA guidance
57	US EIA 1605(b) Program	Focus on power sector, superseded by USEPA GHG Rule
58	ACI Airport Carbon Accreditation Scheme	Based on ISO14064
59	German DEHSt Formular-Management-System (FMS)	MRV guidance for EUETS - not unique
60	German PCF project	Product footprint methodology
61	Öko-Institut GEMIS	Life-cycle GHG calculation tool
62	California Air Resources Board (CARB) for AB32	Similar to US RGGI ETS
63	IETA EU MRV Guidelines for New Sectors and Gases	Sector-specific, still in draft
64	Chinese Energy and GHG Management Program	Adaptation of WBCSD/WRI GHG Protocol
65	International Accounting Standards Board (IASB) guidance	Covers financial accounting of EU allowances only
66	Mexican GHG Program	Adaptation of WBCSD/WRI GHG Protocol
67	Philippines GHG Accounting and Reporting Program	Adaptation of WBCSD/WRI GHG Protocol
68	Brazilian GHG Protocol Program	Adaptation of WBCSD/WRI GHG Protocol
69	Indian GHG Inventory Program	Adaptation of WBCSD/WRI GHG Protocol
70	Korea National GHG Registry	Adaptation of WBCSD/WRI GHG Protocol
71	South Africa NBI/BUSA-DEAT Initiative	Adaptation of WBCSD/WRI GHG Protocol
72	WWF Climate Savers Program	An action plan rather than a reporting method/initiative
73	EMEP/CORINAIR EF Guidebook	Incorporated in IPPC EF guidance
74	Respect Europe Business Leaders CC Initiative	Similar to USEPA CC Leaders scheme
75	WEF Global GHG Registry	Web-based carbon disclosure platform similar to CDP
76	WBCSD CSI Protocol	Sector-specific, adaptation of WBCSD/WRI GHG Protocol
77	Int. Forum of Forest and Paper Associations Tool	Focus on forestry, project-specific
78	WBCSD/WRI Cross-Sectoral GHG Tools	Adaptation of WBCSD/WRI GHG Protocol
79	WBCSD/WRI Sector-specific GHG Tools	Adaptation of WBCSD/WRI GHG Protocol
80	WBCSD/WRI Product Life Cycle Standard	Product footprint methodology
81	International Aluminum Institute Protocol	Sector-specific, adaptation of WBCSD/WRI GHG Protocol
82	AP 6 Initiative Cement Sector Protocol	Sector-specific, adaptation of WBCSD/WRI GHG Protocol
83	WBCSD/WRI LULUCF Guidance	Project-specific emissions methodology
84	WBCSD/WRI Project Protocol	Project-specific emissions methodology
85	Voluntary offset provider tools	Project specific, often adaptations of WBCSD/WRI GHG Protocol
86	UK Act on CO2 calculator	Project specific, adaptation of WBCSD/WRI GHG Protocol
87	BP Target Neutral calculator	Project specific, adaptation of WBCSD/WRI GHG Protocol
88	EpE Protocol for Waste Management Activities	Sector-specific, adaptation of WBCSD/WRI GHG Protocol
89	Beverage Industry Sector Guidance for GHG Reporting	Sector-specific, adaptation of WBCSD/WRI GHG Protocol
90	UK DEFRA Offset Provider Code of Practice	Project specific, adaptation of WBCSD/WRI GHG Protocol

Annex B – Basis for Shortlisting of Methods and Initiatives for Detailed Assessment

No.	Method/Initiative Title	Shortlisted for Tasks 3 and 4?	Justification for inclusion/exclusion
1	Carbon Disclosure Project (CDP)	Yes	Voluntary; widely adopted
2	WBCSD/WRI GHG Protocol Corporate Standard	Yes	Voluntary; widely adopted; basis for other standards
3	IPCC 2006 GHG Workbook	No	Primarily a source of EF data
4	ISO 14064: 2006 (Parts 1 and 3)	Yes	Voluntary; verifiable international standard
5	French Bilan Carbone	Yes	Voluntary; widely recognised
6	US Regional Greenhouse Gas Initiative (RGGI)	No	Similar to EUETS
7	US Climate Registry (TCR) General Reporting Protocol	No	Similar to CDP and based on WRI/WBCSD Protocol
8	USEPA GHG Rule	No	Similar to DEFRA guidance
9	EU Emissions Trading Scheme (EUETS)	Yes	Mandatory; world-leading ETS scheme
10	US Securities and Exchange Commission (SEC) Guidance	No	Relies on other guidance
11	Climate Disclosure Standards Board (CDSB)	No	Relies on other guidance
12	Japanese Voluntary ETS (J-VETS)	No	Similar to EUETS but voluntary
13	Japanese GHG Reporting Scheme	No	Similar to other voluntary schemes
14	Australian Carbon Pollution Reduction Scheme (CPRS)	No	Similar to EUETS
15	Australian GHG and Energy Reporting (NGER) Scheme	No	Similar to other reporting schemes
16	Enterprise Carbon Accounting (ECA)	No	Not a unique method
17	UK DEFRA Guidelines	Yes	Widely recognised; sets minimum standards
18	UK Carbon Reduction Commitment (CRC)	Yes	Mandatory; incentives; covers smaller emitters
19	UK Climate Change Levy Agreement (CCLA)	No	Similar to other reporting schemes
20	Dutch Energy Covenant	No	Similar to other reporting schemes
21	Californian Climate Action Registry (CCAR)	No	Similar to other reporting schemes
22	International Local Government GHG Protocol (IEAP)	No	Similar to US public sector standard
23	Global Reporting Initiative (GRI)	No	Relies on other guidance
24	API/IPIECA GHG Compendium	No	Sector specific; adapted from existing methods
25	The Carbon Trust Standard (CTS)	No	Similar to other reporting schemes
26	US EPA Climate Leaders Inventory Guidance	Yes	Non-European; voluntary; sets targets
27	Environment Canada GHG Emissions Reporting Program	No	Similar to other reporting schemes
28	Chicago Climate Exchange (CCX)	No	Relies on other guidance
29	WBCSD/WRI GHG Protocol Scope 3 Reporting Standard	Yes	Voluntary; covers Scope 3 in detail
30	US GHG Protocol Public Sector Standard	Yes	Public sector; voluntary; adapted from existing methods

