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TRANSITION TO A LOW-CARBON ECONOMY: PUBLIC GOALS AND CORPORATE PRACTICES

Céline Kauffmann and Cristina Tébar Less
OECD Directorate for Financial and Enterprise Affairs, Investment Division

This document is being circulated as background to session 3 on climate change of the 2010 OECD Roundtable on Corporate Responsibility. It includes: 1) a report documenting business practices to address climate change; and 2) a list of issues for possible consideration in the update of the OECD Guidelines for Multinational Enterprises.

Building on comments received at the Roundtable and other consultations, a revised version of this document will be put on OLIS in July for further comments and approval by the Investment Committee (IC) Working Party and the Environment Policy Committee (EPOC) Working Party on Global and Structural Policies. The report constitutes one of the outputs prepared in the framework of the joint IC / EPOC project on "Engaging the private sector in support of a low-carbon future".

The views expressed in this paper are those of the authors and do not necessarily represent those of the OECD or its Member governments. This report contains publically available information on companies and hyperlinks towards external sites. Their mention does not constitute a validation of the information by the OECD.

Contacts: Céline Kauffmann (celine.kauffmann@oecd.org) and Cristina Tébar Less (cristina.tebar-less@oecd.org).

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FOREWORD

This report is one of the outcomes of a joint project between the Investment Committee and the Environment Policy Committee (EPOC), launched in 2008, aimed at exploring how to design and implement public policy to effectively harness private sector investment to mitigate climate change. This work also contributes to the Green Growth Strategy launched by the 2009 OECD Ministerial.

The report summarises policy frameworks, regulations and other drivers of corporate action in support of a low-carbon economy and documents business practices in addressing climate change, building on principles of responsible business conduct as identified in the *Guidelines for Multinational Enterprises*. It is structured around three broad areas of corporate action: accounting for greenhouse gas (GHG) emissions; achieving reduction of GHG emissions; reaching out to suppliers, consumers and other stakeholders.

Research for this work includes a review of recent literature, qualitative and quantitative information on environmental policies and corporate practices, as well as interviews with government and company representatives, and other stakeholders. It also includes a survey among companies carried out in March-June 2010 with the support of the Business and Industry Advisory Council (BIAC).

In addition, this work has benefitted from a range of stakeholder consultations, including the OECD Conference on Corporate Responsibility (June 2009, Paris)[1]; the ESCAP-OECD Regional Conference on Corporate Responsibility (Bangkok, 2-3 November 2009)[2] and the ADBI-OECD Roundtable on Asia's policy framework for investment (Tokyo, 6-8 April 2010)[3].

1 www.oecd.org/daf/investment/guidelines

2 www.unescap.org/tid/projects/csr.asp

3 www.adbi.org/event/3430.adbi.oecd.roundtable.asia.economy

EXECUTIVE SUMMARY AND CONCLUSIONS

The broad picture: addressing climate change is increasingly part of business conduct

1. The post 2012 international climate change architecture is still under discussion. However, in the framework of the Copenhagen Accord, many governments have publically pledged significant economy-wide GHG emission reductions and have started putting in place policies to achieve emission reductions. Measures taken by governments to reach emission targets vary in type (regulatory measures, taxes, emissions trading markets), scope (sectors covered, types of emissions), and stringency. In particular, as this report shows, policy measures directly aimed at framing corporate disclosure of GHG emissions, emission reductions and the interface with consumers follow different approaches and are at various stages of development in major OECD countries. Outside of the OECD they remain largely non-existent.

2. A number of companies have realised the risks of inaction and have put climate change strategies in place in spite of diverse and incomplete regulatory frameworks. Frontrunners have started taking action as early as 1990, many in the early 2000s. Since 2005, with the coming on stream of the European Union Emissions Trading Scheme and increased attention of policy makers to climate change, mainstreaming of emission reduction in business operations has become more widespread among companies. In particular, evidence collected in support of this work through various sources, including a new survey by OECD to companies, shows that an increasing number of companies is accounting GHG emissions, establishing corporate plans to address climate change and looking beyond the company's boundaries to contribute to a low-carbon economy.

3. In addition to complying with current regulation and anticipating future policy developments, companies have various other motivations to reduce GHG emissions. Drivers include cutting energy costs, reducing dependence on fossil fuels and seizing new business opportunities. Companies are also increasingly responsive to societal expectations in relation to climate change. If direct pressure from investors, consumers and employees does not appear to be a major driver, companies are mindful of preserving or improving their reputation. Companies are also aware of the importance of contributing to shaping the policy debate at international, national and regional levels.

Yet, much more could be done to help companies integrate climate change in their corporate strategies.

4. ***Accounting GHG emissions*** is an essential step for companies to assess climate change-related risks and understand their impacts on climate. The reporting of this information can help policy makers in developing targeted climate change policies and monitoring progress across industries. For consumers, commercial partners and financial institutions, this information provides a basis to understand the company's carbon footprint and its performance in managing climate-change risks.

5. An increasing number of companies estimates and discloses GHG emissions, as well as other climate-change related information, such as risks. However, the absence of internationally-agreed standards is leading to important variations in methodologies used and scope of information reported. This ultimately increases the cost of reporting for companies. It also reduces the opportunity to compare performance across companies and industries, which would support governments in the development of targeted climate change policies and their monitoring.

6. Corporate disclosure of climate change relation information is an area where international consensus could be strengthened and advanced management practices promoted. In particular, the following considerations have emerged from this work that could contribute to rationalising reporting practices. Using as a basis for corporate accounting and reporting of GHG emissions recognised standards such as the Greenhouse Gas Protocol would help build a common approach to defining the scope of emissions to estimate and to ways of undertaking corporate emissions inventories. Aligning boundaries used for carbon accounting with those used in financial reporting would help simplify internal reporting procedures, foster emission management within companies and facilitate the assessment of financial risks related to climate change. Clarifying government expectations on the level of verification needed for corporate information in relation to climate change would help build greater credibility of corporate claims.

7. ***Achieving emissions reductions*** requires a proactive attitude of companies. A key step is setting emission reduction targets. Putting these in practice then requires developing emission reduction plans that include measures to reduce emissions – internally, externally or both – and embedding climate change considerations into corporate governance, from the board to managers and employees.

8. This report shows that setting emission reduction targets has become a widespread practice among companies. Yet, in the absence of a common framework for setting such targets, corporate practices differ widely. As a consequence, the level of ambition of targets and the emissions reductions resulting from their implementation are neither comparable, nor can they be aggregated. Targets need to be set at company level to account for sector and location specificities. Nevertheless, clarification of government expectations in terms of level of corporate emissions reductions needed and guidance on target setting could help companies achieve clear, measurable and comparable emission reductions.

9. The OECD survey clearly shows that companies are taking measures to reduce emissions. As a start, many have undertaken emission reductions that make good business sense, such as reducing energy consumption and improving energy efficiency. For companies in emerging countries, there is still large room for energy savings. Going beyond these measures may involve important investments on the part of business that may not be covered by rapid financial returns. Frontrunners see the benefits of acting now to avoid larger costs in the future, to protect their corporate image or because it is "the right thing to do". However, for the vast majority of firms, shifting towards less carbon-intensive energies, changing the business model to minimize emissions or using less carbon-intensive inputs are steps for which they may need stronger government incentives and signals (typically through prices that better reflect the costs of carbon).

10. Expectations that ***companies act beyond their immediate boundaries*** and engage with others to contribute to a low carbon economy are growing. Often, the bulk of emissions is produced out of the company, throughout the supply chain and the use and disposal of products. Aware of this, leading

companies have started involving their suppliers and engaging with consumers in order to lower their carbon footprint.

11. As of today, however, government regulations in this area are quasi non-existent. Rather, action beyond a company's boundaries is incentivized through government recommendations and guidance (to estimate companies' carbon footprint, for instance). By encouraging companies to pay attention to emissions beyond their direct operations, governments look to leverage the knowledge companies have of their suppliers and their influence on consumers to trigger a positive domino effect. But while managing direct GHG emissions is becoming part of corporate practice for an increasing number of companies, doing it beyond their immediate borders still raises many difficulties.

12. Key challenges in the supply chain include: obtaining emission related data from suppliers; ensuring the reliability of the information; and having suppliers act to reduce their emissions, especially when they are not subject to mandatory reduction measures. Influencing consumers also raises important challenges, including raising awareness and educating consumers, promoting the acquisition of low carbon goods and services, and providing information on companies' efforts to address climate change without being seen as engaging in "greenwashing". To help companies reduce their overall carbon footprint, governments could clarify expectations in the area of corporate engagement with suppliers and consumers and put in place policy measures, including emission reduction requirements, carbon pricing mechanisms, education campaigns and (notably financial) incentives, to support behavioural change.

BUSINESS AND CLIMATE CHANGE: THE BROAD PICTURE

The transition to a low carbon economy has already started

13. The debate about the future international policy agenda on climate change is still on-going. Awareness of the need to achieve a low carbon economy has gained particular momentum in the last few years, especially in the run-up to the Copenhagen Conference in December 2009. And though the Copenhagen Accord does not contain binding emission reduction targets, some of its elements contribute to establishing a more predictable global framework in which countries will address climate change. One of these elements is the commitment by Annex I countries to implement individually or jointly quantified economy-wide emissions targets for 2020, and by non Non-Annex I countries to implement mitigation actions.[4]

14. Much needs to be done to transform the broad pledges made by governments ("decarbonise the electricity sector", "achieve emission reduction targets") into actionable policies and measurable results. Policy measures in relation to climate change are developing fast[5]. However, policies put in place by countries to encourage companies to measure, report and reduce GHG emissions vary widely in scope and mix of instruments. In the EU, companies in emission intensive sectors are subject to a cap-and trade system (the European Union Emissions Trading Scheme), in a few other countries, cap and trade systems are voluntary (the Chicago Climate Exchange) or have regional or municipal scope (such as the US Regional GHG Initiative or the Tokyo cap and trade scheme). Carbon taxes exist in some countries (with very diverse modalities), but have not been put in place in others. In most non-OECD countries, regulation of corporate GHG emissions does not exist at all. Where regulation exists, especially in emerging economies, it deals with corporate emissions indirectly, through measures that encourage energy savings and investment in less polluting technologies (typically renewable energy).

15. Diverse and incomplete regulatory frameworks have not stopped companies from taking action. A recent survey of Fortune 500 senior executives, undertaken by the Irish renewable energy group NTR[6] revealed that the majority of the 130 respondents "did not require a legal framework to commit to specific

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4 The Copenhagen Accord (http://unfccc.int/resource/docs/2009/cop15/eng/l07.pdf) was adopted on 18 December 2009. Under the Accord, "Annex I Parties commit to implement individually or jointly the quantified economy wide emissions targets for 2020, to be submitted (…) to the secretariat by 31 January 2010 (…). Non-Annex I Parties to the Convention will implement mitigation actions, including those to be submitted to the secretariat by non-Annex I Parties (…) by 31 January 2010 (…)". Information on emission reduction targets provided by Annex I countries is available at http://unfccc.int/home/items/5264.php. Information on mitigation plans by non-Annex I countries at http://unfccc.int/home/items/5265.php.

5 The Deutsche Bank Climate Change Advisors noted 500 new policy announcements worldwide in relation to climate change between 2008 and 2010: www.dbcca.com/dbcca/EN/investment_research.jsp.

6 www.wbcsd.org/plugins/DocSearch/details.asp?type=DocDet&ObjectId=Mzc2ODA.

actions or to create so-called "green-collar" jobs." 70% of the respondents said climate change would be an important part of their commercial decision-making within five years.

16. For an increasing number of companies, addressing climate change has become part of the corporate strategy. In particular, estimating and reporting on GHG emissions generated in all parts of the company, setting ambitious GHG reduction targets, assessing the carbon footprint throughout the life cycle of products, involving suppliers in reducing emissions, improving communication and engagement with consumers, contributing to the development of climate change policies – these and other practices are increasingly becoming part of the frameworks in which companies operate. In most cases, addressing climate change makes good business sense and leads to cost savings and new business opportunities, through, *inter alia*, using natural resources and energy more efficiently, producing less waste, rationalising logistics, diversifying sources of energy, acquiring market edges and finding new ways of engaging with consumers and suppliers.

17. The number of coalitions and partnerships in which companies commit to take action to reduce GHG emission and move towards a low carbon path has also grown in the last few years. One initiative is the UN Global Compact's "Caring for Climate" initiative, started in 2007, in which business leaders recognise their role in fighting climate change and show their determination to "taking practical actions now to increase the efficiency of energy usage and to reduce the carbon burden of our products, services and processes, to set voluntary targets for doing so, and to report publicly on the achievement of those targets annually…".[7]

Drivers of business actions: regulation, costs and societal expectations

18. Climate change is confronting companies with new risks and challenges. There are, on the one hand, the risks generated by the company's production of greenhouse gas emissions, which call for action to reduce emissions. Increased regulation of emissions is putting pressure on carbon intensive companies, which run the risk of penalties and litigation if they fail to comply. Policies putting a price on GHG emissions affect production costs and diminish the value of companies which do not take action. On the other hand, companies also face risks as a direct consequence of climate change, including physical risks linked to extreme weather, changes in rain patterns, rising sea levels, increased health problems, etc. These risks are driving companies to make the changes needed to adapt to, or overcome climate change related impacts – including, for example, changing the location of production plants, shifting the sourcing of natural resources to other regions, modifying the supply chain, etc.

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[7] Other business initiatives include the Business Environmental Leadership Council (BELC) www.pewclimate.org/business/belc; Climate Savers www.worldwildlife.org/climate/climatesavers2.html, , EPA Climate Leaders www.epa.gov/climateleaders, Business for Innovative Climate and Energy Policy (BICEP), www.ceres.org/bicep, the Japan Climate Leaders' Partnership (Japan-CLP), http://japan-clp.jp/en/index.html. Sectoral initiatives have also emerged, such as the "Policy on Climate Change" adopted in October 2009 by the International Council on Mining and Metals (www.icmm.com/page/16991/icmm-council-calls-for-joint-action-on-climate-change) and "The Climate Principles, a Framework for the Finance Sector" (www.theclimategroup.org/_assets/files/The-Climate-Principles-English.pdf).

19. Many of these risks can also be turned into opportunities through early and effective action and innovative approaches. For some industries in particular, there is a direct upside to climate change, because government policy and consumer demand will create new needs and new markets (renewable energy technologies, insulation material for buildings, energy efficient appliances and cars, new services, such as specialised consultancies and financial advisors). Increased focus on "green growth policies" and incentives to move to a low carbon economy are benefitting companies which provide innovative technologies, products and services in line with those policies. As a chief executive put it, "economic growth and fighting climate change are not mutually exclusive".[8]

20. In addition to limiting risks and seizing opportunities, business' answers to climate change also respond to growing societal expectations, which are expressed through different channels, including consumers, the press, international organisations, pressure from employees, etc. In light of the increasing awareness in society about climate change, those companies which seriously act to find solutions will also see their corporate image improved – and those who lag behind risk seeing their image tainted.[9]

From awareness to action - the gap is decreasing but uncertainty remains

21. While awareness about climate change related risks is growing and pressure on companies to take action is mounting, there is still an important gap between awareness and business action. A survey by McKinsey (2008a) on how companies think about climate change revealed that though 60% of the 2000 responding executives view climate change as an important consideration within their company's overall strategy, translation into corporate action remains limited. For example, 70% of responding CEOs report that their company does not include climate change targets in the performance review of executives. Among the executives which reported that managing environmental issues is important, 60% belong to companies that have not defined emissions reduction targets. On the other hand, 80% of executives expect to be affected by some form of climate change regulation in the coming 5 years.

22. The rapid, but unequal development of regulatory frameworks to address climate change and the lack of such frameworks in many countries generates uncertainty among companies on what to do now, and how to prepare for future developments. When asked about the most necessary factor to promote companies' contribution to a low carbon economy, the large majority of responses converges around one issue - regulatory certainty. The above mentioned survey of Fortune 500 senior executives shows that "about 50% of America's top business leaders believe a lack of clarity on climate legislation is negatively impacting upon the ability of the US to compete in the global market".

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8 www.easybourse.com/bourse/actualite/siemens-ceo-us-must-play-key-role-in-addressing-climate-610185.

9 A number of non-governmental initiatives have developed to mobilise companies to take stronger action on climate change. By publicising information on companies' actual or pledged actions to reduce their impact on climate change, these initiatives can provide an incentive to companies to become more active. One of these initiatives is Carbon Counts, which produces a score of the world's largest companies on their climate impact to spur corporate climate responsibility. To establish its score, Climate Counts uses 22 criteria to determine if companies have measured their climate "footprint"; reduced their impact on global warming; supported progressive climate legislation; and publicly disclosed their climate actions clearly and comprehensively: www.carboncounts.org.