Annex C – Shortlist of Companies Selected for Interview

No.	Region/Country	Sector	Company Size	GHG Reporting Method/Initiatives Used
1	UK	Retail and Consumer Goods	Large National	WBCSD/WRI GHG Reporting Protocol, CRC,
2	UK	Raw Materials, Mining, Paper and Packaging	SME	Unknown
3	UK	Transport and Logistics or Business Services	SME	Unknown
4	UK	Public Sector (Transport and Logistics)	Large National	WBCSD/WRI GHG Reporting Protocol, CRC
5	France	Oil & Gas	Multinational	WBCSD/WRI GHG Reporting Protocol, API Methodology, EU ETS, Bilan Carbon
6	France	Transport and Logistics	Large National	WBCSD/WRI GHG Reporting Protocol, Bilan Carbon
7	France	Retail and Consumer Products	Multinational	CRC, WRI GHG Reporting Protocol, Bilan Carbon
8	Germany	Chemicals and Pharmaceuticals/ Manufacturing	Large National	EU ETS, WRI GHG Reporting Protocol
9	Germany	Raw Materials, Mining, Paper and Packaging	Large National	EU ETS, WRI GHG Reporting Protocol
10	N. Europe (Sweden)	Raw Materials, Mining, Paper and Packaging	Multinational	Unknown
11	S. Europe (Italy)	Construction and Building Products	Multinational	ISO 14064
12	S. Europe (Italy)	Manufacturing	Multinational	WBCSD/WRI GHG Reporting Protocol, EU-ETS
13	S. Europe (Italy and Spain)	Oil & Gas	Multinational	WBCSD/WRI GHG Reporting Protocol, API Methodology, EU ETS
14	S. Europe (Greece)	Construction and Building Products	SME	Unknown
15	New EU Member States (Romania)	Oil & Gas (Upstream)	Large National	OGP Methodology, EU ETS
16	New EU Member States (Poland)	Oil & Gas (Downstream)	Large National	GRI, EU-ETS
17	New EU Member States (Hungary)	Chemical	Large National	EU-ETS
18	Non-EU (USA)	Healthcare/ Pharmaceutical	Multinational	WBCSD/WRI GHG Reporting Protocol, GRI, US Climate Leaders Program, Chicago Climate Exchange, EU-ETS
19	Non-EU (USA)	Consumer Goods	Multinational	WBCSD/WRI GHG Reporting Protocol
20	Non-EU (Japan)	Manufacturing	Multinational	Unknown
21	UK	Hospitality, Leisure and Business Services	Multinational	WBCSD/WRI GHG Reporting Protocol, CRC
22	UK	Technology, Media and Telecoms	Large National	WBCSD/WRI GHG Reporting Protocol, CRC
23	France	Manufacturing	Multinational	Unknown
24	France	Financial Services	Multinational	French NRE Act consistent with GRI
25	France	Construction and Building Products	Large National	Unknown
26	Germany	Utilities	Multinational	EU ETS
27	Germany	Manufacturing	Large National	EU ETS see above
28	Germany	Retail and Consumer Goods	Multinational	Not specified
29	N. Europe (Denmark)	Manufacturing	Large National	Unknown
30	N. Europe (Belgium)	Retail and Consumer Goods	Multinational	WBCSD/WRI GHG Reporting Protocol
31	N. Europe (Belgium)	Manufacturing	Large National	Unknown
32	S. Europe (Spain)	Utilities	Multinational	EU ETS
33	S. Europe (Spain)	Financial Services	Multinational	WBCSD/WRI GHG Reporting Protocol
34	Non-EU (Japan)	Manufacturing	Multinational	Unknown
35	Non-EU (USA)	Food and Beverage	Multinational	WBCSD/WRI GHG Reporting Protocol, CDP

Annex D – Questionnaire used for Company Interviews

Version 1.3

	Company GHG Emissions Reporting: a Study on Methods and Initiatives **Company Questionnaire – this is to guide the interview and responses will remain confidential**		European Commission ERM © ERM 2010	
	Company Information		**Interviewee Information**	
	Name:		Name:	
	Geography:		Position:	
	Sector:		Phone Number:	
	Size:		e-mail Address:	
	Date of Interview			
	Do you wish your company's name to remain confidential (if Yes the study report will only show your responses under general headings according to company size and sector)?			
#	Topics/Specific Questions			
	A) Overview of company GHG measurement and reporting **(This section aims to provide an overview of the company's GHG management and reporting cycle/system)**			
1	What overall policies and systems does your company have for GHG measurement and reporting and who is responsibility for implementation (department/individua			
2	How many years have GHG emissions data been calculated/reported for (since when) and how frequently is reporting carried out (i.e. monthly, quarterly, annually)?			
3	Is the coverage of GHG data and reporting global or local in nature (is it installation specific, national or global)? IF GLOBAL - do you ensure consistent measurement and reporting methods globally or there are different approaches in use across its operating regions			
4	Is your emissions data publically disclosed or reserved for internal reporting and management purposes only? IF DATA IS DISCLOSED - please state through which forum/initiative (website, CDP etc) and why? IF DATA IS NOT DISCLOSED - Please detail reasons for non-disclosure			
5	What quality assurance systems do you have in place for GHG measurement and reporting (e.g. QA/QC system, independent assurance, auditing or verification)? Do you have an environmental management system (which?) and if so is your GHG reporting integrated into the system?			
	B) Company Emissions Profile and Targets **(This section aims to provide an overview of the company's GHG emission sources, reporting boundary, KPIs and targets and identify any differences in the management of voluntary vs. mandatory emissions)**			
6	Please describe your main emission sources and how you define your GHG reporting boundaries (e.g. Scope 1, 2 and 3, inclusion of subcontractors, business travel)			
7	Do you have a mix of both emissions that must be reported by law (mandatory reporting) and voluntary emissions reporting (e.g. EUETS versus CDP)? IF YES: Are these emissions treated differently to those reported voluntarily e.g. different emission factors, methodology etc.? Are the mandatory and voluntary emissions reducing or increasing at the same rate and if not why?			
8	Do you request any GHG reporting within your supply chain? IF YES: How would you characterise your supply chain in terms of average size (e.g. mainly SMEs, large companies, multinationals etc.)? Do you offer any technical support on GHG reporting to your supply chain? Is there any feedback regarding the GHG reporting methodologies used by your supply chain and the support provided?			
9	What company GHG emission reduction targets and monitoring systems are in place or planned (please provide details)?			

	C) Selection of GHG reporting methodologies and initiatives **(This section aims to provide an overview of the GHG methodologies and reporting initiatives employed by the company and identify drivers for selection)**
10	Which GHG calculation and reporting methodologies/initiatives do you use, why and for how long? Which GHGs do you cover (CO2 only or basket of six GHG) and if only CO2 why?
11	What do you see as the main strengths and weaknesses of the selected GHG reporting methods and initiatives?
12	Are there any sector specific methodologies or reporting initiatives for your sector's emissions and if not do you think that such a development would beneficial?
	D) Benefits from GHG measurement and reporting **(This section aims to provide an overview of the benefits associated with GHG measurement and reporting)**
13	Has measurement and reporting of GHG emissions helped the company to reduce its GHG emissions?
14	What level of emissions reductions have you achieved, and over what period of time? How and to what extent has GHG measurement and reporting allowed the identification and delivery of these emissions reductions? Can any of the benefits (e.g. excess ETS allowances, energy savings, etc.) be estimated in monetary terms (e.g. £ savings per annum)? IF NO - Please explain why
15	What are the other benefits arising from GHG measurement and reporting (e.g. company reputation, new customers, associated environmental benefits, improved investor relations, potential market opportunities)?
	E) Barriers and costs associated with GHG measurement and reporting **(This section aims to provide an overview of the barriers, risks and costs associated with GHG measurement and reporting)**
16	Please estimate the approximate annual costs arising from GHG measurement and reporting in terms of: Expenses for measurement (e.g. purchasing carbon footprinting tools, consultant expenses, data collection, etc.) Employee time for measurement (e.g. 10 person days year for data collection, 5 days for footprint calculation, etc.) Expenses for reporting (e.g. Fees from participating to voluntary reporting initiatives, CSR/Sustainability report printing (GHG section only), report assurance and verification costs, consultant expenses, etc.) Employee time for reporting (e.g. 7 person days year for report preparation, 2 days for responding to stakeholder queries relevant to the report, etc.) Do you receive any support from GHG initiatives and if so is it paid/unpad?
17	For measurement: complexity of calculations, lack of expertise or tools, method standardisation, comparability, minimum standards, poor incentives etc. For reporting: complexity of boundary definitions e.g. operational vs equity approach, scope 3 emissions, verification requirements, competitive impacts, lack of clear reporting guidances (e.g. for reporting emissions from renewables, geographical overlap of schemes etc.) Overall - reduced resources to address other environmental impacts (burden shifting)
18	Do you have any suggestions on how to overcome existing barriers (reduce risks and costs) or improve the benefits of company GHG reporting schemes? e.g. would you welcome a harmonised European methodology, GHG leadership index, more guidance from GHG initiatives, improved incentives, mandatory versus voluntary schemes, etc. (or do you feel that the existing GHG reporting methods/initiatives are adequate)? (please explain)

Annex E – Questionnaire sent to GHG Methodology/Initiative Owners

Version 1.2

Company GHG Emissions Reporting: a Study on Methods and Initiatives **GHG Reporting Methodolology and Initiative Owners Questionnaire**		European Commission ERM	
Methodology/Initiative Information		**Interviewee Information**	
Name of scheme:		Name:	
Main geographies covered:		Position:	
Main sectors covered:		Phone Number:	
Approx. number of users/participants:		e-mail Address:	
Date questionnaire completed			

#	Topics/Specific Questions
	A) Overview of GHG Reporting Methodology/Initiative **(This section aims to provide an overview of the key strengths and areas for development in your Methodology/Initiative)**
1	What are the key strengths of your methodology/initiative (e.g uptake rates, sector coverage, defining best practices, ease of use, calculation tools available, robustness of results allowing companies to be compared, compatibility with other schemes, etc.)
2	What are the potential areas for further development (either planned or possible) to enhance your methodology/initiative (e.g. expansion to cover other sectors, tightening of mimium standards, increasing uptake, etc.)
3	In summary, how does your methodology/initiative deal with the supply chain (Scope 3 emissions) and in particular SMEs (e.g. is there specific guidance or tools for SMEs and what is the current level of uptake by SMEs)?
4	What minimum standards are specified in your methodology/initiative to ensure comparability between participants/users (e.g. minimum boundary definition, emission factor and GWP values to be used, materiality levels, assurance requirements)?
	B) Benefits for methodology/initiative users **(This section aims to provide an overview of the benefits associated with the use of methodology/initiative)**
5	To what extent can measurement and reporting of GHG emissions help a company to reduce its GHG emissions (please give a few examples)?
6	Is it possible to quantify how measurement and reporting of GHG emissions helps your scheme users/participants to reduce their GHG emissions over time (e.g. what level of GHG emissions reductions and associated energy savings has the scheme achieved, and over what period of time, how has the scheme affected the identification and delivery of these emissions reductions)?
7	What are the other benefits arising from GHG measurement and reporting under your scheme (e.g. company reputation, new customers, associated environmental benefits, improved investor relations, potential market opportunities)?