23. The calls by the business community to policy makers to establish clear "rules of the game" have dramatically increased over the last few years. Especially in the United States, business coalitions have emerged to support and contribute to the development of strong climate change regulation. One of these initiatives is the United States Climate Action Partnership (USCAP), a group of businesses and leading environmental organisations "that have come together to call on the federal government to quickly enact strong national legislation to require significant reductions of greenhouse gas emissions".[10]

24. Calls for a strong regulatory framework that would set the basis for stronger business engagement have also been made at the international level. One of the key recommendations to policymakers agreed at a meeting of over 500 business leaders from some 40 countries, (the "Copenhagen Council") held in May 2009, was "to ensure robust, clear and long term, regulatory signals for investors; whether trading programs, performance standards, or taxes that provide greater predictability, transparency, and security when making long-term capital allocation decisions, such as investments in infrastructure".[11]

About this report

25. In this context of emerging and evolving regulatory frameworks, flourishing business practices, and increasing pressure from society for companies to play their part in the transition to a low carbon economy, there is growing demand for clarification on what companies are expected to do to address climate change. This report helps respond to this demand by summarising policy frameworks, regulations and other drivers of corporate action in support of a low-carbon economy and documenting business practices. It focuses on three areas.

- ***Accounting GHG emissions*** is an essential step in the assessment of climate-related risks faced by companies, and in understanding companies' impacts on climate. A GHG inventory constitutes the basis for the development and the monitoring of a corporate GHG emissions reduction plan ("you can manage what you know"). The reporting of corporate emissions provides information to policy makers and may help in developing targeted climate change policies and monitoring progress across industries. For other stakeholders, including consumers, commercial partners and financial institutions, information on corporate emissions provides a basis to understand companies' carbon footprint and their performance in managing climate-change risks.

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10 In 2009, USCAP issued a consensus report, "A Blueprint for Legislative Action", a detailed framework for legislation to address climate change. According to USCAP, "it is a direct response to federal policymakers who recognize, as we do, that well-crafted legislation can spur innovation in new technologies, help create jobs and provide a foundation for a vibrant, low-carbon economy." www.us-cap.org.

11 At the meeting, which was organised to mobilise private sector engagement in the development of the future policy framework on climate change to be discussed at the Copenhagen Conference, participants adopted the "Copenhagen call", in which business leaders "call upon [our] politicians to agree and ambitious and effective global climate treaty (…). Success at COP 15 will remove uncertainty, unleash additional investment, and bolster current efforts to revive growth in a sustainable way (…). A powerful global climate change treaty would help establish a firm foundation for a sustainable economic future. This would set a more predictable framework for companies to plan and investment, provide a stimulus for renewed prosperity and a more secure climate system".

- Beyond emissions accounting, a proactive business attitude involves ***reducing emissions***. A key step is setting emission reduction targets. When designed properly, emission reduction plans can lead to measurable progress in lowering emissions, and to increased energy and resource efficiency. Emission reduction plans are also a strong trigger of innovation and technology development. Ensuring effective reductions requires embedding climate change considerations into corporate governance, from the board to managers and employees.

- Companies also need to ***reach out of their boundaries*** and interact with others if they are to contribute to a low carbon future in a meaningful manner. Often, the bulk of emissions is produced throughout the supply chain and in the use and disposal of products. As a result, an increasing number of leading companies have undertaken to lower their carbon footprint by involving their suppliers. Another key actor are consumers. Because consumers have such an important impact on climate change, companies are making increasing efforts to engage with them. Companies have a crucial role to play to raise consumer awareness and support informed consumer choices by providing meaningful climate related information on their products. Another important area of corporate engagement is participation in the policy debate and in the development of national and international climate change and emission reduction policies. Companies are also key actors in reaching out to developing countries through the development and transfer of low carbon technologies and know-how.

26. This report builds on selected recommendations of the OECD *Guidelines for Multinational Enterprises* to structure the discussion and identify the main elements of responsible business conduct in the field of climate change. Though the *Guidelines* do not specifically address climate change, they cover key areas of corporate activity which have direct or indirect links with activities that are relevant to address climate change (see Box 1).

Box 1. OECD Guidelines for Multinational Enterprises

The OECD *Guidelines for Multinational Enterprises,* adopted in 1976 and revised in 2000, provide a set of principles and standards applicable to multinational and domestic enterprises for responsible business conduct in all areas of business ethics (including disclosure, employment and industrial relations, environment, combating bribery, consumer interests, science and technology, competition and taxation).

The *Guidelines* are the most comprehensive international instrument developed by governments that encourages enterprises to integrate business ethics into their decision-making with a view to contributing to economic, social and environmental progress. To date, 31 OECD countries, Brazil and 10 other emerging economies adhere to the Guidelines. They are also one of the few corporate responsibility instruments to enjoy the official support of business (BIAC)[12], labour (TUAC)[13] and NGOs (OECD Watch)[14].

The Guidelines' call on enterprises to contribute to the goals of sustainable developments encompasses companies' contribution to addressing climate change.[15] The recommendation to applying precaution[16] - where there are threats of

12 www.biac.org.

13 www.tuac.org.

14 www.oecdwatch.org.

15 "Enterprises should contribute to economic, social and environmental progress with a view to achieving sustainable development (…)" (Chapter II.1 and 7, General Policies). "Enterprises should, within the

serious damage to the environment, not to use the lack of full scientific certainty for postponing measures to prevent or postpone such damage – is also relevant in a climate change context. Other key recommendations of the *Guidelines* which are relevant for business action related to climate change refer to establishing an environmental management system that allows the collection and disclosure of information, managing and reducing environmental impacts, addressing consumer interests, and co-operating with stakeholders.

In addition to providing recommendations on responsible business conduct, the *Guidelines* also benefit from a unique implementation mechanism, in the form of government offices (National Contact Points or NCPs) responsible for encouraging the observance of the *Guidelines* in a national context and for ensuring that they are well known and understood by the national business community and by other interested parties. The NCPs gather information on national experiences with the *Guidelines*, handle enquiries, discuss matters related to the *Guidelines* and assist in solving problems that may arise in this connection. As of March 2010, two cases have been filed in relation, *inter alia*, with climate change impacts of a company's activities.[17]

Source: www.oecd.org/daf/investment/guidelines

27. The paper draws on publically available information on business practices and government policy frameworks, and information volunteered by companies, government representatives and other experts in bilateral interviews, and on the occasion of public consultations held by the OECD in Japan, Thailand and Paris.

28. In addition, a survey to companies was carried out with the assistance of BIAC, aimed to fill some information gaps, to highlight the difficulties met by companies and to express their expectations on government measures that would support business practices. The questionnaire sent out to companies is reproduced in Annex 1. The survey is still ongoing. As of mid-June 2010, 61 companies from 15 countries had responded, representing a broad range of sectors (energy, mining, industry, food, pharmaceutical, financial services). Preliminary results of the survey are included in this report.

framework of laws, regulation and administrative practices in the countries in which they operate, and in consideration of relevant international agreements, principles, objectives, and standards, take due account of the need to protect the environment, public health and safety, and generally to conduct their activities in a manner contributing to the wider goals of sustainable development." (Chapter V, Environment)

16 "Consistent with the scientific and technical understanding of the risks, where there are threats of serious damage to the environment, taking also into account human health and safety, not use the lack of full scientific certainty as a reason for postponing cost-effective measures to prevent or minimise such damage." (Chapter V.4, Environment).

17 Information available in the Report by the Chair of the 2009 Annual meeting of the National Contact Points (DAF/INV/NCP(2009)1/REV2), on the OECDWatch site (http://oecdwatch.org/cases/Case_170), and on the site of the German contact point (www.bmwi.de/go/nationale-kontaktstelle).

ACCOUNTING FOR CORPORATE EMISSIONS

29. Collecting accurate information related to the company's activities and making it publicly available are important elements of responsible business conduct, as reflected in Chapters III (Disclosure) and V (Environment) of the *Guidelines*. The *Guidelines* encourage disclosure "in areas where reporting standards are still emerging such as, for example, social, environmental, and risk reporting." The commentaries to the *Guidelines* emphasize that "clear and complete information on enterprises is important to a variety of users ranging from shareholders and the financial community to other constituencies such as employees, local communities, special interest groups, governments and society at large. To improve public understanding of enterprises and their interaction with society and the environment, enterprises should be transparent in their operations and responsive to the public's increasingly sophisticated demands for information."

30. The recent business literature shows the growing importance for companies of collecting information regarding their GHG emissions. According to CERES (2008)[18], "it is becoming increasing vital for companies to begin inventorying emissions associated with their operations". Preparing inventories of its emissions is an essential first step for a company wishing to identify its carbon footprint, to assess its vulnerability to climate change and to start developing a plan towards reducing emissions. These have been confirmed as major motivations for undertaking a GHG inventory by the OECD survey on *Business Practices to Reduce GHG Emissions* (hereafter referred to as the OECD survey). GHG inventories and their disclosure also allow benchmarking companies' performance against others in the same sector and can stimulate action to improve performance. Finally, accounting and reporting emissions are seen as an important way to demonstrate that the company is aware of its impact on climate change, and of the need to take action to mitigate it.

31. Asking companies to report GHG emissions is proving to be an important tool for policy makers. The data are usually not used to aggregate emissions at national level[19]. However, emission data at corporate level is an essential source of information for the development of climate change policies (as made clear in the Korean Act on Low Carbon Green Growth[20] and the UK Adaptation Reporting Power[21]).

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18 Ceres is a national network of investors, environmental organizations and other public interest groups working with companies and investors with the mission to integrate sustainability into capital markets: www.ceres.org.

19 Under the UNFCCC, states have committed to different levels of transparency about their emissions. According to the ICC, "by requiring countries to develop and report progress on their climate change policies, compliance will be improved and business, the public and all stakeholders will shape a more transparent, robust and pragmatic understanding of current and future policy trends.": www.iccwbo.org/policy/environment/iccdebee/index.html.

20 See Box 4.

21 See section below.

It is also necessary for monitoring of the performance of policies and progress across companies and industries. Other motivations may also prompt countries to support corporate reporting of emissions, including the lever it constitutes for business action. Companies are indeed more likely to reduce their emissions once they have identified the level and sources of their emissions (a prerequisite to reporting). In a context where several carbon reporting standards and methodologies exist, national guidance and requirements ensure greater consistency and comparability of corporate practices. This is, for example, clearly stated in the UK Guidance on how to measure and report on GHG emissions[22].

32. Access to emission-related information is increasingly becoming important for other stakeholders as well, including consumers, commercial partners and financial institutions, as it provides a basis to understand a company's carbon footprint, its vulnerability to the direct and indirect impact of climate change and to assess its ability to monitor and manage the related risks.

33. As a result, pressure on companies to account and disclose GHG emissions and other climate change related information has grown.

Corporate accounting and reporting of GHG emissions is increasing

"Enterprises should ensure that timely, regular, reliable and relevant information is disclosed regarding their activities (...) and performance." Chapter III of the *Guidelines* (Disclosure).

Enterprises are "encouraged to communicate additional information that could include: value statements or statements of business conduct intended for public disclosure including information on the social, ethical and environmental policies of the enterprise and other codes of conduct to which the company subscribes." Chapter III of the *Guidelines* (Disclosure).

Enterprise should "disclose material information on ... material foreseeable risk factors." (Chapter III 4., Disclosure)

Enterprises should "provide the public and employees with adequate and timely information on the potential environment, health and safety impacts of the activities of the enterprise, which could include reporting on progress in improving environmental performance." Chapter V of the *Guidelines* (Environment).

34. There is an upward trend in corporate accounting and reporting of GHG emissions and other climate change related information. 409 companies among the Global 500 responded to the survey launched by the Carbon Disclosure Project (see box 2) in 2009, up from 383 in 2008. Among them, 85% declared reporting on GHG emissions in annual corporate reporting (from 80% in 2008). Between the first CDP report in 2003 (CDP1) and the latest one in 2009 (CDP7), the level of total disclosed emissions under the CDP rose from 1.8 to 10bn tonnes of CO2 equivalent. This resulted from an increase in the response rate to CDP, an increase in disclosure rates among the Global 500 and the widening scope of covered emissions, to incorporate three different GHG (CO2, CH4, N2O).

[22] See Table 3.

Box 2. The Carbon Disclosure Project

The Carbon Disclosure Project (CDP) is an independent not-for-profit organization holding the largest database of primary corporate climate change information in the world. CDP annually requests information from companies on behalf of 534 institutional investors with a combined USD64 trillion in assets under management. The information collected covers four principal areas:

1. Management's views on the risks and opportunities that climate change presents to the business;

2. Greenhouse gas emissions accounting;

3. Management's strategy to reduce emissions/minimize risk and capitalize on opportunity; and

4. Corporate governance with regard to climate change.

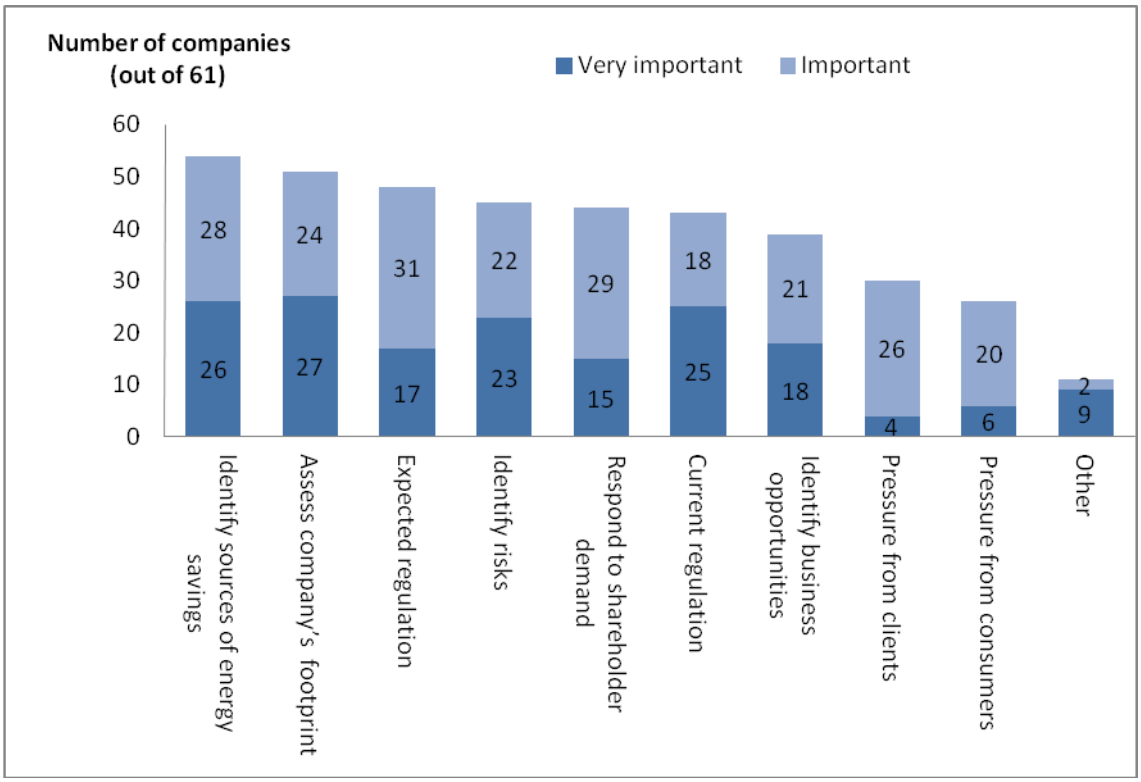
The first request for information was sent out in 2003. Since then, the number of disclosing organisations has grown tenfold, from 235 to 2500, and involves companies from some 60 countries. CDP has also extended its activities to collect information on climate change across the supply chain (CDP Supply Chain and CDP Public procurement), to collect climate change information from cities (CDP Cities) and to collect corporate information on water (Water Disclosure Project).

Source: www.cdproject.net

35. This upward trend in corporate accounting and reporting of GHG emissions is due to a number of factors, including increased regulatory requirements (or their anticipation), growing awareness of climate change related challenges and opportunities and greater demand from financiers, investors and other stakeholders for disclosure of non-financial information[23]. The responses to the OECD survey confirm that companies are driven by multiple motivations when making a GHG inventory (see Figure 1). Among the 10 possibilities offered in the survey questionnaire, companies declare on average being driven by 6 motivations for undertaking an inventory of their GHG emissions - that they consider either very important or important. Among those, companies overwhelmingly mention "identifying sources of energy saving" and "assessing their carbon footprint" as major motivations. Complying with current or future regulations is an important or very important driver for 8 of 10 responding companies. By contrast, only few companies qualify pressure from clients or consumers to be a "very important" driver for making a GHG inventory.

[23] See notably Kolk and Pinkse (2009 and 2010).

Figure 1. Motivations for undertaking a GHG inventory



Source: OECD survey on business practices to reduce emissions

36. Regulatory pressure for the disclosure of climate change related information may take several forms. Disclosure of emissions is a key component of emission trading schemes, such as the European Union Emissions Trading Scheme (EU ETS). It can also be the subject of climate change or energy legislation adopted at country level (see Box 3 for a selection of country examples). It has also been promoted through increased regulatory pressure for the disclosure of non-financial information as part of sustainability reporting exercises[24].