	C) Barriers and costs for methodology/initiative users **(This section aims to provide an overview of the barriers, risks and costs associated with the use of methodology/initiative)**
8	Is it possible to identify the approximate annual costs arising for users of your methodology in terms of: Expenses for measurement (e.g. purchasing carbon footprinting tools, consultant expenses, data collection, etc.) Employee time for measurement (e.g. 10 person days year for data collection, 5 days for footprint calculation, etc.) Expenses for reporting (e.g. Fees from participating to voluntary reporting initiatives, CSR/Sustainability report printing (GHG section only), report assurance and verification costs, consultant expenses, etc.) Employee time for reporting (e.g. 7 person days year for report preparation, 2 days for responding to stakeholder queries relevant to the report, etc.)
9	What are the other barriers and cost for the users of the methodology/initiative in terms of: Measurement: complexity of calculations, lack of expertise or tools, method standardisation, comparability, minimum standards, poor incentives etc. Reporting: complexity of boundary definitions e.g. operational vs equity approach, scope 3 emissions, verification requirements, competitive impacts, lack of clear reporting guidances (e.g. for reporting emissions from renewables, geographical overlap of schemes etc.) Overall: for example, reduced resources to address other environmental impacts (burden shifting)
	D) Possible options for future EC policy development **(This section aims to gain inputs on the possible range of options for future policy development for company GHG reporting in Europe)**
10	In the absence of any new/additional European policy measures on company GHG reporting what trends do you foresee in the next 5 years (i.e. what is the 'business as usual' scenario in terms of increased uptake rate, further development of voluntary initiatives, standardisation of calculation methods, etc.)?
11	Do you have any suggestions on how to overcome existing barriers for company GHG reporting (e.g. approaches to reduce risks and costs)? Please note any specific measures that could remove barriers for SMEs
12	Do you have any suggestions on how to improve the level of benefits for company GHG reporting schemes (e.g. simplified guidance and tools, improved incentives, etc. or do you feel that the existing benefits are adequate)?
13	What are your views on the case for the EC providing additional support (e.g. financial and technical resources) for voluntary GHG reporting methods/initiatives? The options here could range from EC backing for existing methods/initiatives through to development of a new voluntary scheme building on best practices and aiming to fill any gaps identified.

Annex F – Summary of Feedback Provided at the Stakeholder Workshop

Question to the Group	Discussion Group 1: Feedback	Discussion Group 2: Feedback	Discussion Group 3: Feedback	Discussion Group 4: Feedback
1. How can the benefits of company GHG reporting be maximised whilst minimising risks and costs?	• Harmonise mandatory reporting schemes, to enable companies to re-use their data	• 'One size fits all' is difficult for companies in different sectors	• Benefit from simple guidance for SMEs	• Need to keep in mind costs and benefits for SMEs
2. Is there a need for additional harmonisation or minimum standards?	• Harmonise definitions e.g. Scope, 1, 2, 3 etc. • Harmonise treatment of RECS, offsets etc. • Over-simplification of guidance can have unintended consequences	• Need for harmonisation, but consider ISO process. • Many uncertainties in Scope 3, so focus on Scope 1 and 2 first	• CDP is a key reporting platform and sectoral initiatives are important. ISO14069 is also relevant. • Any EC initiative needs to link with these and other existing initiatives.	• Need for some harmonisation, but questions around how it would be enforced • 3rd party verification is needed
3. Which of the policy options are supported and why?	• Voluntary is a good starting point • Training for SMEs would be helpful • A database that companies can report to may be helpful • Should avoid absolute reduction targets	• Harmonisation is generally supported • The policy options pose some challenges, particularly with respect to scope 3	• The needs for sector-specific guidance must be recognised • The rationale for any reporting thresholds needs to be made clear • The EC's role must be clearly defined	• Policy options should consider the position of global companies, not just those with operations in Europe • Consider what verification standards would apply
4. How might the EC best take forward the findings & recommendations from this study?	• Engage with existing methodologies and schemes and avoid a 'go it alone' approach	• Work together with other leading initiatives	• Need to develop a milestone map which sets out next steps, linked to Member State action to ensure coordination	• EC should default to accepted international standards such as the GHG Protocol • Need to ensure alignment with EC project on rationalising company reporting requirements
Q&A Session Comments	• Any EC initiative needs to make reference to GHG Protocol and ISO standard • If comparability is a key consideration, there is a need to restrict the options available in the GHG Protocol • Need to consider methodologies and reporting schemes separately, as they are distinct • Useful guidance, supplementary to the GHG Protocol, could be provided on verification, boundaries, thresholds, treatment of offsets etc. Also, guidance for SMEs would be needed.			

Annex G – Summary of Stakeholder Comments and Feedback on the Draft Final Report

No.	Organisation	Summary of Comments/Feedback	Summary of Relevance/Response
1	UNESDA – Union of European Beverage Asscoations	• Has the Beverage Industry Sector Guidance for GHG Emissions Reporting been considered	• This is a sector-specific adaptation of the WBCSD/WRI GHG Protocol and has been added to the long list of methods/initiatives
2	Confederation of European Waste-to-Energy Plants	• The EpE Protocol for the quantification of GHG emissions from waste management activities is not mentioned	• This is a sector-specific adaptation of the WBCSD/WRI GHG Protocol and has been added to the long list of methods/initiatives
3	BT Plc	• BT welcomes the study and supports moves to reach a harmonised approach to carbon reporting – across Europe and Internationally. • Avoid counting the same emissions more than once in the analysis. • Concerns raised that other policy measures such as the ETS and CRC, and ratings such as CDP should be outside the bounds of the study. It is important that these are taken into consideration as they do have elements of reporting embedded in them which are often inconsistent with reporting against other frameworks. • It is particularly useful to highlight the critical inconsistencies that exist from flexibility / options in reporting standards. Care needs to be taken when narrowing options to ensure it doesn't create unintended consequences (e.g. adopting a strict financial control boundary could inappropriately transfer emissions responsibility to the landlord for leased asset). • In the policy option analysis it seems to me to be too early to consider (for example) voluntary vs. mandatory. The first step is to decide if reporting plays an important role in helping deliver Europe's climate change objectives, and if it does then does it help or hinder having a mix of conflicting reporting standards. Reporting can be a primary driver at the early stage of a company's engagement on climate change and energy reduction. Reporting often becomes one of a number of drivers as climate change and energy reduction becomes more embedded in the business. A mix of reporting standards hinders because it clouds the issue and makes it difficult to know where to invest time and money. It will be important to ensure that reporting drives optimum behaviour. • BT has always said that the following principles are at the core of its approach to carbon reporting: · report consistently internationally · provide as true a picture of our emissions as possible · handle all emissions in a similar way · use our reporting to drive behaviour that helps to deliver a low carbon economy • It is also important to ensure consistency between corporate level reporting and product level reporting. These are at the same time both different and overlapping, especially with respect to some of the boundary issue questions. There could also be a case to consider excluding upstream and downstream emissions from corporate level scope 3 whilst including them in product level footprints.	• These comments have been incorporated in the Phase III analysis as far as possible, whilst ensuring that the analysis remains evidence-based and un-biased.