Box 3. Regulatory requirements on corporate reporting of GHG emissions in selected countries

In **Japan**, annual mandatory reporting of GHG emissions was introduced in 1998 through the Act on promotion of global warming countermeasures and the Act on rational use of energy (the reporting rule applied from April 2006). Reporting is compulsory for companies with annual energy consumption above 1,500Kl (crude oil equivalent) and companies in the logistics, distribution and transport sector with volume above 30mt. In 2008, 7 813 business sites reported 614mt CO2 and 1 447 transporters reported 365mt CO2 (the equivalent of 47% of Japan total emissions).

France adopted in 2001 the Act on New Economic Regulation (Nouvelles Régulations Economiques) which requires a

[24] For a panorama of sustainability reporting in Europe, see: www.sustainabilityreporting.eu. As such an example, Denmark adopted in May 2008 an Action Plan on Corporate Social Responsibility to make it mandatory for the approximately 1100 of its largest companies to report on their progress on corporate social responsibility, including on their actions to address climate change.

number of companies to produce an environmental and social report featuring information on GHG emissions. The forthcoming Law "Grenelle 2" is expected to broaden the requirement and to make GHG inventories mandatory for companies from polluting sectors with 500 employees and more.

In the UK, a number of companies already report their GHG emissions under Climate Change Agreements (voluntary mechanism) or the Carbon Reduction Commitment (a mandatory cap and trade scheme on energy use emissions started in April 2010 that requires some 5 000 organisations to record and monitor their carbon emissions and an additional 15 000 organisations to disclose their electricity usage)[25]. The Climate Change Act of 2008 requires the Government to take a decision by April 2012 on whether to introduce regulations on the reporting of greenhouse gas emissions[26]. In anticipation, the Government published in October 2009 guidance on the measurement of GHG emissions to assist organisations with the reporting of emissions[27] and is carrying out a review to evaluate the contribution that reporting on GHG emissions is making to the achievement of Government's climate change objectives (to be ready by December 2010).

In **Australia**, under the National Greenhouse and Energy Reporting (NGER) Act, corporations emitting more than 125,000 tonnes CO2 equivalent per annum started to report on their energy and greenhouse gas emissions to the Government in October 2009 for financial year 2008/2009.

The US Environmental Protection Agency (EPA) issued in September 2009 a rule for mandatory reporting of GHG for suppliers of fossil fuels or industrial GHG, manufacturers of vehicles and engines, and facilities that emit 25,000 metric tons or more of GHG emissions per year, starting in March 2011 (for year 2010).[28]

In **New Zealand**, mandatory reporting of GHG emissions for stationary energy and industrial processes is scheduled to commence in March 2011 for 2010.

In **Korea**, the Basic Act on Low Carbon Green Growth requires energy-intensive companies and/or companies emitting GHGs over a certain amount to report their emissions and energy consumption to the Government. Based on the information collected, the Government will decide over the cap of the forthcoming cap-and-trade scheme and allocate GHG emissions limits to major facilities. A new bill is expected to define permit allocation scheme, emissions registration, management system, etc.

Sources: various, including publicly available websites and government documentation.

37. Interest in more elaborate accounting of climate change information at corporate level has grown over the last years, especially in relation to risks and opportunities that climate change carries for business (such as the risks posed by existing or forthcoming regulations, threat of litigation, and physical and weather-related hazards – see table 1 for a description) and to the elements of corporate strategies to address these risks (GRI/KPMG, 2007 and CERES, 2009). Pressure for increased corporate reporting of climate change related risks is mounting in response, *inter alia*, to the growing interest of investors and insurers.

Table 1. Climate change related risks for business

Climate change-related risks for business	Relate to emissions produced by the	Relate to risks incurred by the company due to the impacts of

25 www.carbonreductioncommitment.info

26 In that perspective, the Government is carrying out a review by December 2010 to evaluate the contribution that reporting on GHG emissions is making to the achievement of Government's climate change objectives.

27 www.defra.gov.uk/environment/business/reporting/pdf/ghg-guidance.pdf

28 www.epa.gov/climatechange/emissions/ghgrulemaking.html

	company and require action to reduce emissions	climate change, require action to adapt to these impacts
Regulatory risks: tightening national and international regulations	X	X
Operational risk: impacts on operations due to extreme weather events, rising energy and transport prices		X
Product and technology risks: decline in demand in carbon intensive products and technologies	X	
Competitive risks: loss of advantage vis-à-vis competitors	X	
Reputational risks: consumer and shareholder backlash from perceived lack of action to address climate change	X	
Physical risks: direct impacts of climate change, like extreme weather events, rising sea levels, water scarcity, health problems		X
Litigation risks: threat of climate change-related law suits; can affect both the company and directors who may become vulnerable to shareholder litigation.	X	
Supply chain risks: increased production costs of supplies if suppliers do not take action to lower their costs and risks.		X

Source: Based on WRI (2008) and Hoffmann (2008).

38. This trend is in line with the Guidelines and the OECD *Principles of Corporate Governance* (chapter V on Disclosure and Transparency)[29]. The annotations to the Principles specify that "Users of financial information and market participants need information on reasonably foreseeable material risks that may include: risks that are specific to the industry or the geographical areas in which the company operates; dependence on commodities; financial market risks including interest rate or currency risk; risk related to derivatives and off-balances sheet transactions; and risks related to environmental liabilities. The Principles do not envision the disclosure of information in greater detail than is necessary to fully inform investors of the material and foreseeable risks of the enterprise. Disclosure of risk is most effective when it is tailored to the particular industry in question. Disclosure about the system for monitoring and managing risk is increasingly regarded as good practice."

39. In 2009, the US National Association of Insurance Commissions approved a mandatory requirement for insurers with annual premiums of USD 500 million or more to disclose climate change related risks beginning in May 2010. In the US, the UK, Australia and Canada, disclosure of environmental risks in financial reports when material for the company is already required by law. In Australia, in

29 www.oecd.org/dataoecd/32/18/31557724.pdf

accordance with the Corporations Act of 2001, financial reports of companies must disclose environmental information that affects financial performance. In Canada, the Annual Information Form filed by companies listed on the Toronto Stock Exchange must contain information on the financial and operational effects of current and future environmental protection requirements that are material for the company and on steps taken to put them in practice.

40. So far, however, corporate disclosure of climate change-related risks remains limited. In a review of 6 000 filings by S&P 500 companies to the US Securities and Exchange Commission (SEC) between 1995 and 2008, CERES and Environmental Defense Fund (2009) found that 75% of annual reports filed in 2008 failed to mention climate change and only 5% articulated a strategy for managing climate-related risk.[30] In other countries, disclosure requirements have also elicited limited response from companies. According to CDSB (2009)[31], the Markets Supervision review of the Australia Securities Investment Commission for 2008 showed that only 9 companies (5% of reviewed companies) reported on climate change risk. The same conclusion of inadequate compliance with reporting requirements was drawn by the Ontario Securities Commission in its Staff Notice 51-716 on Environmental Reporting[32].

41. In reaction to the limited disclosure of climate change related risks, members of the Investor Network on Climate Risk (INCR)[33] sent, in September 2007, a petition to the US Securities and Exchange Commission (SEC) asking that it require publicly held companies to assess and fully disclose their material financial risks and opportunities from climate change. A Congressional hearing was convened on the SEC's role in addressing climate change and in January 2010, the SEC issued an interpretive guidance on how to apply existing SEC disclosure regulations to climate change-related matters.[34] This was hailed by some – including the Chartered Accountants of Canada[35] - as an important signal to the market that climate change is given increased consideration by the financial community in the US.

42. In the UK, pressure for the disclosure of the risks and opportunities from a changing climate is also mounting in response to the increased need perceived by the government to adapt to the consequences of climate change. The UK Climate Change Act 2008 gives power to the government to direct a number of public and private authorities responsible for essential services and infrastructure to prepare reports on the current and predicted risks that climate change presents for them; and the measures to address these risks.[36] This affects in particular water, energy and transport companies. The first reports are expected by end 2011. A second set of reports should follow in 2015. The Adaptation Reporting Power has three objectives: to collect information to feed in the UK's first Climate Change Risk Assessment due in January 2012, upon which the First National Adaptation Programme will build; to raise awareness among the key

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30 www.ceres.org/Document.Doc?id=539

31 www.cdsb-global.org/uploads/pdf/cdsb_copenhagen_update.pdf

32 www.osc.gov.on.ca/documents/en/Securities-Category5/sn_20080229_51-716_enviro-rpt.pdf

33 The petition was submitted by a group of investors with USD 1.5 trillion in assets along with Ceres and several other nonprofit organizations. See INCR: www.incr.com

34 www.sec.gov/rules/interp/2010/33-9106fr.pdf

35 www.cica.ca/climatechange

36 The Adaptation Reporting Power: www.defra.gov.uk/environment/climate/legislation/reporting.htm

infrastructure authorities; and to incentivise them to prepare and adapt to the potential impacts of climate change.

43. While at present regulatory requirements for the disclosure of GHG emissions and other climate change related information remain limited to a number of OECD countries, reporting has been promoted through a number of other mechanisms, including ranking and benchmarking (e.g., in the Netherlands) and awards (e.g., the German Sustainability Awards). The UK's ACCA Awards recognises companies for excellence in environmental, social and sustainability reporting.[37] In 2008, ACCA UK awarded BT Group for the best report for strong integration of sustainability into business strategy and disclosing the company's GHG emission reduction targets as well as feedback on performance against targets.[38]

44. The trend towards increased corporate reporting of climate change related information is also visible in non-OECD countries where companies are starting to include sections on climate change in their annual report, even in the absence of carbon regulations (see Box 4 for a summary of trends in business practices in China, India and South Africa). In its annual report for 2008, Charoen Pokphand Foods (CPF), a leading food processing company in Thailand, chose to report on three areas of operation where it has taken measures: using energy efficiently, using modern and innovative technologies to reduce energy consumption and reduce the emissions of methane and carbon dioxide. The company is one of three in Thailand selected to participate in the potential development of a carbon label for the Thai food industry, an initiative that will necessarily entail measurement and reporting of GHG emissions.[39]

Box 4. Corporate accounting and reporting of GHG emissions in China, India and South Africa

Corporate accounting and disclosure of GHG emissions are not regulated in China, India and South Africa. Nevertheless, corporate practices in these areas are developing. As an illustration, the carbon Disclosure Project notes that in 2009, among the top 200 Indian companies that were approached to fill in the CDP survey, 44 responded. In South Africa, 67 companies, among the 100 that were approached, responded to the CDP survey. In China, 11 companies (out of 100) answered the survey and 18 provided information.

According to the Indian company who responded to the OECD survey, assessing its carbon footprint and identifying opportunities for energy savings were major drivers for undertaking carbon inventories in the absence of regulatory pressure. In addition, the evolution of regulatory frameworks globally is also mentioned as an important factor. In particular, the company mentions expecting stricter regulations pertaining to fuel efficiency and operations in near future and being very sensitive to regulatory developments in countries of operation (EU, USA…).

What to report: the scope of GHG accounting and reporting

Enterprises "should establish and maintain a system of environmental management appropriate to the enterprise, including: a) collection and evaluation of adequate and timely information regarding the environmental, health and safety impacts of their activities". Chapter V.1 of the *Guidelines* (Environment).

37 www.accaglobal.com/publicinterest/activities/subjects/sustainability/awards

38 www.bt.com/betterworld

39 www.cpfworldwide.com/cpd/en/page/ir/download_annual_report.html.

Enterprises should "assess, and address in decision-making, the foreseeable environmental, health, and safety-related impact associated with the processes, goods and services of the enterprise over their full life cycle". Chapter V. 3 of the *Guidelines*, (Environment).

45. Corporate accounting and reporting of direct GHG emissions (scope 1 emissions as defined by the Greenhouse Gas Protocol, the most widely used accounting tool to measure GHG emissions at corporate level – see Box 5) and of emissions related to energy consumption (scope 2 emissions) have been steadily increasing in the past few years. Just between 2008 and 2009, CDP reports an increase in the disclosure of scope 1 and 2 emissions from 72% of companies in 2008 to 83% in 2009.

Box 5. Categories of emissions as defined by the GHG Protocol[40]

Scope 1 GHG emissions are direct emissions from GHG sources owned or controlled by the company.

Scope 2 GHG emissions do not physically occur from within the company reporting boundary and are therefore "indirect" emissions. Scope 2 emissions are caused by the organisations consumption of electricity, heat, cooling or steam. This category is often called "purchased electricity" because it represents the most common source of Scope 2 emissions.

Scope 3 GHG emissions are a company's indirect emissions other than those covered in Scope 2, such as the extraction and production of purchased materials and fuels, transport-related activities in vehicles not owned or controlled by the reporting entity, electricity-related activities not covered in Scope 2, outsourced activities, waste disposal, etc. They are from sources that are not owned or controlled by the company, but which occur as a result of its activities.

Source: GHG Protocol, www.ghgprotocol.org.

46. Only few companies go beyond the accounting of direct emissions and purchased electricity to assessing the total amount of GHGs produced throughout the supply chain or the whole life of a product, from production to final disposal. According to the 2008 survey of the Global 500 carried out by CDP, disclosure of full indirect emissions (scope 3, as defined by the GHG Protocol) was pursued by less than half of the companies that disclose direct emissions. In 2009, CDP further notes that "disclosure of Scope 3 emissions remains consistently weak across all sectors".

47. This largely reflects the scope of existing mandatory GHG emissions schemes, most of which focus on the reporting of direct emissions. It is also, to a large extent, the result of technical difficulties in collecting information beyond a company's boundary and of the absence of internationally agreed standards and methodologies for the analysis of supply chain and life-cycle emissions. As an illustration, 3 companies over 10 who responded to the OECD survey commented that indirect emissions and information on suppliers' emissions raise major issues in terms of data collection and methodology. Given the difficulty of collecting the information, some companies question the extent to which accounting and reporting of scope 3 emissions can lead to meaningful estimates. There is also some concern on the part of responding companies to be held responsible for the emissions of suppliers, while having limited reliable information or influence on them. Product level GHG accounting also raises a number of issues for

[40] Information on the GHG Protocol is developed in the next section.

companies, including the substantial resources needed to measure the carbon footprint of sometimes thousand of products.

48. This is, nevertheless, a fast developing field: WRI/WBCSD (2008)[41] reported some 70 sources of initiatives, guidance or standards for the analysis of supply chain and life-cycle emissions[42]. ISO has started developing a standard (ISO 14067) and the WRI and WBCSD are working on new guidelines for product and supply chain GHG accounting and reporting due for publication in 2010 as part of the GHG Protocol Initiative[43]. Some countries have also chosen to promote a footprint approach in their voluntary reporting mechanisms: the UK guidance on how to measure and report GHG emissions proposes a methodology that covers an organisation's total GHG emissions. The methodology promoted in France – Bilan Carbone – also takes a footprint approach.

49. Other emission related information disclosed by companies, mainly on a voluntary basis, includes GHG reduction targets, emissions forecasts and level of verification. As shown by the information provided by CDP over the last 2 years, disclosure of this information is in net increase. 45% of the Global 500 acknowledged reporting emissions forecasts in the 2009 CDP survey, compared to 10% in 2008. In 2009, 51% of companies disclosed emission reduction targets, compared to 41% in 2008. Finally 49% of companies reported verifying emissions in 2009, compared to 43% in 2008. Companies also increasingly report qualitative information on the key elements of their emission reduction plans, key commitments and priorities. As such an example, Marks & Spencer includes in its "How we do Business" report for 2009 a section on progress in achieving its commitments, providing data as well as concrete examples and a self-evaluation.[44]

50. The proportion of companies making emission-related information publically available is also growing (from 62% in 2008 to 69% in 2009 among the Global 500 according to CDP), a sign that emissions related information is raising less confidentiality concerns. This is confirmed by the fact that only one company raised it as a main difficulty in estimating and disclosing GHG emissions in response to the OECD survey. Some companies may still be concerned by the public disclosure of emission reduction targets or detailed corporate information on activities, strategies and investment plans to reduce emissions. However, as the playing field is levelling and more and more companies are disclosing emission data, concern that this would give market advantage to competitors is lessening.

51. The still limited corporate disclosure of information on climate change related-risks noted in the last section can in part be explained by the difficulties that companies face in defining these risks and in gauging how they may affect companies. This is likely to change with current efforts in some countries to qualify material risks related to climate change. In the guidance issued in January 2010 by the SEC to qualify how climate change can trigger disclosure requirements for firms, potential material risks for firms

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41 www.ghgprotocol.org/files/survey-summary.pdf

42 Including the ISO 14040 series for life cycle assessment, ISO 14025 for environmental labels and declarations, the UK PAS 2050 for the assessment of the life cycle GHG of goods and services, UNEP/SETAC Life Cycle Initiative, the EC guidance on Life Cycle Accounting and Carbon Footprinting.

43 www.ghgprotocol.org/standards/product-and-supply-chain-standard

44 http://plana.marksandspencer.com/media/pdf/we_are_doing/climate-change/climate_change_2009.pdf.

include the physical impact of climate change, the fast development of climate-related regulations and subsequent changes in market (inputs and products) (Box 6).