No.	Organisation	Summary of Comments/Feedback	Summary of Relevance/Response
4	Eni Plc	• Scope of the Study should be better defined as: 1. to harmonize methodologies and reporting criteria across EU (select the main in use across different sectors) 2. to define modalities to gather information from SMEs (if significant, there are no mention how to do this).	• The study scope was defined by DG Env in January 2010 and cannot be modified at this late stage of the work.
		• The major installations (>20MW or >50 MW) are already monitored both mandatory (ETS, IPPC Directive, PRTR regulation) and voluntary (ISO14001 and EMAS). PRTR reporting is a good database platform to work on also for other parameters (air and water releases are asked in very detailed, able to report at different level: methodologies M/C/S per pollutant per sources)	• A key objective of this study is to address the 60% of EU-27 GHG emissions that are not covered by mandatory schemes such as the EU ETS. PRTR is largely limited to IPPC regulated sites and does not cover SMEs for example.
		• Support company in the GHG measure/reporting criteria of Scope 3: API compendium for Scope 3 there are now criteria proposed (define boundaries); Scope 3 - Accounting and Reporting standard in draft review; Integrate and coordinate initiatives .	• Methods for scope 3 reporting have been considered
		• Support company in evaluation of accuracy of all GHG data: Accuracy is well defined for CO2 ET verification; API compendium 2009 reports % accuracy for CH4, N2O per source category; Is necessary to have a Guide Line to help to evaluate/calculate the accuracy of different data gathered worldwide by the company (minimum criteria) - here is difficult a real verification process	• The need for improved guidance on materiality and uncertainty assessment has been identified in the report.
		• Measure and Reporting are big issues for company (time/cost) - try to integrate, coordinate and harmonize not duplicate, define few and clear criteria, reuse as much as possible	• These issues and criteria are identified in the Phase I and Phase III analysis.
5	UEAPME	• UEAPME believe that a non-mandatory approach for GHG reporting is necessary and should be structured in a way that it is SME-friendly in order to avoid that it is burdensome for those SMEs, wishing to use it. It should take into account the “think small first principle”, meaning that it should start from the particularities of the smallest enterprises. In case the mandatory approach prevails, it should only be applicable to ETS-subject companies. In this way, a report on the real GHG reduction is ensured.	• A range of policy measures has been considered, both voluntary and mandatory. Consideration of SME specific needs has also been included in the analysis and summary sections.

No.	Organisation	Summary of Comments/Feedback	Summary of Relevance/Response
6	DEFRA	• Statement that schemes lack compatibility and comparability is not borne out when looking at the different reporting schemes as the majority are based on WRI or ISO.	• Based on a through data review, the level of compatibility and comparability of schemes is found to be inadequate to meet the overall policy aims of the study.
		• Multiplicity of schemes is given as a reason why BAU should not continue but none of the other scenarios explain how they would remove the requirement for companies to continue to report under a multiplicity of schemes. The point made at the workshop was that companies would still need to report to EUTS, CDP, etc.	• The need to remove additional reporting burdens through harmonisation is recognised. A comprehensive reporting platform that served multiple reporting schemes may be a way forward.
		• A number of minor corrections to the explanation of the DEFRA GHG guidance are required	• Corrections made where appropriate
		• It would be helpful in this discussion of the level of emissions from different sized companies if it was clear whether the emissions from companies just refer to their scope 1 direct emissions, or also include scope 2 emissions; and whether companies are measuring CO2 only or all GHGs. No reference is made to the problem that arises in setting a threshold based on emissions, i.e. that under such a scheme all companies need to measure their emissions to enable them to judge whether they are captured by the scheme.	• The analysis of emissions versus company size is for illustration only and further detailed work would be required to examine this issue.
		• In examining policy scenarios, it is suggested that scenarios 5-7 would involve a requirement to set targets. This is an interesting suggestion as each company would need to set different targets depending not only on its sector, but also its geographical coverage, and it's history of making emission reductions. (It would be easier for a company which has taken no action to date to achieve significant reductions than a company which has been making reductions for a number of years). The commentary should acknowledge that it would be difficult for a regulation to provide for all the variables. Also if you are suggesting targets should be regulated, how are you proposing they should be monitored? And do you envisage absolute or intensity targets would be regulated?	• The difficulties of GHG target setting are acknowledged and noted in the text.
		• There would also need to be some form of external assurance which would substantially increase costs for companies. Moreover, the assurance of GHGs is an area that is not yet mature and is still developing.	• Assurance/verification requirements would need further examination as part of any future policy development work.
		• No mention is made under the policy scenarios of 2-8 of the need to link any EU action to WRI standard. It was clear from the workshop that any EU standard would need to be internationally compatible and not just relevant to European only companies.	• The WBCSD/WRI GHG Protocol is widely used and could form the basis of any EC harmonised standard as noted in the text
		• How do policy scenarios 5-8 streamline the multiplicity of standards as, with the exception of scenario 8, there is no removal of other reporting requirements i.e. EUTS.	• A harmonised EC standard with a comprehensive reporting platform that served multiple reporting schemes may be a way forward.
		• In the recommendations bullet point 5 and 6 are dependent on the outcome of the first 4 recommendations and so should be deleted (so as not to pre-judge). An alternative to deleting bullet point 5 would be to re-draft it to say: " To conduct further stakeholder workshops and working groups to discuss GHG reporting standards....."	• Text amended where appropriate whilst ensuring that the analysis remains evidence-based and un-biased.
7	CDP	• A number of minor corrections to CDP references and descriptions are suggested	• Corrections made where appropriate
		• The list of risks does not include the risk for a supplier of not being selected by a purchaser if they do not disclose climate change information. Some major companies are now requiring climate change disclosure by their suppliers as a pre-condition.	• Text on supplier non-disclosure risks added
		• A number of points are made about CDP coverage, alignment with regulations, SME coverage and scoring against criteria	• Corrections made whilst ensuring that the analysis remains evidence-based and un-biased.
8	British Sugar/CIAA	• Currently DECC/EA are conducting a study on the EU ETS costs to operators which may be useful for the EC study.	• The DECC/EA data collection process is ongoing and data will not be available until late 2010.