Box 6. SEC interpretative guidance: examples of where climate change may trigger disclosure requirements

Impact of legislation and regulation: When assessing potential disclosure obligations, a company should consider whether the impact of certain existing laws and regulations regarding climate change is material. In certain circumstances, a company should also evaluate the potential impact of pending legislation and regulation related to this topic.

Impact of international accords: A company should consider, and disclose when material, the risks or effects on its business of international accords and treaties relating to climate change.

Indirect consequences of regulation or business trends: Legal, technological, political and scientific developments regarding climate change may create new opportunities or risks for companies. For instance, a company may face decreased demand for goods that produce significant greenhouse gas emissions or increased demand for goods that result in lower emissions than competing products. As such, a company should consider, for disclosure purposes, the actual or potential indirect consequences it may face due to climate change related regulatory or business trends.

Physical impacts of climate change: Companies should also evaluate for disclosure purposes the actual and potential material impacts of environmental matters on their business.

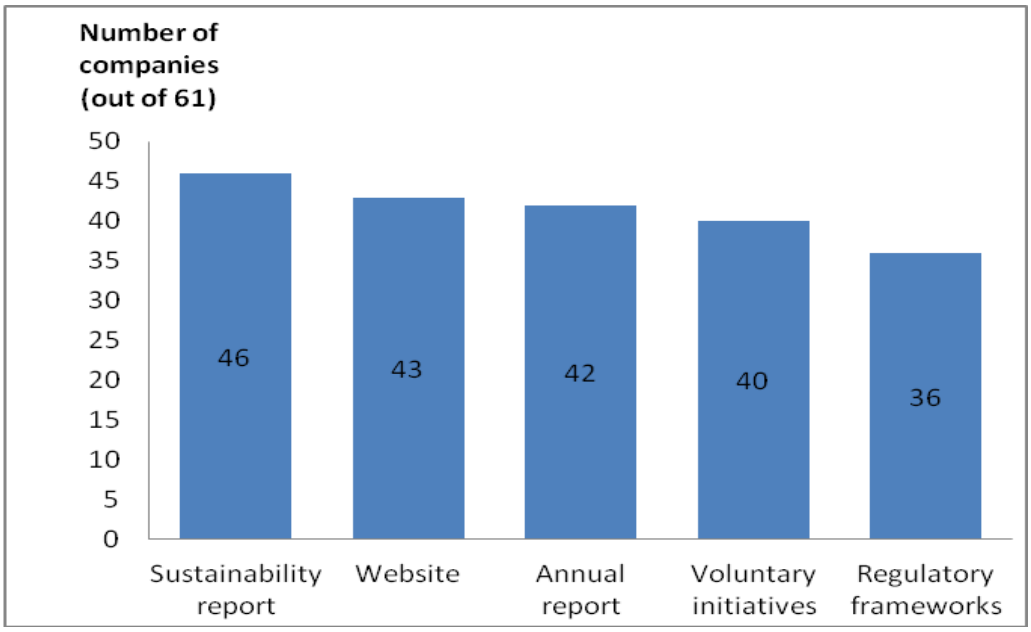
Source: SEC, www.sec.gov/news/press/2010/2010-15.htm

How to report: methodologies and reporting frameworks

The multiplicity of reporting frameworks

52. Companies have different ways to disclose their GHG emissions and other climate change-related information: by reporting to responsible authorities under specific disclosure requirements, in annual reports, in sustainability reports or by putting information on their company website. In addition, different external mechanisms exist, such as voluntary registries and surveys.

Figure 2. Reporting frameworks



Source: OECD survey on business practices to reduce emissions

53. Many companies report emissions under several frameworks. The respondents to the OECD survey indicate making their GHG emissions available under four reporting frameworks on average (see Figure 2). More than half of the responding companies (36) are subject to regulatory requirements on carbon reporting. Among them, 22 companies have reporting requirements in relation to EU ETS. Seven mention other carbon trading markets such as the UK Carbon Reduction Commitment or the New Zealand Emission Trading Scheme (in addition to EU ETS for 5 of them). Eleven companies mention national regulations such as the Japanese Law on the Promotion of the Measures to cope with Global Warming, the National Greenhouse and Energy Reporting Act in Australia, US EPA disclosure rule and the French Grenelle rule for companies above 500 employees.

54. In addition, three quarters of companies report their carbon emissions in their sustainability reports, on their website and annual reports. Two thirds of responding companies also contribute to voluntary reporting initiatives, among which the CDP features prominently (half of respondents participate in the CDP survey). Other voluntary schemes include sector initiatives (such as the Cement Sustainability Initiative), US Climate Leaders (see chapter on reducing emissions), EMAS, the World Economic Forum Global GHG Registry and country registries (see Box 7).

Box 7. Selection of voluntary reporting schemes

EU Eco-Management and Audit Scheme (EMAS)[45]: Management tool for companies and other organisations to evaluate, report and improve environmental performance. The scheme has been available for voluntary participation

[45] http://ec.europa.eu/environment/emas

by companies since 1995. New EMAS III Regulation which entered into force in January 2010 mentions emissions of all GHG emissions as part of the 6 core indicators for reporting. To receive EMAS registration an organisation must comply with the following steps: 1) conduct an environmental review; 2) in the light of the results of the review, establish an effective environmental management system aimed at achieving the organisation's environmental policy defined by the top management; 3) carry out an environmental audit; and 4) provide a statement of its environmental performance.

World Economic Forum Global GHG Registry[46]: Global initiative to stimulate disclosure by companies of their worldwide climate emissions (by opposition to other reporting schemes that focus on national emissions), using the GHG Protocol as methodological basis for preparing the inventory. Companies are required to report inventory data on material direct and indirect GHG emissions relating to the purchase of electricity, heat and steam annually and to make the information publicly available on a web-based platform. Independent verification of inventories or third-party spot check organized by the GHG Registry is required.

California Climate Action Registry[47]: Voluntary GHG registry established in 2000 to promulgate standards and tools to measure, report, verify and reduce GHG in California and in the US.

GHG CleanStart Registry of the Canadian Standards Association[48]: Voluntary GHG registry helping organisations showcase carbon neutral commitments and actions, based on ISO 14064. The Registry offers guidance and tools to help organisations establish their carbon footprint and the steps involved in reducing, offsetting, eliminating emissions and publicly showcasing efforts.

Sources: publicly available websites.

The multiplicity of accounting tools

55. The multiplicity of reporting frameworks translates into a multiplicity of reporting requirements and GHG accounting tools. Mandatory schemes have their own reporting guidelines, such as the European Commission Monitoring and Reporting Guidelines under the EU ETS.[49] Other reporting guidelines exist that either integrate climate change disclosure within the broader framework of sustainability reporting (such as the Global Reporting Initiative), or provide sector or country frameworks (see Table 2).

Table 2. Selected corporate reporting guidelines

General reporting frameworks		
Global Reporting Initiative	Guidance for any organization to disclose sustainability performance. The GRI addresses a much wider set of issues than emissions reporting. It provides a framework to disclose information on economic, social and environmental performance.	www.globalreporting.org
Global Framework for Climate Risk Disclosure	Framework to encourage standardized climate risk disclosure to investors and its insertion in existing reporting mechanisms (business risks and opportunities resulting from climate change and companies efforts to address them).	Investor Network on Climate Risk: www.incr.com
Country-specific initiatives		
Australia National	The National Greenhouse and Energy Reporting Act 2007	www.climatechange.gov.

46 www.pewclimate.org/we_forum.cfm

47 www.climateregistry.org

48 www.ghgregistries.ca

49 http://ec.europa.eu/environment/climat/emission/mrg_en.htm

Greenhouse Accounts Factors	introduced a single national reporting framework for the reporting and dissemination of information about GHG emissions, GHG projects, and energy use and production of corporations. It is designed for use by companies and individuals to estimate GHG emissions for reporting under various government programs and for their own purposes.	au/workbook/index.html
France Bilan Carbone	Methodology for corporate GHG accounting. The website details the methodology and makes available a list of certified organizations able to carry out the assessment. The methodology takes a carbon footprint approach but work is underway to differentiate between direct and indirect emissions; it is compatible with ISO 14064, the GHG Protocol and the EC Monitoring and Reporting Guidelines for the EU ETS.	www.ademe.fr/bilan-carbone
GHG Mexico Program	GHG Mexico Program is a voluntary national program of accounting and reporting of GHG emissions. It is consistent with the GHG protocol.	www.geimexico.org/english.html
New Zealand Business Council for Sustainable Development	Guide and on-line calculator to help organizations to measure and manage GHG emissions for voluntary purposes. The guide builds on the GHG Protocol to measure the carbon footprint, use that information to reduce the carbon footprint, and explore options to offset emissions that cannot be reduced.	www.nzbcsd.org.nz/emissions
UK guidance on how to measure and report GHG emissions.	Guidance for businesses and organisations on how to measure and report their GHG emissions. It is meant to clarify Government's expectations in terms of GHG emissions reporting in an area where several competing carbon reporting standards exist and to pave the way for possible mandatory reporting by 2012. The guidance builds on the GHG Protocol and covers an organisation's total GHG emissions (carbon footprint).	www.defra.gov.uk/environment/business/reporting/ghg-report.htm
Sector-specific initiatives		
GRI Electric Utility Sector Supplement	Sector-specific disclosure and performance indicators. Expected for 2009.	www.globalreporting.org/ReportingFramework/SectorSupplements/ElectricUtilities
Global Climate Disclosure Framework for Electric Utilities	Guidelines to electricity utilities and power generators for presenting information on emissions and on climate change strategy. It complements the GRI Electric Utility Sector Supplement by requiring more detailed information on carbon emissions and corporate strategy to address climate change.	www.iigcc.org/docs/PDF/Public/Globalelectricutilitiesdisclosureframework.pdf
Petroleum Industry Guidelines for Reporting GHG Emissions	Guidelines addressed to the petroleum industry to promote consistent and reliable GHG accounting and reporting practices from oil and gas operations. The guidelines build on the GHG Protocol.	www.ipieca.org/activities/climate_change/downloads/publications/ghg_guidelines.pdf

Sources: publicly available websites.

56. Multiple requirements for carbon reporting and differences in calculation methodologies raise difficulties for businesses. The lack of a universal standard and methodologies for scope 3 emissions has been emphasised by the companies responding to the OECD survey as a major challenge. One company mentions facing intra-group difficulties related to the inconsistency of approaches between two countries in which it operates: in one case rental car activity is included in Scope 1 and in the other one it is included in Scope 3. In addition to the specific challenge raised by indirect emissions, companies stress the

divergences across countries in practices and reference levels to determine emission factors[50] and electricity mixes. This is compounded by the fact that emission factors and electricity mix used in calculation may also evolve over time. Other companies mention the lack of consensus on methodology for specific sources of emissions such as the calculation of landfill methane emissions and the important divergences in results from the different estimation tools used.

57. Other responding companies mention that there are still missing or underdeveloped areas in GHG accounting. As an example, they refer to the absence of a standardized and generally accepted methodology for calculating the positive carbon footprint effect of avoided emissions in life cycle. The emission reductions generated by insulation or dematerialisation (as allowed by IT technologies) for instance can be important but so far are not accounted in carbon accounting. One issue in this respect, as raised by one responding company, is the ownership of avoided emissions in the value chain. Who should be gratified for the benefits of recycling for instance?

58. Consequently, when asked "Which measures would facilitate your company's tasks in collecting and disclosing GHG emissions and other climate change-related information?", three quarters of responding companies mentioned "Harmonisation of reporting requirements" and "Harmonisation of methodologies for estimating emissions". Some respondents argue that establishing an international standardized methodology for GHG accounting would promote fair competition between companies and help companies being recognised for their true performance in managing their emissions.

The emergence of an international consensus on GHG accounting and reporting

59. Despite multiple frameworks and tools, companies have made important progress over the last few years to improve the quality and comparability of corporate information. EIRIS (2008, 2009), analysing the responses to climate change of the Global 300, found a dramatic improvement in the percentage of companies disclosing the scope of data reported or the methodology used, from 38% in 2008 (of the 35.6% companies classified as having a high impact for climate change) to 83% in 2009.

60. In response to increasing demands for standardised reporting guidelines on the inclusion of climate change information in mainstream reports, the Climate Disclosure Standards Board (CDSB) was formed at the 2007 annual meeting of the World Economic Forum. The CDSB is a consortium of business and environmental organizations formed to develop a globally accepted framework, based on existing standards, for corporate reporting on climate change. In May 2009, the CDSB launched a consultation on a draft framework for the inclusion of climate change data in mainstream reports.[51]

61. Some elements of standardisation emerge from the current practices and the global debate on corporate accounting and reporting of GHG emissions. They are highlighted in the Climate Disclosure

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50 Emission factors are calculated ratios relating GHG emissions to a proxy measure of activity at an emissions source. The IPCC guidelines (IPCC, 1996) refer to a hierarchy of calculation approaches and techniques ranging from the application of generic emission factors to direct monitoring.

51 www.cdsb-global.org

Standards Board's proposed framework, the business contributions to the UK consultation[52] on mandatory carbon reporting and a similar consultation initiated by USEPA[53]. The responses to the OECD survey confirm the trend towards greater harmonisation of practices. To the question "Does your company use (roughly) the same methodology to report on these frameworks (the different reporting frameworks under which a company reports its GHG emissions)?", the vast majority of companies answer positively. To the question "Do you consider that current reporting frameworks are helpful for your company to design and monitor GHG emission reduction plans?", there is a clear distinction between companies operating in Europe and those operating elsewhere or more globally. Companies operating in Europe overwhelmingly answer positively. The others are much more sceptical and point towards issues of unstable methodologies and lack of consensus on indirect emissions and disclosure boundaries (notably across countries).

62. A consensus is emerging on the need to develop methodologies and standards consistent with internationally agreed protocols to facilitate comparison and to ensure the consistency of new reporting schemes requirements with those of existing schemes (such as the EU ETS for instance).

63. One important element of these internationally agreed protocols is the Greenhouse Gas Protocol (see Box 8). The GHG Protocol has over the years become de facto the international standard for GHG accounting of GHG emissions at corporate level. This is clearly reflected in the OECD survey: among the 61 respondents, 36 companies report using the GHG Protocol or a methodology which is consistent with the GHG Protocol. Most existing country and sector specific guidelines have built on or have been made consistent with the GHG Protocol. Consequently, today, the corporate standard developed by the GHG Protocol is widely used in Europe, North America, North Korea, Australia, New Zealand and partnerships with Brazil, China and India have been established. In addition, ISO standard 14064-1 (Guidance at the Organization Level for Quantification and Reporting of Greenhouse Gas Emissions and Removals)[54], adopted in 2006, was developed to be consistent and compatible with the GHG Protocol.[55]

Box 8. The GHG Protocol

The GHG Protocol was developed in partnership between the World Resources Institute (WRI) and the World Business Council for Sustainable Development (WBCSD), and provides an accounting framework for GHG standards, programs and inventories prepared by individual companies. The GHG Protocol was built to be consistent with IPCC Guidance on National Greenhouse Gas Inventories[56], the current compliance accounting framework at country level, contributes to improving consistency. The initiative arose when WRI and WBCSD recognized that an international standard for corporate GHG accounting and reporting would be necessary in light of evolving climate change policy.

52 For insights into the carbon reporting consultation process, see: the UK Department for Environment, Food and Rural Affairs website (www.defra.gov.uk/corporate/consult/greenhouse-gas/index.htm), the contribution of the Aldersgate Group (www.aldersgategroup.org.uk), the CBI report "All together now: a common approach for greenhouse gas emissions reporting" (http://climatechange.cbi.org.uk/reports/00195)

53 For comments to the EPA on the proposed rule for mandatory reporting of greenhouse gases, see : www.ghgprotocol.org/files/wri-comments-ghg-reporting-rule-8-june-2009.pdf

54 www.iso.org/iso/climatechange_2008.pdf

55 List of users of the GHG Protocol: www.ghgprotocol.org/standards/corporate-standard/users-of-the-corporate-standard

56 www.ipcc-nggip.iges.or.jp/public/2006gl

Together with large corporate partners such as British Petroleum and General Motors, WRI introduced a report called "Safe Climate, Sound Business" that identified an action agenda to address climate change, which included the need for standardized measurement of GHG emissions. The first edition of *The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (Corporate Standard)*) was published in 2001. Since then the GHG Protocol has built upon the Corporate Standard by developing a suite of calculation tools to assist companies in calculating their greenhouse gas emissions and additional guidance documents.

Key features of the revised corporate accounting and reporting standard:

- It covers the 6 GHG of the Kyoto Protocol. In addition, companies may also provide emissions data for other GHGs (e.g., Montreal Protocol gases).
- When setting organisational boundaries, companies shall choose between either the operational control or financial control criteria to consolidate GHG emissions.
- Companies shall separately account for and report on scopes 1 and 2 at a minimum. Scope 3 is an optional reporting category.
- Companies shall choose as a base year the earliest relevant point in time for which they have reliable data.
- Once the inventory boundary has been established, companies generally estimate GHG emissions using the following steps: 1. Identify GHG emissions sources; 2. Select a GHG emissions calculation approach; 3. Collect activity data and choose emission factors; 4. Apply calculation tools; 5. Roll-up GHG emissions data to corporate level.
- The GHG Protocol recognizes the importance of a quality management system to ensuring that an inventory continues to meet the principles of the *GHG Protocol Corporate Standard* and outlines five accounting principles that set an implicit standard for the faithful representation of a company's GHG emission.
- The GHG Protocol provides an overview of the key elements of a GHG verification process.

Source: GHG Protocol, www.ghgprotocol.org.

64. The GHG Protocol has also built a strong credibility with businesses (as revealed by the Confederation of British Industries' call to the UK Government in 2009 to use it as the basis for its reporting guidelines)[57], as well as other stakeholders. On the occasion of COP15 in Copenhagen, the Institute of Chartered Accountants in England and Wales, the Prince's Accounting for Sustainability Project and the Climate Disclosure Standards Board, together with 12 other associations of accountants worldwide urged political leaders to develop "a set of universally accepted standards for the disclosure to shareholders of climate change-related information" based on existing standards including the GHG Protocol.[58]

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57 All together now: a common business approach for greenhouse gas emissions reporting: http://climatechange.cbi.org.uk/reports/00195

58 www.icaew.com/index.cfm/route/169273/icaew_ga/en/Home/Press_and_policy/Press_releases/Accountancy_bodies_unite_to_call_for_single_set_of_standards

65. However, as emerges from Box 8 and from various interviews undertaken in support of this work, the GHG Protocol remains a relatively broad and flexible framework that leaves important room for company discretion (on organisational boundaries, external verification and choices of emissions calculation approaches). It is not detailed or prescriptive enough to generate harmonised company information. So while it can be used as a starting point, governments and sectoral organisations need to go further if they are to use it as a basis for inventory guidelines.

66. A consensus is also starting to develop around the need to align carbon reporting and financial reporting (notably in terms of company boundaries) to facilitate the assessment of financial risks related to climate change. This is clearly articulated in the Guidelines for voluntary disclosure developed by the UK government and advocated by CBI. It was also at the core of the call signed by the various associations of accountants mentioned above. This alignment would allow comparing the carbon performance of companies with their financial results. It would also help determining reporting boundaries while preventing delocalisation of emissions towards facilities located in less stringent regulatory environment. Internal reporting procedures would be simplified, as well as emission management across the group.

Verifying information on emissions

"Enterprises should apply high quality standards for disclosure, accounting, and audit. Enterprises are also encouraged to apply high quality standards for nonfinancial information including environmental and social reporting where they exist. The standards or policies under which both financial and non-financial information are compiled and published should be reported." Chapter III of the *Guidelines* (Disclosure).

67. Companies are becoming increasingly aware of the importance of adding credibility to their efforts to measure and report on their emissions by having the information externally verified. According to CDP (2009), 3 out of 4 companies which publically disclose GHG emissions had them verified. In another survey, CERES (2008) reports that out of 40 surveyed companies, 29 indicate use of an external auditor or government program to verify their inventory.

Box 9. Defining GHG emission data verification

As defined by the British Standards Institution[59], "verification is the process for ensuring that reported GHG emission figures are accurate" and that "emissions reports are credible, faithfully represented, transparent, consistent and reliable". The primary aim of verification, according to the GHG Protocol, is to provide confidence to users that the reported information and associated statements represent a faithful, true and fair account of a company's GHG emissions.

Source: BSI[60] and GHG Protocol[61].

59 www.bsigroup.com/en/Assessment-and-certification-services/management-systems/Standards-and-Schemes/Greenhouse-gas-emission-verification/Verification

60 www.bsigroup.com/en/Assessment-and-certification-services/management-systems/Standards-and-Schemes/Greenhouse-gas-emission-verification/Verification

61 Greenhouse Gas Protocol, chapter 10.

68. Key drivers for GHG emissions verification are the development of mandatory reporting, consumers and other stakeholders' calls for transparency and third-party scrutiny regarding corporate claims on climate change performance. For example, a 2008 survey by Consumers International and AccountAbility found that 70% of respondents in the US and the UK believe that corporate climate change reporting should be verified by independent parties.[62] The survey confirms the Commentaries on Chapter III (Disclosure) of the *Guidelines* which underline that "the transparency and effectiveness of non-financial disclosure may be enhanced by independent verification".

69. Verification methods vary, for example, from reviewing utility bills provided by the company to on-site reviews of how data on emissions is being collected. The forms of assurance also vary widely, from the use of independent standards to internal audit statements and assessments from panels or consultants. In addition to official emission registries and voluntary government programs, several private players are involved in this field, which is becoming a growing business area. According to Carbon Smart (2010)[63], the multiplication of assurance approaches may complicate the comparison and interpretation of assurance statements by users. Their analysis of carbon assurance statements in sustainability reports of the FTSE 350 shows that, among the 38 companies who clearly mention carbon under the scope of their assurance, only 2 refer to a specific carbon assurance standard (ISO 14064-3).

70. There are diverging views about the need for companies to have emissions systematically verified, and on which verification methods to use. Verification has a cost and there can be a trade-off between improving accounting of emission data and other actions. Companies may prefer to allocate resources to achieving more emission reductions rather than to having their emission data verified. According to the commentaries in the *Guidelines*, "disclosure requirements are not expected to place unreasonable administrative or cost burdens on enterprises".

71. Regulatory approaches vary: some mandatory schemes such as the EU ETS require third-party verification.[64] In Japan, although required by Law, corporate reporting of emissions does not necessitate third party verification. Similarly, the UK Carbon Reduction Commitment is based on self-certification by organisations, backed up by independent risk-based audit. By contrast, other initiatives in which participation is voluntary such as the California Climate Action Registry (CCAR)[65] or the Japan Voluntary Emission Trading Scheme (JVET) require third-party verification.

72. The reporting framework developed by the Climate Disclosure Standards Board specifies that "companies are expected to apply the same rigor, transparency and management responsibility as is appropriate to all statements and disclosures, whether audited or not, made in the mainstream financial

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62 Assure View: The CSR Assurance Statement Review Report, cited by CERES (2008).

63 www.carbonsmart.co.uk/?q=Assurancebenchmarking

64 DNV (Det Norske Veritas Certification (www.dnv.com) was the first entity accredited as a verifier under the Kyoto Protocol to the United Nations Framework Convention on Climate Change. Over the past decade DNV has engaged in validation, verification and certification of activities related to the Protocol's Clean Development Mechanism (CDM) and Joint Implementation programmes, and holds a 48% market share of CDM projects so far.

65 www.climateregistry.org

report". But it also makes it clear that "unless and until the CDBS framework is adopted by regulators, there is no requirement for the disclosures to be audited".

73. As part of its rule for mandatory GHG reporting, the USEPA proposes self-certification followed by USEPA verification rather than third-party verification. In its comments to the USEPA, the World Resources Institute (WRI) advises to "consider requiring third-party verification if agency verification does not yield the quality of reported data necessary to inform and support a range of emerging GHG policies".[66] Defra's guidance on how to measure and report greenhouse gas emissions does not require companies to have their emissions data verified.[67] While it indicates that assurance "can help increase stakeholder confidence in the accuracy and completeness of emissions data", it also acknowledges that "there will be a cost associated with receiving any kind of assurance". The guidance echoes recommendations by CBI – the Confederation of British Industry – that "businesses should internally verify reported emissions and have a quality control process in place".[68]

74. The establishment of global standards for verification of corporate emissions is still at an early stage of development. The existing ISO 14064-3 standard specifies principles and requirements and provides guidance for those conducting or managing the validation and/or verification of GHG information. The International Auditing and Assurance Standards Board is developing a standard on assurance engagements on carbon emissions information.[69] The International Emissions Trading Association has developed a Verification Protocol, intended as a reference manual for verifiers, to facilitate a uniform, transparent and cost effective verification of installations covered by the EU ETS.[70]

75. The need to substantiate environmental claims is also prompting companies to use *certification* as an independent confirmation that they have measured and managed their GHG emissions. A range of certification schemes exist (see table 3) which provide a signal of good performance, but vary widely in terms of the performance they certify.

Table 3. Examples of certification schemes

Objectives	Requirements	Methodology
Carbon Trust Standard: www.carbontruststandard.com		
Launched in June 2008 by The Carbon Trust in the UK to encourage good practice in carbon measurement,	Organizations must (i) measure their carbon footprint including their electricity and gas consumption, onsite fuel consumption and fuel consumption of owned vehicles; (ii) meet an absolute reduction in emissions or a 2.5% per annum reduction in a carbon efficiency benchmark; and (iii) provide evidence that	The standard builds on the Greenhouse Gas Protocol Corporate Standard and ISO14064-1:2006.

66 www.ghgprotocol.org/files/wri-comments-ghg-reporting-rule-8-june-2009.pdf

67 www.defra.gov.uk/environment/business/reporting/pdf/ghg-guidance.pdf

68 http://climatechange.cbi.org.uk/reports/00195

69 The project concerns professional accountants' responsibilities with respect to assurance engagements on carbon emissions information. It considers what specific guidance is necessary beyond the general requirements of ISAE 3000, *Assurance Engagements Other than Audits or Reviews of Historical Financial Information*.": www.ifac.org/IAASB/ProjectHistory.php?ProjID=0081

70 www.ieta.org/ieta/www/pages/getfile.php?docID=1153

management and reduction by businesses and public sector organisations.	the organisation is managing carbon in an appropriate manner through effective governance procedures, accurate carbon accounting and carbon management programmes.	To date, 60 (mostly UK-based) organizations have been certified. Assessment of compliance with the Standard is undertaken by an independent assessor.
Climate Cool Certification: http://climateneutralnetwork.org		
Developed by the Climate Neutral Network for climate neutral products, services, and enterprises, i.e. with net-zero impact on global warming.	The first step in obtaining the Climate Cool certification is by undertaking an inventory of GHG emissions, using a climate neutral "metrics system". Once the enterprise footprint is established, the company can develop an application for climate neutral certification by creating and implementing a portfolio of projects including both internal, on-site reductions and external offset investment projects to mitigate the remaining climate impacts of their operations.	The Network's protocol was developed to be consistent with the GHG Protocol. To date, 8 companies have been certified.
CarbonNeutral: www.carbonneutral.com		
Developed by the Carbon Neutral Company for product, services or activities	Certification requires an assessment of CO2 emissions done by an independent third party, reduction of the emissions to net zero through internal reductions (change of a manufacturing process for example) and best practice external reductions (carbon offsetting), a commitment to reduce emissions internally on an on-going basis, to document progress, and to communicate what has been done clearly.	No reference to specific methodology in the CarbonNeutral protocol, although both ISO standards and the GHG Protocol are mentioned in the annex.

Sources: publicly available websites.

ACHIEVING EMISSIONS REDUCTIONS

76. Beyond measurement and reporting, the expectation that companies actively contribute to environmental progress and continuous improvement figures prominently in the *Guidelines*: "enterprises should act as soon as possible, and in a proactive way, to avoid, for instance, serious or irreversible environmental damages resulting from their activities". The *Guidelines* notably recommend the establishment of measurable objectives for improved environmental performance, and the development of products, procedures and technologies that can help the companies continually seek to improve corporate environmental performance.

77. Evidence shows that, more and more companies around the world are establishing GHG emission reduction plans. They do so driven by a variety of motivations: in response to price mechanisms or to other incentives, to comply with specific emission reduction regulations (or in their anticipation), in order to reduce energy costs and enhance their reputation, to differentiate products and to attract investors. In addition, companies are also sensitive to growing societal expectations and demand from the community in relation to climate change.

78. A proactive business attitude towards climate change involves developing plans to manage emissions and establishing the necessary mechanisms and incentives to put those plans into practice throughout the company and its operations. When designed properly, emission reduction targets are an important element of such plans. They can lead to both cost and emission reductions, promote innovation and achieve increased efficiency (in energy use for instance) and reduce fossil fuel dependency. Putting them into practice requires embedding climate change considerations into business organisation and involving all company players from the board to management levels and employees.

79. At present, there is only limited information on the aggregated impact of corporate actions to reduce emissions. According to CDP (2009), though an increasing number of companies is setting emission reduction targets, current commitments are not likely to be sufficient to achieve the reductions outlined by the Intergovernmental Panel on Climate Change (IPCC) to be on a pathway of an average global temperature rise of 2°C[71]. Adding corporate targets would achieve a 1.9% annual CO2-equivalent reduction, to be compared to a reduction rate per annum of 2.6% if a 25% reduction by 2020 is to be achieved. At current pace, the 25% reduction would not be reached until 2024 and the 80% reduction set for 2050 not until 2089.

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[71] IPCC indicates that a 25-40% reduction by 2020 and 80-95% reduction by 2050 for Annex 1 countries would be consistent with increasing average global temperature by 2°C. See Fourth Assessment Report produced by IPCC at: www.ipcc.ch

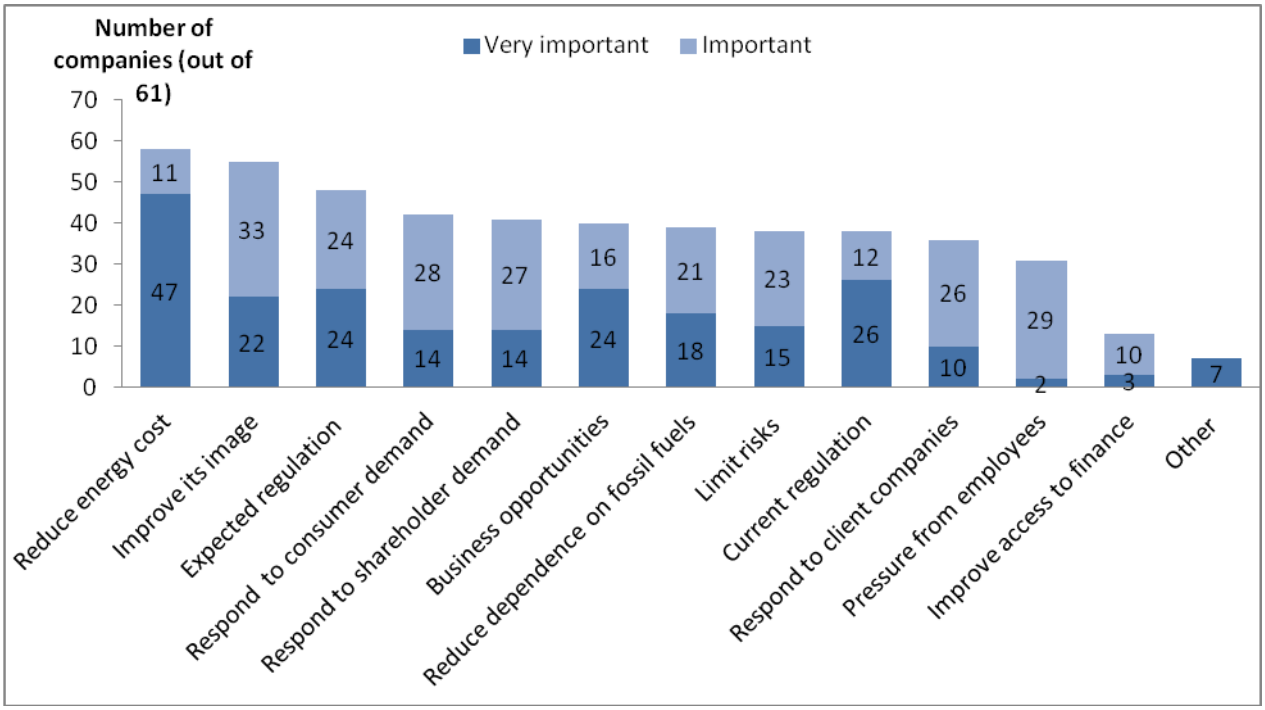
Establishing GHG emission reduction plans

Enterprises should "establish and maintain a system of environmental management appropriate to the enterprise, including: b) establishment of measurable objectives and, where appropriate, targets for improved environmental performance, including periodically reviewing the continuing relevance of these objectives, and c) regular monitoring and verification of progress toward environmental, health and safety objectives or targets. Chapter V. 1 of the *Guidelines* (Environment).

The motivations for reducing emissions are varied

80. According to the OECD survey, many motivations drive companies to reduce their GHG emissions (Figure 3). Reducing energy cost is by far the main driver (with 47 companies considering it a very important motivation and a further 11 companies seeing it as important). By comparison, improving access to finance or responding to pressure from employees or client companies are considered much less significant motivations by companies.

Figure 3: Motivations to reduce GHG emissions



Source: OECD survey on business practices to reduce emissions

81. Regulation is an obvious driver for action. Almost 8 out of 10 companies who responded to the OECD survey consider present or future regulation as either an important or a very important motivation to reduce emissions. Among responding companies, 6 in 10 already participate in mandatory carbon schemes. The most commonly cited scheme is EU ETS (in which a third of companies participate). Beyond EU ETS, a number of national regulatory tools exist that are leading companies to reduce their emissions.