No.	Organisation	Summary of Comments/Feedback	Summary of Relevance/Response
9	EC DG CLIMA	• The EU ETS is considered at the same level as the other methods and initiatives and should instead be treated separately throughout the report. Mandatory schemes should not be compared with voluntary schemes.	• The EU ETS remains the primary policy for industrial CO_2 emissions in Europe. However, it is intentional that features of the EU ETS and other mandatory and voluntary reporting and trading schemes are considered on a level basis in this study to avoid bias in the analysis. This ensures that the full range of best practices for GHG reporting can be captured.
		• The report does not stress clearly enough that any future methodology should be complementary to the EU ETS.	• Text amended
		• Burden shifting is presented in a negative way, indicating that resources are being taken away from other environmental issues to prioritise GHG reporting. The report should present this more positively indicating the possibility that new resources are being provided for GHG reporting.	• The evidence collected suggests that the former negative impact is the reality in some cases. Report text amended where relevant.
10	Total Plc	• A number of minor corrections to API/IPIECA protocol references and the descriptions of some schemes are suggested	• Corrections made where appropriate
		• A number of changes to the assessment criteria and colour coding scheme in tables are suggested	• The criteria and colour coding scheme were agreed with DG Env and cannot be altered at this late stage of the study
		• Figure 3.1 leads to double counting of participant emissions with different coverage of schemes	• The emissions data covers a range of different schemes and emissions values cannot be summed to give a total – Figure 3.1 has been removed to avoid confusion
11	The Climate Registry	• This is an ambitious and excellent study overall which has articulated the scope and variables of engaging in this activity – voluntary corporate disclosures – and "hit the nail on the head" about many of the challenges inherent in this sector today… "reporting fatigue" from the variety of programs, competing priorities, and differing requirements that go along with each.	• No action needed
		• A number of minor corrections to the explanation of The Climate Registry are suggested	• Corrections made where appropriate
		• Voluntary reporting can continue to serve an important role. A number of achievements of voluntary schemes can be identified such as providing stakeholders with a greater understanding of their risks and liabilities, so they can proactively participate in climate policy development, elevating the overall level of disclosure. In our experience the greatest challenges include: - Making the business case for voluntary GHG reporting in light of multiple mandatory and voluntary reporting objectives - There is a growing amount of reporting fatigue, between GHGs, sustainability, water and more - Trade off between using scarce resources to measure emissions vs. implementing a reduction project - Our program has the highest barriers to entry, because of the detail and verification requirements, meaning it also has the highest costs of participation - Overcoming the fear of public criticism for disclosing their emissions – whether large emitters or small emitters - Uncertainty over the benefit of establishing a baseline given the sad state of US climate policy these days.	• These points are noted and incorporated into the report where relevant.
12	CEMBUREAU	• CEMBUREAU considers that the study should include an analysis of the work carried out at CEN level (CEN/BT/WG 210 - CEN/TC 264 WG 33) under the mandate M/431 of the European Commission.	• It is understood that the CEN/DIN standard for assessing GHG emissions in energy intensive industries under mandate M/431 remains in the development stage. A number of new/emerging GHG standards (e.g. ISO 14064) have been considered but are not assessed in detail due to their early stages of development.

No.	Organisation	Summary of Comments/Feedback	Summary of Relevance/Response
13	ADEME	• A number of minor corrections to Bilan Carbone references and the descriptions of some schemes are suggested	• Corrections made where appropriate
		• Be careful with the comparison of methods (GHG Protocol, Bilan Carbone®), initiatives (CDP), regulations (EU ETS) and standards (ISO 14064), which are very different approaches (in terms of boundaries, costs …). All these approaches are compared at the same level: there is a lack of classification, particularly about the boundaries (Scope 1, 2, 3), though this is one of the most significant criterion in GHG reporting. There are real big differences between CDP (just a web platform for disclosure, no calculating tools and scope 3 not required), GHG Protocol (a private standard with some sector-specific tools and scope 3 not required) and the Bilan Carbone® method (a public method including detailed guidance on boundaries, emission factors and treatment of life-cycle impacts; a number of calculation tools including scope 3).	• The study scope included a wide range of schemes and key differences are noted in the detailed tables
		• Some changes to the scoring of methods against the criteria are suggested	• Corrections made whilst ensuring that the analysis remains evidence-based and un-biased.
		• This part of the study is based on 14 companies' interviews, which is not representative. Indeed, 12 companies have used the GHG Protocol and 2 have used others methods (CSI and IPIECA). There is no one company using the Bilan Carbone® method. So this part (p. 133-134) is just an apology of the GHG Protocol which should be moderated given the lack of representativeness of the companies' sample. Since 2004, 4000 organisations voluntarily realised a Bilan Carbone® so we have real feedbacks about GHG quantification. We would have liked to be more implicated in this study, particularly in this interviews part where there is none company's interview using Bilan Carbone® method.	• The interview sample is not intended to be statistically representative but provides a number of useful case studies on costs and benefits.
		• The technical report ISO 14069 is not quoted anywhere (even if it is in progress) : indeed, it's an application report of the ISO 14064 to help organisations in their GHG reporting, particularly about boundaries choices, completeness of quantification, comparability and transparency.	• A number of new/emerging GHG standards have been considered but are not assessed in detail due to their early stages of development.
14	F. Hoffmann-La Roche Ltd	• It is not a significant risk but absolutely clear that the uptake of a new European scheme would be very low. The report mentions a majority of reporters applying the WBCSD/WRI GHG protocol (as we do also). It would thus make sense to adopt this reporting standard instead of spending resources and money for a system which finally does not find acceptance. To keep consistency of reporting throughout different businesses sector specific standards/amendments to a general scheme should be avoided as far as possible.	• The risk of low uptake of any new voluntary standard is recognised in the Phase III assessment of policy options. It is also noted that whilst general protocols for reporting such as the WBCVSD/WRI GHG protocol are used by many companies, some sectors have unique GHG sources which warrant special consideration.
15	WBCSD	• Overall, the report provides an excellent overview of the various methods and reporting frameworks that are in use, and gives good analysis of the business drivers for reporting.	• No action needed
		• The comment that the methods and initiatives fail to set minimum standards seems somewhat exaggerated, or perhaps I do not understand what "minimum standards" implies. Later in the report, it is indicated that almost all schemes use Scope 1, 2, 3 and other boundary options (although not consistently) as defined by the GHG Protocol Corporate Standard, so there is some common standardization (or definitions) that exists, however the various choices/options are not consistently applied across reporting schemes.	• Minimum standards refers to setting guidance that reduces the level of user interpretation of general guidance such that comparability between company reports is ensured. This is covered in the Phase I and Phase III analysis.
		• Title of GHG Protocol is incorrect – change "WBCSD/WRI GHG Reporting Protocol" to "WBCSD/WRI GHG Protocol" or "…GHG Corporate Standard"	• Corrections made where appropriate
		• It might be helpful to include a footnote in the Executive Summary on how the ERM report defines "Methods" and defines "Initiatives" as is explained in the main body of the report (pg 31)	• Text added
		• Under Sector Specific Guidance for the Cement Sector, you may want to also include the Cement Sustainability Initiative Reporting Protocol	• This is included in the long list of methods/initiatives
		• There is a significant amount of information on the GHG Protocol Product and Supply Chain website on the draft Scope 3 standard, perhaps since the study authors reviewed the website. All submitted comments, as well as information on Road Testing, all of the draft standards and accompanying webinars/powerpoint slides are available.	• The Scope 3 guidance is covered in the Phase I analysis.
16	Environment Canada	• A number of minor corrections to Environment Canada references are suggested	• Corrections made where appropriate