82. If regulation prompts business action, regulatory uncertainty is also mentioned as a threat to corporate action: while the majority of participating companies point to the need to anticipate on future regulations, some note that early action is not always recognised by regulation, which lead them to wait and see before engaging in a certain direction.

83. In recent years, and notably in the run-up to COP15 in Copenhagen, policy measures and regulations to address climate change have flourished. A number of sources track and analyse them[72]. Among these sources, the Deutsche Bank Climate Change Advisors noted some 500 new policy announcements worldwide in relation to climate change between 2008 and 2010.[73]

84. Measures to prompt corporate action to reduce emissions[74] have sought to put a price on carbon in order to provide a strong incentive for companies to consider the emissions impacts of their activities and develop plans to mitigate them. A number of countries have pursued this objective through taxation (see table 4 for a selection of carbon taxes) and/or the establishment of carbon markets (see box 10). As an illustration of the impact of climate change policies, the UK Department on Energy and Climate Change (DECC) estimates that the various policies undertaken in the UK – including the Climate Change Levy, the Climate Change Agreements and the UK ETS / Carbon Reduction Commitment – will generate an increase in business energy bills by 34% in 2020 (relative to a counterfactual bill without climate change policies).

Table 4. Carbon taxes in a selection of countries

Taxes	Main Features and impact
UK Climate Change Levy Tax introduced in April 2001 on the use of energy in industry, commerce and the public sector	Some 990 000 organisations are affected. Business taxes have been kept unchanged through a cut in the rate of the employers' National Insurance. Exemption for electricity generated from "new" renewable.
Japan carbon tax	Postponed for several years
France carbon tax	Plans to put it in place were finally dropped
Bristish Columbia (Canada) Carbon tax introduced in 2008 on energy products.	The rate is equivalent to CAD$ 15 per tonne of CO^2 emissions. Increase is expected to CAD$ 30 by 2012.

72 The IEA tracks policies and measures in support of climate change and renewable energy (www.iea.org/textbase/pm); the MURE database tracks policy measures in EU for the efficient use of energy and renewable energy: www.mure2.com.

73 DBCCA has developed a policy tracker in relation to climate change and rating countries on the credibility and consistency of their regulatory regime: www.dbcca.com/dbcca/EN/investment_research.jsp.

74 OECD (2009b) has examined in depth the cost effectiveness of different climate change mitigation policy instruments. It emphasises the fact that no single policy instruments will be sufficient to tackle the wide range of sources and sectors emitting GHG and to achieve ambitious mitigation objectives at a reasonable cost. Rather, a broad policy mix is needed that includes instruments aimed to put a price on GHG emissions – typically carbon markets and taxation - and standards, information instruments and technology support policies to overcome market imperfections.

Ireland Tax introduced in 2010 budget on energy products used by households and businesses not covered by EUETS.	Tax of 15€ per tonne of CO_2 emissions.
Sweden CO_2 tax on energy carriers introduced in 1991	For households, tax rate has risen from 40€ in the late 1990's to 100€ per tonne of CO_2 emissions in 2009. For agriculture and industry not covered by emission trading, the tax reaches 23€ per tonne in 2009, but is expected to rise to 60€ in 2015. The most obvious effect of the carbon tax has been an increased use of biomass in the Swedish district heating system. The impact on the energy and resource efficiency of the Swedish industry has been limited for 3 reasons: 1) the carbon tax on industry is only 50% of the general level; 2) only a relatively small fraction (30%) of the energy supply to industry was fossil fuel-based when the tax was introduced; and 3) for most industrial companies the energy cost is a relatively small fraction of the total cost and has therefore low priority.

Sources: UK Department on Energy and Climate Change (DECC) [75], Environmentally Related Taxes database[76], Green Growth Strategy Interim Report[77], OECD (2000)[78].

Box 10. Overview of carbon emission trading markets

A number of national and sub-national carbon market schemes have been developed or are under development in Europe, the US, Japan, New Zealand and Australia. Some trading schemes are mandatory, such as the EU Emissions Trading Scheme (EU ETS). Others are voluntary, such as the Chicago Climate Exchange (CCX), but rely on firm commitments to reduce emissions from companies. Although carbon markets are still at an early stage of development, their further development and integration have become important issues for discussion as potentially helping to reduce carbon leakage and answer competitiveness concerns[79].

So far, the largest GHG trading program is the **European Union Emissions Trading Scheme (EU ETS)**.[80] In 2008, it represented 94% of transactions of the allowance-based markets in terms of volume of CO2 traded and 99% in terms of value. EU ETS covers around 11,500 installations across the 27 Member States of the European Union, Iceland, Liechtenstein and Norway, which represent close to half of Europe's emissions. These installations include combustion plants, oil refineries, coke ovens, iron and steel plants, and factories making cement, glass, lime, brick, ceramics, pulp and paper. The Climate and Energy Package adopted in December 2008 by the European Parliament aimed at strengthening the EU ETS, notably by imposing stronger emission reductions, expanding the scope of the market to include additional GHG and sectors and scaling up auctioning to allocate the allowances.

In the US, trading schemes – which until now, have been the result of State-based and regional initiatives – may be complemented by federal legislation, currently under consideration. Two schemes already exist: the Chicago Climate Exchange (CCX) and the Regional GHG Initiative (RGGI). Members of the CCX have made voluntary commitments to reduce GHG emissions by 6% below 1998-2001 by 2010. The RGGI is a mandatory system or compliance market where 10 US States aim to reduce power sector emissions by 10% below 2009 levels by 2019. The RGGI is notable in that it was the first cap and trade scheme to distribute most allowances (95%) through auctioning. There are plans for

75 www.decc.gov.uk/en/content/cms/what_we_do/change_energy/tackling_clima/ccas/cc_levy/cc_levy.aspx

76 www.oecd.org/env/policies/database

77 www.oecd.org/greengrowth

78 www.oecd.org/dataoecd/25/0/2108273.pdf

79 See OECD (2009b) and work by the International Emissions Trading Association (www.ieta.org).

80 http://ec.europa.eu/environment/climat/emission/index_en.htm

a large multisectoral scheme involving several provinces in Canada and states in the US – the Western Climate Initiative[81] – to start operating in 2012.

In Japan, the Basic Act on Global Warming Countermeasures (for discussion in parliament in may and June 2010) lists the introduction of a mandatory emissions trading scheme as one of the main policy measures to achieve the country's 25% emissions reduction goal. Its establishment is to be legislated within one year of the Basic Act coming into force. This constitutes a major shift in Japan's policy, which so far has relied on negotiated agreements with major industries to stabilize emissions at 1990 level by 2010 (through the Keidanren Voluntary Action Plan) and on voluntary participation of smaller emitters in the Japan Voluntary Trading Scheme (J-VETS). In anticipation of a mandatory scheme, Japan launched in October 2008 a trial domestic scheme to which, as of early 2010, 1715 installations had joined based on their own voluntary reduction targets. In addition, the city of Tokyo has launched in 2010 a parallel initiative (Tokyo-ETS) that should cover some 1,300 sites (or some 44% of total Tokyo's GHG emissions of the business and industry sector) for a mid-term emission reduction target of -25% below 2000 level by 2020.

In New Zealand, the emissions trading scheme (NZ ETS) started in 2008 with the forestry sector and is progressively incorporating more sectors: in 2010 stationary energy and industrial processes, as well as liquid fossil fuels and transport; in 2013 waste and other sectors and in 2015 agriculture.

The UK launched in April 2010 the Carbon Reduction Commitment, a mandatory cap and trade scheme on energy use emissions for 5,000 non-energy intensive businesses and public sector organisations not covered by EU ETS or the Climate Change Agreements.

In Australia, legislation for the Carbon Pollution Reduction Scheme (CPRS) was introduced twice to parliament in 2009 and rejected. If adopted, the scheme is expected to cover around 1 000 entities, accounting for 75% of Australia's total emissions.

Sources: publicly available websites.

85. By comparison, emerging countries have relied mainly on indirect regulation of emissions (see Box 11).

Box 11. Emerging GHG emissions regulations in China, India and South Africa

China, India and South Africa have become important players in today's world economy and major emitters of GHG emissions[82]. All three countries have made pledges to reduce their CO_2 emissions as part of the Copenhagen Accord.[83] However, none of the three countries has passed regulation that directly requires emission accounting and reductions. Instead, China, India and South Africa have so far regulated carbon emissions indirectly through measures that encourage energy savings and investment in less polluting technologies (typically renewable energy).

In China, the 2 most influential laws are the Energy Conservation Law (revised in 2007) and the Renewable Energy Law (2005). Some 150 regulations and rules on energy conservation have been passed since 1980. These laws specify the financial incentives to facilitate investment in energy conservation and renewable energy, including fiscal

81 www.westernclimateinitiative.org

82 See OECD (2009) for information on past and projected emission growth rates of China and India among other emerging and OECD countries. Although small in global terms, South Africa's GHG emissions are large relative to its population and economy and higher than those of China and India, owing largely to the abundance of low cost coal.

83 The Chinese government announced a target of cutting CO2 emissions per unit of GDP by 40-45 percent by 2020 from the 2005 level. The president of South Africa has announced that the country would be able to reduce its emissions trajectory by 34% by 2020 and by 42% by 2025, contingent on financial and technological support from developed countries. India has announced a target to reduce its carbon intensity (the amount of carbon dioxide released per unit of GDP) by 20-25% by 2020 from 2005 levels.

subsidies for energy efficient products such as lighting appliances and tax credits for demonstration projects. China has also adopted more than 20 energy efficiency standards to promote the energy efficiency of products and processes. In addition, under the "Top 1000 Enterprises Energy Efficiency Action", a number of requirements and incentives apply for the 1008 most energy-consuming enterprises in order to improve their energy efficiency. In order to save 100 million tce by 2010, the top 1 000 enterprises are to: establish an energy conservation organisation, formulate energy efficiency goals, establish an energy utilisation reporting system, conduct energy auditing, formulate an energy conservation plan, invest in energy efficiency improving, adopt energy conservation incentives, and conduct training. As a result, these companies have invested in 2007 more than 500 billion yuan (€48bn) in energy-efficient technology transformation and implemented over 8 000 related projects, the equivalent of a 20 million tons coal saving.

In South Africa, the National Energy Act of 2008 is the first piece of national legislation that attempts to address clean energy investment. This Act mandates the adoption of regulation regarding minimum contributions to national energy supply from renewable energy sources; sources that may be used for renewable energy contributions; measures and incentives designed to promote the production, consumption, investment, research and development of renewable energy; and minimum levels of energy efficiency in each sector of the economy. A number of secondary policies and regulations set targets in the areas of renewable energy and energy efficiency, including the White Paper on Renewable Energy of 2003 (which sets a 10 year target for renewable energy of 10 000 GWh renewable energy contribution to final energy consumption by 2013); the Draft Bio Fuels Strategy of 2007 (which looks to a potential 4,5% contribution to national petrol and diesel volumes from biofuels); and the Energy Efficiency Strategy (which sets a final energy demand reduction target of 12% by 2015 - and 15% for the industrial and mining sectors).

In India, the Energy Conservation Act of 2001[84] established the Bureau Efficiency (BEE) which develops policies, schemes and strategies to encourage reduction of energy intensity in the Indian economy. In June 2008, the formation of the Prime Ministers Council for Climate change has led to the identification of 8 core "national missions", including the National Solar Mission whose aim is the feeding of 20 000 MW of energy generated through solar power into the national grid by 2022 and the National Mission on Enhanced Energy Efficiency, which is expected to help save about 5% of India's annual energy consumption by 2015,

More recently, however, all three countries have shown signs of introducing more direct regulation of GHG emissions. In February 2010, China required state-owned enterprises to conduct a carbon emissions inventory (including fuel consumption, power consumption…). In January 2010, India set up an expert group tasked to formulate a low carbon growth pathway for the country.[85] South Africa, adopted in 2008 the Long Term Mitigation Strategy document which underlines the steps that will transform the economy from energy intensive to a climate friendly path.[86]

86. In addition to motivations that make good business sense (such as reducing energy costs, finding new business opportunities and reducing dependence on fossil fuels) and compliance with law where it exists, companies also respond to growing societal expectations in relation to climate change. In particular, a number of non-governmental initiatives have developed to mobilise companies to take stronger action on climate change, notably by publicising information on companies' actual or pledged actions to reduce their impact. One of these initiatives is Carbon Counts, which produces a score of the world's largest companies grading their climate impact, to spur corporate climate responsibility.[87] A number of companies participating to the OECD survey also emphasise that reducing emissions is in line with their business commitment and values and an essential element of responsible business conduct.

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84 Ministry of Power, Go: www.powermin.nic.in/acts_notification/pdf/ecact2001.pdf.

85 MoEF, *Planning Commission's Press Release, January 07, 2010*, Available at http://moef.nic.in/downloads/public-information/Carbon%20Economy%20-%20Press%20Release.pdf.

86 Remarks by Dr Peter Lukey, Director of the Air Quality and Climate Change desk at the Department of Environment and Tourism. Parliamentary proceedings website, www.pmg.org.za.

87 To establish its score, Climate Counts uses 22 criteria to determine if companies have measured their climate "footprint"; reduced their impact on global warming; supported progressive climate legislation; and publicly disclosed their climate actions clearly and comprehensively: www.carboncounts.org.

87. A number of voluntary emission reduction programmes have developed that complement the existing regulatory frameworks (Table 5). Some are led by government – as is the case of the UK Climate Change Agreements, the U.S. Environmental Protection Agency Climate Leaders or the Netherlands' Voluntary Agreement on Energy Efficiency – and contribute to the policy mix put in place by countries to address climate change. Other initiatives are business-led (Association des Entreprises pour la Réduction de l'Effet de Serre) or initiated in partnership with stakeholders such as NGOs (World Wildlife Fund Climate Savers).

Table 5. Selected voluntary GHG emission reduction programs.

American Petroleum Institute Voluntary Climate Challenge Programme	Commitment by API-member refining companies to improve their energy efficiency by 10 percent between 2002 and 2012.	www.api.org/ehs/climate/new/program.cfm
Association des Entreprises pour la Réduction de l'Effet de Serre	French companies from the industry and energy sectors that committed in 2002 to voluntary GHG emissions reductions over 2003/2007.	
Japan Keidanren Voluntary Action Plan	Voluntary commitment by major Japanese industries to stabilize CO_2 emissions from fuel combustion and industrial processes at 1990 level by 2020. 34 industrial organisations participate, accounting for 45% of total emissions of Japan in 1990.	www.keidanren.or.jp/japanese/policy/vape/index.html
Netherlands Voluntary Agreement on Energy Efficiency	22 industry associations signed voluntary agreements to improve energy efficiency by 30% from 2005-2020. The agreements cover various sectors, including information and communication technology (ICT), plastics, textiles, oil and poultry farming.	www.iea.org/textbase/pm/index_effi.asp
UK Climate Change Agreements	Accompanying voluntary mechanism whereby businesses can receive a 80% discount on the Climate Change Levy in return for a commitment to achieve energy efficiencies or emission reductions. A national audit conducted in 2007 estimated that some 51 sectors were party to agreements, representing some 10,000 facilities.	www.decc.gov.uk/en/content/cms/what_we_do/change_energy/tackling_clima.aspx
U.S. Environmental Protection Agency Climate Leaders	251 US companies committed to completing a corporate-wide inventory of their GHG emissions, setting aggressive reduction goals, and annually reporting their progress to EPA.	www.epa.gov/climateleaders
World Wildlife Fund Climate Savers	Partnership of WWF with leading corporations - including IBM, Nokia, Sony, Coca-Cola and HP - who have agreed to collectively cut carbon emissions by some 14 million tons annually by 2010	www.worldwildlife.org/climate/climatesavers2.html

Sources: publicly available websites.

Setting emission reduction targets

88. Managing emissions embeds several steps. In most cases, it involves that companies set quantitative GHG emission reduction targets. The stringency and timeframe of the targets are indications of the level of the company's commitment to achieve real and measurable progress in addressing climate change. In 2009, 63% of the 409 companies who responded to CDP disclosed emissions reduction targets. According to EIRIS (2009), 55% of the high-impact companies in the Global 300 have a short-term (less than 5 years) emission reduction target, while 40% disclose a long-term (at least 5 years) strategic target (up from a quarter in 2008).

89. Further CDP analysis of target setting among the Global 100 shows that 73% of these companies report some form of reduction target (CDP, 2009). Target setting is motivated by several drivers: identifying inefficiencies in corporate operations, achieving cost savings, stimulating innovation, minimising climate change risks, benchmarking against competitors and satisfying stakeholder demands. Some companies also cite a positive impact on the environment and staff motivation and recruitment. According to CDP (2009), European companies are strong in setting targets, likely due to the impact of the EU Emissions Trading Scheme.