Annex H – Briefing Note Sent to Stakeholder Workshop Participants

Stakeholder Workshop 8th July 2010 - Briefing Note

Venue: EC Offices, Brussels (9:00am – 12:30pm)

DG Environment

Company GHG Emissions Reporting: a Study on Methods and Initiatives

Issued 17/06/2010 (Rev4)

Introduction

ERM's Energy and Climate Change Practice and the European Commission - Directorate General for Environment are currently undertaking a research study in order to identify and analyse existing leading methodologies and initiatives in the field of company Greenhouse Gas (GHG) reporting. **As part of the study a representative of your organisation is invited to a half-day stakeholder workshop (9:00am to 12:30 pm followed by lunch) on Thursday 8th July 2010 at the EC's offices in Brussels** [1]. Your organisation's input at this workshop is important to help shape future European policy in this area and to ensure that robust evidence is available on the costs, risks and benefits of different company GHG reporting policy options. If company GHG reporting issues are dealt with by another department in your organisation, we would appreciate it if you could forward this invitation to the appropriate person.

Workshop Context

Companies typically report their absolute GHG emissions annually in their sustainability reports by applying methodologies such as the WBCSD/WRI GHG Protocol Corporate Standard. They also typically report emissions under mandatory schemes such as the EU Emissions Trading Scheme (EU ETS) and also through voluntary schemes such as the Carbon Disclosure Project (CDP). In addition, reporting of relative GHG emissions (i.e. carbon intensity, typically measured per tonne of product or per € of turnover) is generally accepted as a useful additional sustainability metric in a number of sectors. However, key differences in GHG reporting methods and initiatives such as defining reporting boundaries, accounting for offsets and choice of emission factors can undermine investor confidence, make comparisons difficult and reduce transparency. This lack of harmonisation in company GHG reporting is both an internal and an external problem for companies, policy makers and stakeholders, for example:

- A multi-national company may struggle to choose and ensure the correct application of consistent GHG reporting methods due to different approaches in use across its operating regions;
- There may be difficulties in adjusting the company emissions baseline to reflect business changes and in examining trends over time due to changes in reporting methods;
- Companies may also find that significant resources are required to meet multiple reporting requirements, each using a different method;
- For smaller companies the reporting requirements may be overly complex and resource-intensive; and,
- For policy makers and stakeholders it is often difficult to make like-for-like comparisons between companies in the same sector or region due to use of different reporting boundaries and emissions factors.

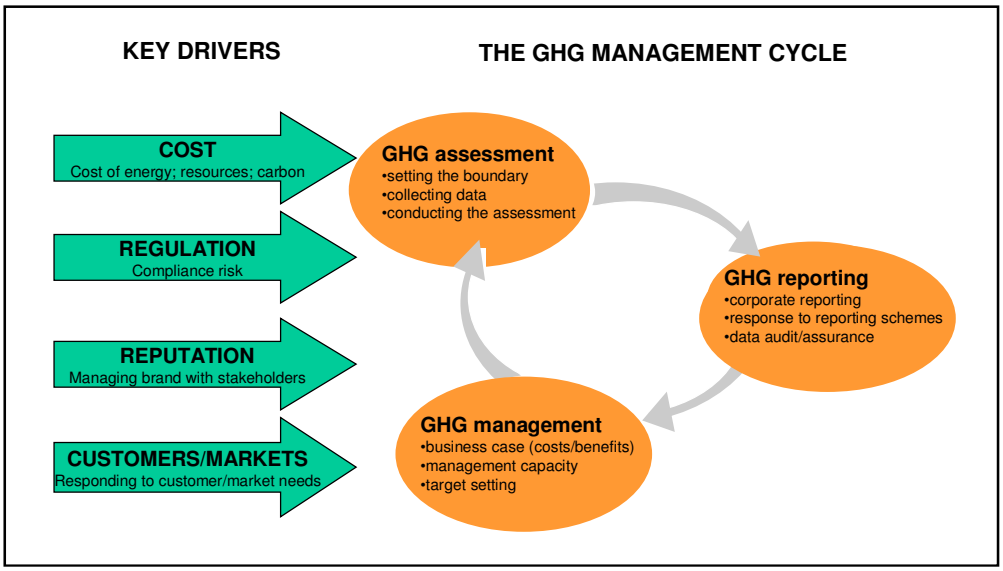
[1] Venue details will be confirmed as soon as possible.

The uptake of company GHG reporting has increased rapidly over the last five years. Across Member States and internationally, a number of leading GHG reporting standards and initiatives have been developed and refined. It is important to identify and build upon the strengths and success of these schemes and also examine gaps which may be relevant to future EC policy development. Increasingly there is evidence of multiple GHG reporting standards with complexity in use and difficulties in making comparisons due to significant differences in reporting methods and schemes within sectors, across Europe and internationally. There is also evidence that company GHG target-setting may lag behind the uptake of reporting initiatives and that uptake of GHG reporting by small and medium-sized enterprises (SMEs) may be low.

Study Objectives and Scope

The European Commission instigated this study into company GHG reporting methods over the period February to June 2010 to identify and analyse the existing leading methodologies and initiatives in the field of company GHG reporting. The analysis will focus on getting a clear picture and comparison of the existing methodologies and initiatives in the EU and globally, and features that might be relevant for future policy development. The ultimate objective of the leading reporting methods and initiatives is to ensure that: companies measure, disclose and decrease their GHG emissions over time; and, that the cost-benefit balance of doing so is positive for companies operating in Europe. For example, the figure below presents one possible interpretation of the links between reporting and GHG emissions reduction:

Hypothetical Framework Showing Relationship Between GHG Reporting and Emissions Reductions



Whilst the scope of this study is limited to reporting of GHG emissions by private companies, consideration will also be made of GHG reporting methods and initiatives for the public sector and non-governmental organisations where relevant. The data collection process for this study involves discussions with methodology and initiative owners, case study interviews with a range of companies, ERM subject expert inputs, literature reviews and other stakeholder inputs. It is noted that the EC are conducting a separate study on reporting methods and initiatives for product carbon footprinting.

ERM has reviewed and compared the leading GHG reporting methods and initiatives (30 in total) and identified gaps and strengths which signalled the completion of Phase I of the study. As part of Phase II of the study an examination of the costs and benefits of GHG reporting to companies is being conducted using company interviews, literature review and stakeholder inputs. Phase III of the research focuses on the development and assessment of possible future EC

policy options for company GHG reporting based on the evidence collected. Your input to the workshop will help to ensure that the study outputs reflect the views of the key stakeholder groups.

Workshop Objectives

The main intended outcomes of the stakeholder workshop along with the other research tasks being carried out are, inter alia, to understand:

- Which are the current leading European and international methods and initiatives for company GHG reporting?
- What are the common features of these methods and initiatives and what strengths, differences or gaps exist?
- How well do existing methods and initiatives meet the needs of different sizes of company and different sectors?
- How might common company GHG reporting methods be established, taking into account best practices?
- What are the risks and benefits of company GHG reporting and how can the barriers to uptake be addressed?
- What range of possible future policy scenarios should the EC consider to ensure comparability, ease of use and the correct balance of costs and benefits?
- What risks and advantages are associated to the different policy scenarios?

Inputs from stakeholders made during the workshop will be recorded and incorporated into the final study outputs as far as possible. This will help to ensure that the study reflects a range of viewpoints and issues and will help to inform future EC policy development regarding company GHG reporting.

A copy of the draft final study report will be emailed to you one week before the workshop along with a shorter summary paper. Whilst the full report is a long document and for reference only it would be useful if you could read the summary paper in advance of the workshop.

Workshop Agenda

The workshop will start at 9:00 am prompt and will run until 12:30 pm as there is a significant amount of information to present and a number of important issues to discuss during the workshop. As far a possible we would like to make the workshop interactive and so there will be a number of short presentations with question and answer sessions. This will be followed by stakeholder discussions in small groups and feedback of the main points arising towards the end of the workshop.

The agenda for the half-day workshop is as follows:

EC Study on Company GHG Reporting:

Stakeholder Workshop Agenda for Thursday 8th July 2010

8:45 am Welcome and Coffee

- ***Session 1 – Study Overview***

9:00 am Introduction to the Study (EC)
9:15 am Study Objectives, Scope & Tasks (ERM)

- ***Session 2 – Key Findings of the Study to Date***

9:30 am Phase I - Review of GHG Reporting Methods & Initiatives (ERM)
9:55 am Phase I - Questions & Answers (All)
10:00 am Phase II - Assessment of Risks & Benefits of GHG Reporting (ERM)
10:25 am Phase II - Questions & Answers (All)

10:30 am Coffee Break

10:45 am Phase III - Assessment of Future Policy Scenarios (ERM)
11:10 am Phase III - Questions & Answers (All)

- ***Session 3 – Stakeholder Group Discussions and Feedback***

11:15 am Group Discussions on Risks, Benefits and Policy Scenarios (All)
12:00 pm Group Feedback (All)
12:20 pm Concluding Remarks (EC)

12:30 pm Workshop Close and Lunch

During the workshop participants will be asked to complete a feedback sheet on which they can record their views and comments on the main issues raised. Following the workshop, written feedback from stakeholders will also be accepted by email up to the 16th July 2010. Following the workshop ERM and the EC will review the feedback and comments received during the workshop. These stakeholder inputs will then be incorporated to the final study report by the end of July 2010.

Workshop Facilitators

The stakeholder workshop will be led by the EC and ERM project team members, as follows:

Pavel Misiga is the Head of Unit for Environment and Industry at DG-Environment. The unit's activities include Sustainable Consumption and Production policies (Eco-design, Ecolabel, Green Public Procurement, Eco-Audit and Management Scheme, Retail Forum) and resource efficiency issues.

Imola Bedő is a Policy Officer for Environment and Industry at DG-Environment, where she is following several issues: the Environmental Compliance Assistance Programme for SMEs, Corporate Social Responsibility and the inclusion of environmental aspects into standardisation. These experiences are also important for the role of managing the study on GHG reporting.

Charles Allison is a Partner in Charge of ERM's climate change practice in the UK. He has more than 15 years' experience of supporting and advising clients in both business and government in relation to management of environmental and sustainability issues.

Andrew Marsh-Patrick is a Senior Consultant with ERM's Energy & Climate Change Practice in the UK. He has over 13 years experience and has led a number of high profile projects for government and industry on climate change mitigation and adaptation.

Contact Details

If you have any queries regarding the arrangements for this workshop then please contact Jennie Cripps at ERM by email: jennie.cripps@erm.com or telephone: +44(0)1865 384825 in the first instance. Please email your replies to the workshop invitation to Jennie by 1st July 2010, stating who from your organisation will be attending and please also provide their email address and job title.

About ERM

Environmental Resources Management (www.erm.com) is a leading global provider of environmental, health and safety, risk, and social consulting services for business and government clients, helping them understand and manage their impacts on the world around them. ERM has 140 offices in more than 40 countries and employs approximately 3,300 staff.

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