90. The majority of companies favour short-term targets. According to CDP (2009), 84% of target deadlines are set to 2012 or before. This suggests that businesses are waiting for the clarification of the global regulatory framework (the post-Kyoto framework) before setting longer term reduction goals. Among the companies setting longer timeframes is Epson. In its Environmental Vision 2050, established in 2008, it sets the goal of "reducing CO2 emissions by 90% across the life cycle of all Epson Group products and services by the year 2050." The company is aware that "this is an extremely ambitious goal and not one that can be achieved by doing business as usual". The first step toward achieving Environmental Vision 2050 is to offer customers Epson products that have a low environmental impact.[88]

91. Targets may vary widely in nature, scope and methodology. The website of the US EPA Climate Leaders provides a good illustration of the variety of targets adopted by companies.[89] Table 6 provides an illustration of different types of GHG emission reduction targets set by companies. There are three main types of emission reduction targets:

- *Intensity targets* allow for total emissions to increase with organic growth or acquisitions made by the company. They can be useful for evaluating the efficiency of a company's operations and processes. However, they make comparison across companies difficult and do not systematically lead to real reductions in emissions.

- *Absolute emission targets* are more aggressive, since they impose on the company a level of reduction that does not depend on performance. They generate real reductions and are clear to all stakeholders. They may however be difficult to achieve when activities grow.

- With *carbon neutrality targets*, companies commit to reaching zero net emissions. To achieve this objective, they may use internal strategies – such as operational efficiency improvement or renewable energy purchases – or external measures such as investing in carbon offset projects. This clearly presents more flexibility in the choice of reduction strategies, but may not lead to real emissions reductions within the company and does not allow for comparison across companies.

Table 6. Selected corporate GHG emission reduction targets

Company (headquarters)	Sector	GHG Reduction Target(s)
Toyota (Japan)	Automobile	To reduce worldwide production CO2 emissions

88 EPSON, Sustainability Report 2009, www.espson.co.jp

89 http://epa.gov/climateleaders/partners/index.html

		(volume/sales unit) 20% from FY2001 levels by FY2010.
BASF (Germany)	Chemicals	To reduce greenhouse gas emissions per metric ton of sales product by 25% compared with 2002.
United Technology (US)	High Technology	To reduce GHG emissions 3% annually from 2007 to 2010.
Tesco (UK)	Retail	To halve the carbon footprint of its existing business by 2020, from a baseline of 2006.
Novartis (Switzerland)	Pharmaceuticals	To reduce Scope 1 greenhouse gas emissions 5% below 1990 levels by 2008-2012; improve energy efficiency 10 % by 2010 based on 2006 performance; decrease CO2 emissions from vehicles by 10 % by 2010 based on 2005 levels.
Sasol (South Africa)	Energy	Minimum 10% reduction in GHG emissions per tonne of product by 2015 for global production (2005 baseline); 15% reduction in GHG emissions per tonne of product by 2020 (2005 baseline).
Tata Consultancy Services (India)	Software and Services	Overall annual reduction of 2% in CO_2 emissions per employee for the next 10 years.
Samsung (Korea)	Electronics	To reduce the total emissions of GHGs from its global manufacturing sites by 2% by 2011, from a baseline year of 2008; to reduce GHG emissions per basic unit globally by 36% by 2011, from a baseline year of 2008.
Natura (Brazil)	Cosmetics	To reduce GHG emissions by 33% within five years, between 2007 and 2011.
Lafarge (France)	Cement	To reduce absolute gross emissions by 10% in industrialized countries, net emissions by 20% per ton of cement produced worldwide. (Gross/net emissions: net emissions equal gross emissions minus emissions related to the burning of waste)

Source: BELC[90], CBI (2008) and company websites
Note: The purpose of this table is to provide an illustration of different types of GHG emission reduction targets set by companies; it does not aim to compare companies' targets nor their performance. For a number of companies, current targets build on previous emission reduction targets and therefore do not reflect emission reduction strategies over time.

92. According to CDP (2009), many companies have more than one target. 62% of the targets are CO_2 related, 15% are based on energy consumption and 9% on energy efficiency. The wide range of targets is not directly comparable due to the absence of a standard framework for setting emissions reduction targets. In particular, when it comes to intensity targets, the wide range of normalisation measures makes it difficult to compare the resulting reductions.

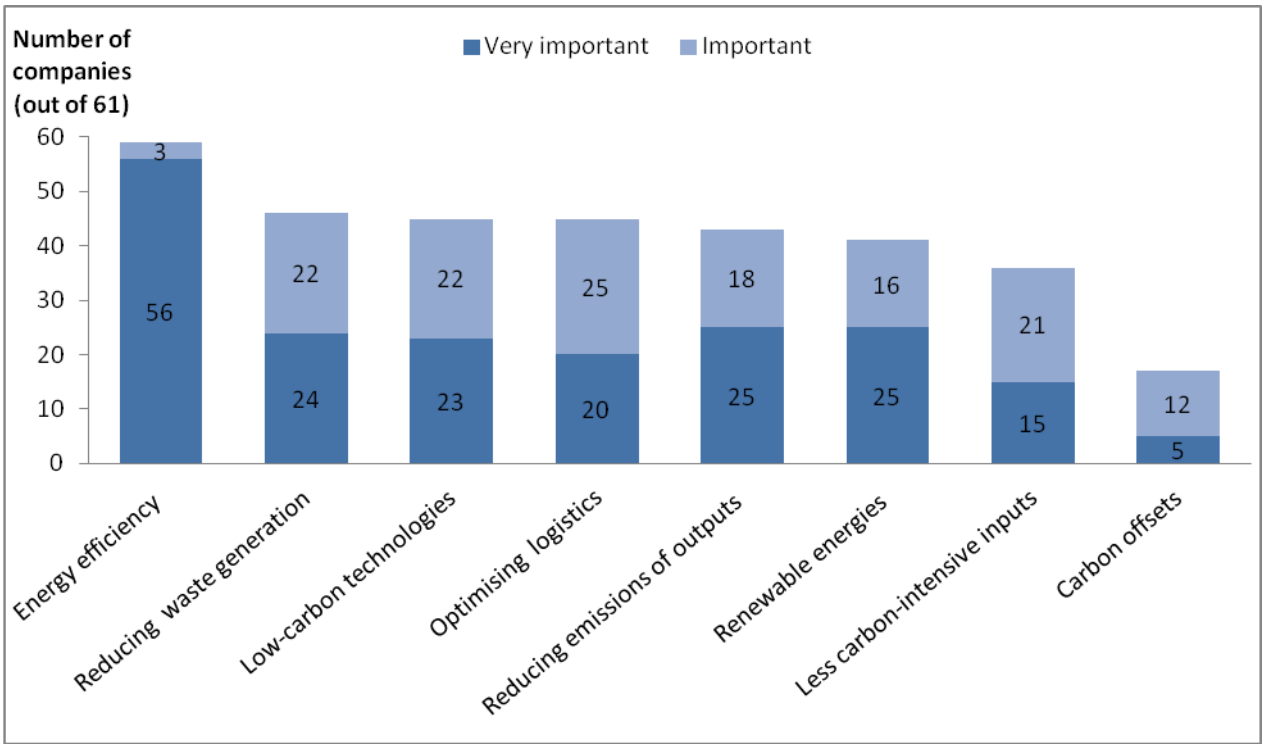
90 www.pewclimate.org/companies_leading_the_way_belc/company_profiles

93. If designed properly, emissions reduction targets can give strong incentives to companies to actively reduce their emissions. According to CDP (2009), in order to effectively contribute to national emission reduction efforts, targets should have a clear baseline and timeframe, and a long-term horizon. They should be designed to lead to clear and measurable emission reductions, i.e. the methodology used to compute them should be simple, clear and facilitating comparison across companies. In order to help companies achieve these objectives, the GHG Protocol contains a whole chapter on "Setting a GHG target" that outlines ten steps: 1) Obtain senior management commitment, 2) Decide on the target type, 3) Decide on the target boundary, 4) Choose the target base year, 5) Define the target completion date, 6) define the length of the target commitment period, 7) Decide on the use of offsets or credits, 8) Establish a target double counting policy, 9) Decide on the target level, and 10) Track and report progress.

Reducing emissions: business approaches and practices

94. Companies can reduce emissions in several ways, including both through internal strategies and external offsetting of emissions. Internal emission reduction strategies allow companies to obtain long-term improvements. Carbon offsets have to be purchased every year to contribute to the emission reduction target of a company. As an illustration, Figure 4 presents the responses to the OECD survey question "What actions has your company taken to reduce GHG emissions related to its operations?"

Figure 4: Actions taken by companies to reduce GHG emissions



Source: OECD survey on business practices to reduce emissions

95. The low-hanging fruit in GHG reduction terms is generally in improving energy efficiency (e.g., through better insulation and energy-efficient lighting) and, more generally, reducing energy consumption. This is confirmed by the responses to the OECD survey which list energy efficiency well before any other

action taken to reduce emissions. For many companies, improving energy efficiency is the first step in reducing their emissions, a step that they are very willing to take as it makes good business sense and often leads to cost reductions.

96. Research by The Climate Group (2007)[91] finds that there is considerable scope to cut emissions through energy efficiency improvements and reap significant financial benefits. For example, Dow Chemicals saved USD 4bn between 1994 and 2005 and DuPont USD 3bn between 1990 and 2005 from reduced energy use. Another example is AEON, which reduced energy consumption by 8% in its shopping malls over a three month period, enabling a CO2 emissions reduction of 30 000 tons, by simple measures such as replacing canopy lighting by energy saving lighting, turning off lighting display cases, turning off one third of TVs on display and using interspersed lighting. An important factor in this effort was making different AEON stores compete with each other in achieving energy reductions and raising employee awareness by regularly displaying information on reductions in power consumption.[92] Similarly, estimating that almost half of emissions from the direct operations of stores and logistics came from energy consumption, Carrefour adopted a target of 20% reduction in energy consumption per square metre of sale area throughout the Group between 2004 and 2020. Measures to achieve the target include the deployment of energy management systems, energy efficient lighting and closed freezer cabinets. In 2008, the Group reduced energy consumption by 6% (kWh/m²) compared to 2007.

97. In many cases, improvement in energy efficiency is an objective in itself, outside any consideration of GHG emissions. Raising energy costs, availability of new technologies, improved production methods are driving companies to reduce their energy consumption and thereby often also to diminish their GHG emissions. Emission reduction targets are not yet part of the "green agenda" of the Sri Lankan textile company Brandix. However, spurred by an annual energy bill of USD 9 million, the Brandix Energy Management Group implemented an energy saving plan in 2005 that has to date reduced overall energy consumption by an average of 15%. Brandix took a two-pronged approach of reducing production costs and improving productivity and quality. This was done through creating awareness on cost and energy management, employee participation and linking energy efficiency to productivity improvements.[93]

98. In many cases, it is however unlikely that a single approach will be sufficient to reach significant emission cuts. As shown by various studies by The Climate Group and confirmed by the OECD survey, companies combine a number of actions as part of their emissions reduction plans, including shifting towards use of less carbon-intensive energies (typically renewable energies), changing the business model to minimize carbon emissions (optimising logistics to reduce transport needs for instance), using less carbon-intensive inputs, reducing waste generation and developing more energy-efficient products.

99. The opportunities for a company to reduce its emissions vary widely depending on its location, sector, access to alternative energies, nature and state of infrastructure in the country of operation. In particular, energy efficiency gains are likely to be higher in developing and emerging countries where the room for action is still important. This is reflected in the Energy Efficiency Indicator 2009, a survey

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91 Carbon down, profits up – New edition: www.theclimategroup.org/publications

92 AEON Environmental and Social Report 2009: www.aeon.info.

93 Brandix Corporate Review 2007: www.brandix.com/sustainability/green_agenda.php.

commissioned by Johnson Controls India that finds that energy efficiency has become a top concern of Indian business leaders. The survey finds that 47% of respondents are paying more attention to energy efficiency than the year before; energy management has become extremely or very important for 94% of respondents; and 64% of respondents envisage energy capital investment or undertake operating expenditure on energy efficiency. By comparison, a similar survey of 1 400 business leaders in North America finds that 39% of respondents believe that energy management is important for their business and 46% envisage investing.

100. Cost is often cited as an obstacle to the implementation of internal measures to reduce emissions. While actions to reduce energy consumption or increase energy efficiency are likely to be easy to implement, others, entailing important investment, require more efforts, starting from convincing the board and shareholders of their value, to finding the funds to implement them (UN Global Compact 2009, Hoffmann, 2008). It is not easy to find publicly available data on the investment required for, and the benefits derived from implementing emission reduction targets. According to the Caring for Climate Survey (2009), the costs of climate change activity range from less than USD 1million to more than USD 10 billion. The expected financial benefits also range widely, between no financial benefit to more than USD 10 billion. For example, Intel has invested, since 2001, more than USD23 million and recovered more than USD 50 million from resource conservation and efficiency initiatives, saving in excess of 500 million kWh (kilowatt hours), enough energy to power more than 50 000 US homes (CDP, 2009). However, these figures do not reveal the cost-benefit ratio, nor do they help identify the most cost-effective measures.

101. Another challenge that companies face when putting in practice emission reduction plans is to balance them with operational growth: as the business grows and productions increases, it is often difficult to justify the implementation of programs that limit energy consumption and demand ever increasing efficiency to lower emission or to keep them stable (UN Global Compact, 2009).

102. Finally, companies also have the possibility to manage their emissions "externally" through offsetting. Only 15 respondents to the OECD survey mentioned carbon offsets as important or very important actions undertaken by their companies to reduce emissions. For one company, offsetting is the last step in a corporate plan that relies on GHG accounting and emissions reduction efforts. According to the GHG Protocol, carbon offsets are nevertheless an important instrument in the hands of a company, for example in case where it would be unable to meet its emission reduction commitment because of unexpected circumstances.

103. For companies subject to emission quotas, the compliance market includes Emission Reduction Units (ERUs) from the Joint Implementation (JI), Certified Emissions Reduction (CERs) from the Clean Development Mechanism (CDM) and the Joint Implementation (JI), as well as Assigned Amount Units (AAUs) from emission trading under the Kyoto Protocol.[94] A voluntary offset market also exists for those companies (but also more generally for organisations and individuals) which are not bound by compulsory emission caps, but have chosen to offset their emissions on a voluntary basis. Although in an early stage of development, it has grown significantly over the past years. According to World Bank

[94] www.ghgonline.org/kyoto.htm.

(2009), between 2007 and 2008, the voluntary market grew from 43 to 54 $MtCO_2$ or from USD 263 million to USD 397 million. While in volume the CDM and JI are much larger, emission trading (in $MtCO_2$) on these markets dropped by half in the same period.

104. To meet the growing demand from business and individuals, a number of offset providers have entered the market. Certifications and standards are also emerging that address the uncertainty in the quality of offset purchases (see Table 7). In parallel, initiatives are developing to assess and rank offset providers, such as the initiative led by CarbonConcierge[95] based on a carbon offset provider evaluation matrix designed to rate selected North American providers.[96] The Climate Group has issued advice for companies wishing to purchase offsets ("10 Tips for purchasing carbon offsets").[97]

Table 7. Selected voluntary offset standards

Scheme	Scope	Methodology
Gold Standard Developed by WWF www.cdmgoldstandard.org	Offset projects and carbon credits (CDM projects). Focus on renewable energy and energy efficient projects in developing countries.	CDM methodology Certification.
Voluntary Carbon Standard Developed by the Climate Group, IETA and WEF www.v-c-s.org	Offset projects and carbon credits	The VCS assures buyers that the offset projects they purchase are real (have happened), additional (beyond business-as-usual activities), measurable, permanent (not temporarily displace emissions), independently verified and unique (not used more than once to offset emissions). VCS is based on ISO 14064-3:2006.
Green-e Administered by the Centre for Resource Solutions. www.green-e.org	Certification for offset sellers. US leading independent certification and verification programme for renewable energy.	
Climate, Community & Biodiversity Standards Founded by 13 NGOs and companies. www.climate-standards.org	Offset projects. For land-based projects that deliver climate, biodiversity and community benefits.	IPCC Good Practice Guidance & CDM methodology.
Plan Vivo www.planvivo.org	Offset projects and carbon credits.	Plan Vivo certificates represent units of long-term carbon benefit from sustainable community based forest management and agroforestry plus associated, quantified, environmental and social benefits. The certificates are based on Standards

95 Carbon Concierge (www.carbonconcierge.com/learn/COPEM-Final.pdf) is an educational and consultancy organization that engages small, mid-sized and large businesses, as well as municipalities, to develop and implement climate reduction strategies.

96 Based on the methodology developed by Carbon Concierge, two retail providers came out on top of the list of North American providers: NativeEnergy (www.nativeenergy.com) and Climate Trust (www.climatetrust.org).

97 www.theclimategroup.org/_assets/files/offsetting.pdf.

		developed by Plan Vivo.
Greenhouse Friendly Australian Government Greenhouse Challenge Plus Programme www.climatechange.gov.au/greenhousefriendly	Certification for offset sellers & carbon-neutral products	Greenhouse Friendly Guidelines: the assessment must be performed in accordance with the current Australian Standard for life cycle assessment in the ISO 14040 series.
VER+ Developed by TÜV SÜD www.tuev-sued.de/climatechange	Offset projects, carbon credits, carbon neutral products	CDM methodology Verification based on monitoring reports from the project developer, conducted by an auditor.
The Panda Standard is a Chinese domestic standard for project activities reducing GHG emissions www.pandastandard.org/downloads/PandaStandard_v1ENGLISH.pdf		Based on ISO14064-2 Specification with guidance at the project level for quantification, monitoring and reporting of greenhouse gas emission reductions or removal enhancements, and ISO14064-3 Specification with guidance for the validation and verification of greenhouse gas assertions.

Sources: publicly available websites.

Climate change - a trigger for innovation and business opportunities

105. Climate change is an extraordinary trigger of innovation – both directly and indirectly[98] - to, inter alia, find ways to reduce energy consumption and improve energy efficiency, develop alternative energy sources, create new products, develop new business models, etc. Many companies are seizing the business opportunities emerging from a shift to a low carbon economy and are thriving, increasing sales and creating new jobs.

106. For many companies climate change is an opportunity to gain advantage over their less technologically sophisticated rivals. For example, as the cost of conventional automobiles rises, innovative carmakers may be able to dominate new markets, while competitors, for whom the required investments may be too great may see their sales dwindle (O'Neill and Reinhardt, 2000). General Electric launched in 2005 Ecomagination[99], a programme meant to provide customers with products with improved operating performance and reduced environmental impact (including low-carbon). Since then, Ecomagination's portfolio has grown from 17 products to 80 products and revenues reached USD 17 billion in 2008, an increase of 21% over the previous year.

107. Similarly, many energy providers have shifted away from fossil fuels and embarked on the renewable energy path and have invested large amounts to develop new technologies. The Spanish electricity provider Iberdrola started to invest in renewable energy in 2001 and today, its subsidiary Iberdrola Renovables has become one of the world's leading providers of renewable energy. The Thai petroleum company Bangchak, has over the years shifted to developing new sources of renewable energy.

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98 Directly to adapt to the physical impacts of climate change and indirectly to comply with more stringent climate change regulation on business. For a survey of the literature on the impact of environmental regulation on innovations and new insights based on observations of 4 200 facilities in 7 OECD countries, see Lanoie, Laurent-Lucchetti, Johnstone and Ambec (2009).

99 http://ge.ecomagination.com

According to its 2008 Report, the company has been developing new business opportunities with the objective of adding business value, diversifying and dispersing business risks.

108. Innovation goes beyond the development of new technologies, products and operation methods, and includes finding new ways of doing business, for example to better integrate energy management within business operations. The Danish company Novo Nordisk for example entered into a partnership with Dong Energy, in order to achieve its objective of using 100% of "green energy for its operations in Denmark by 2014. Under the partnership, Dong energy assists Novo Nordisk in identifying energy-saving options, and in return, Novo Nordisk commits to earmark the financial savings from these projects for purchasing green electricity.[100]

109. While the transition to a low carbon economy offers fertile ground for innovation, companies will innovate only if governments offer the necessary regulatory certainty and incentives needed to make the necessary, often long term and risky investments. An analysis of the policy framework needed to facilitate innovation is beyond the scope of this work. It is however worth mentioning the recent efforts by governments and businesses to work together to develop the appropriate framework to promote innovation in clean technologies. One of the leading business institutions in this field is the World Business Council for Sustainable Development, for which "in order for business and private capital to play its role in delivering low- and zero-GHG technologies, key considerations in the design elements of future frameworks are: creating robust and integrated policy frameworks; addressing all stages in the technology development cycle; encouraging technology cooperation to developing countries, and building capacity" (WBCSD, 2007). [101] In March 2010, the World Business Council for Sustainable Development signed a statement with the International Energy Agency, agreeing to co-operate in a range of areas to support energy technology research, development, demonstration and deployment.[102]

Putting GHG emission reduction at the core of business organisation

Enterprises should "continually seek to improve corporate environmental performance, by encouraging, where appropriate, such activities as: the adoption of technologies and operating procedures in all parts of the enterprise that reflect standards concerning environmental performance in the best performing part of the enterprise" Chapter V of the *Guidelines* (Environment).

110. Addressing climate change related risks and opportunities involve all parts of business – from operations and product design to supply chain management and the business model itself. It also requires a long-term vision to continuously find new ways to reduce emissions. Therefore, ensuring the necessary changes to move towards "low carbon business making" implies internalising climate considerations throughout the company and developing long term incentive mechanisms to involve all players within the company: the board, the management and the employees across departments.

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100 http://cleaneconomy.panda.org.

101 Investing in a Low-Carbon Energy Future in the Developing World; www.wbcsd.org/DocRoot/GOOfs11Yta5VrU8mgsmQ/WBCSD_Finance.pdf.

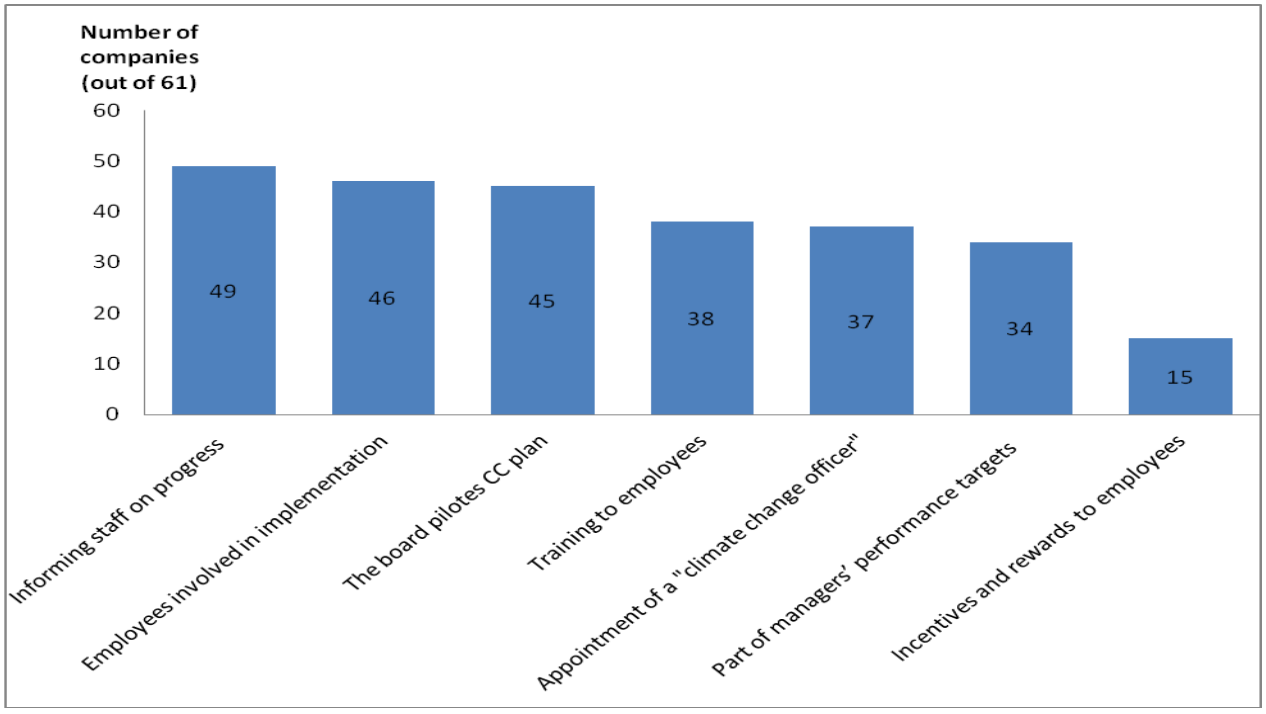
102 www.iea.org/journalists/latestinformation.asp

Integrating climate change into companies' governance framework

111. Based on observed business practices, CERES[103] has developed a corporate framework for climate change governance. According to CERES, companies that integrate climate change considerations in their board and executive structure are more likely to maintain the long-term commitment needed to address climate change. In particular, this involves that the board has explicit oversight responsibility for environmental affairs/climate change, conducts periodic review of climate change and monitors progress in implementing strategies. Assigning a board member or committee to oversee climate change risks and strategies not only signals a company's strong commitment, but also increases the likelihood of a proactive response to the potential regulatory, financial, reputation and legal risks posed by climate change as well as the potential business opportunities. In terms of management execution, this involves that the Chairman/CEO clearly articulates company's views on climate change and GHG control measures; executive officers are in key positions to monitor climate change and manage response strategies; and executive officers' compensation is linked to attainment of environmental goals and GHG targets.

112. Figure 5 illustrates how the companies who participated in the OECD survey have mainstreamed climate change considerations throughout their organisation.

Figure 5. Company internalization of climate change considerations



Source: OECD survey on business practices to reduce emissions

113. Figures on board and management level involvement in climate change plans vary. Of the 63 companies from the technology and consumer sectors reviewed by CERES (2008), only 15 had tasked

[103] See in particular CERES (2006) and CERES (2008).

board-level committees with environmental oversight and 7 CEOs had taken leadership roles on climate change initiatives. Examples of high level involvement include Nike's Corporate Responsibility Committee, Applied Materials strong CEO leadership in the internal steering committee on sustainability and climate change and Dell's Sustainability Council led by the Corporate Sustainability Director.

114. According to CDP (2010), 80% of responding companies among the Global 500 have a board level executive responsible for climate change. A 2009 survey by Goldman Sachs of 800 global companies with a combined market capitalization equal to 90% of the value of the MSCI World index revealed that around 60% of the companies have established Board or senior management responsibility of their companies climate change performance (UN Global Compact, Goldman Sachs, 2009).

115. An increasing number of companies are appointing one or more "climate change officials" to oversee implementation of GHG reduction action and manage climate change related risks. The 2009 survey of Caring for Climate Signatories shows that leading companies ("champions"), emphasise the importance of placing the climate change strategy at the very core of the company, and making sure it is integrated into regular business operations rather than delegated to a separate department (UN Global Compact, 2009). Some cou²ntries are supporting their companies in this effort. In Japan, the amendments to the Global Warming Law mandate companies to appoint an energy management supervisor in charge of the company-wide energy management systems.

Involving employees

Enterprises should provide adequate education and training to employees in environmental health and safety matters (...) Chapter V.7 of the Guidelines, Environment)

Enterprises should provide information to employees and their representatives which enables them to obtain a true and fair view of the performance of the (...) enterprise". (Chapter IV.3 of the Guidelines, Employment and Industrial Relations).

116. Addressing climate change also represents significant challenges for the human resources component of an organisation. These include: inducing change in organisational culture by developing incentive structures for employees whose innovations result in risk mitigation, cost and emissions reductions, and/or new or increased revenue streams; and establishing internal communications campaigns, staffing new positions with qualified professionals, reviewing and developing new organizational structures to accommodate change in management and operations (Kreeger, 2009).

117. Mobilising staff includes informing, raising awareness, training and interacting to promote innovation, as recommended in a guide by Comité 21 on mobilising staff teams in support of sustainable development.[104] According to the "CEO's guide to climate action" (PricewaterHouseCoopers, 2008), empowering staff within the company and setting the right internal culture is also important for recruitment. Young workers, especially, are proving to be an important lever to foster environmentally-friendly corporate initiatives. According to Whitehead Mann research (2008), "pressure for ethical change

[104] Comité 21, « Mobilisation des équipes pour le développement durable », www.comite21.org/docs/fluidbook/index.html.

is coming from the very top and the young, particularly new graduate staff. Conversely, many shareholders and non-executives are indifferent – if not hostile to the debate".

118. A 2008 survey by National Geographic revealed that over 80% of US employees believe it is important to work for a company or an organisation that makes environment a top priority. For survey respondents, the business value of integrating sustainability into corporate practices includes cost savings, attracting and retaining the best and brightest talents who want to work for companies with an authentic green commitment, and increasing market share and revenues resulting from a stronger brand and new, innovative green products and services. This is confirmed by a number of responses to the OECD survey noting that if employees are rarely a source of true pressure for taking action, carbon performance clearly motivates employees.

119. Increasingly, companies support employee sustainability initiatives through "Green teams", self-organized, grassroots and cross-functional groups of employees who voluntarily come together to educate, inspire and empower employees around sustainability. They identify and implement specific solutions to help their organization operate in a more environmentally sustainable fashion (see Table 8).

Table 8. Business practices for Green Teams

Getting Started • Secure a commitment to action from senior management • Build a cross-functional core group • Get input from employees on potential projects • Focus on visible and tangible issues • Develop a proposal for senior management • Make the business case for the project	**Educate/Raise Awareness** • Guest speakers/speaker series • Contests and friendly competitions • Celebrate success • Recognize and reward participation (contributions to nonprofits, fun green prizes, recognize in newsletter) • Employee education/training • Highlight best practices in the newsletter • Web 2.0 tools: green team web sites, blogs, discussion forums, • Intranet, Twitter
Implement Programs/Campaigns • Reduce carbon footprint with web-based activism • Replace bottled water with filtered-water systems • Identify commute and alternative transportation programs • E-waste recycling campaign • Provide customers tools and resources for going green • Energy and water consumption programs • Waste reduction and recycling programs	**Link to Corporate Sustainability Strategy** • Create a cross-functional senior level umbrella group • Link compensation to attaining sustainability goals • Create a paid position to guide the green teams

Source: Fleischer, D, (2009), www.climatebiz.com/sites/default/files/GreenBizReports-GreenTeams-final.pdf

120. In order to engage employees in corporate climate change plans, some companies have put in place incentives that link compensation to climate-related objectives. For instance, in 2008, out of the 383 companies which responded to the CDP survey, 59% incorporated carbon targets into remuneration. CERES (2008) confirms this trend, with some 20 companies out of 63 factoring energy or climate change

performance into employee compensation. For example, Intel included environmental performance in the bonuses of all employees for 2008. However none of the companies reported by CERES (2008) explicitly linked any Chief-level executive compensation to emission reduction goals. According to EIRIS (2009), one fifth of the companies in the Global 300 with a high climate change impact are linking board or senior management remuneration to GHG emission reductions or equivalent climate change strategies.

Box 12. Involving employees in achieving low carbon performance

Deutsche Telekom has adopted a policy to inform employees about climate protection to raise their awareness of the issues. This includes keeping staff informed about sustainable options at work via information stands at works meetings. For example, employees are informed about telephone and data conferences to encourage the use of climate-friendly alternatives to business trips. The climate-neutral telephone and the possibility of taking part in eco-driving courses are also presented. During the mobility weeks everything revolves around the theme of "sustainable mobility", which includes providing information about season tickets for public transport, and a motor show with natural gas and hydrogen-powered fuel cell vehicles from the Deutsche Telekom vehicle fleet. Another initiative supports the idea that "climate protection pays": Deutsche Telekom staff members have formed an affiliated company and are stakeholders in a photovoltaic (PV) system in Bonn. The system is installed on a Deutsche Telekom building and generates electricity from solar energy with a power output of 30 kilowatts peak.[105]

Google's Green Employee Programme includes initiatives such as promoting green staff commuting; making shared bicycles available to staff to use between buildings on the Google site; a free car-sharing programme, shuttles fuelled with biodiesel; composting organic waste and limiting use of disposable plates and cutlery; sourcing food from neighbouring farms, providing financial support to staff wishing to install solar panels at home, etc.[106]

The Malaysian telecommunications company **DiGi**, has made a commitment to champion climate change through the launch of its "Deep Green" programme. The programme aims to reduce DiGi's carbon footprint by 50% by 2011. DiGi has made particular efforts to involve its employees in achieving its emission reductions targets. Initiatives include: carpooling programme, free shuttle service for employees, energy conservation in the office, waste management and recycling facilities, e-billing, awareness campaign to encourage all employees to consider their personal impact on the environment, reward of internal climate champions, positive reinforcement and Straight Talk Forum. According to DiGi representatives, all these improvements were made without increasing prices for customers.[107]

Safeway's '"Power to Save" employee education initiative includes 10 easy energy saving tips for employees who work in the company's stores. Each month a different energy saving strategy is played via video in a continuous loop in employee break rooms.[108]

IBM pioneered programs to reduce employee commuting and related emissions. IBM runs one of the largest global corporate work-at-home and mobile employee programs, involving nearly one-third of the global workforce. Last year, in the U.S. alone, the company's work-at-home program conserved approximately 7.75 million gallons of fuel and avoided more than 64,000 tonnes of CO2 emissions as a result of reduced commuting. In addition, more than 2000 tonnes of CO2 emissions were avoided by employees using other commute-choice programs such as carpooling, vanpooling, etc.[109]

Nokia Siemens Networks has what it calls 'the greenest car policy in Finland', which encourages employees to choose cars with lower emissions: the policy includes monetary incentives that encourage employees to choose more environmentally friendly vehicles. Other actions include reducing work related travel and commuting by increasing remote work and remote working possibilities and reducing office space to gain savings in energy consumption and

105 www.telekom.com/dtag/cms/content/dt/en/676844

106 www.google.com/corporate/green/employee-benefits.html

107 www.digi.com.my/deepgreen

108 www.safeway.com/ifl/grocery/Sustainability-FAQ#faq19

109 www.ibm.com/ibm/environment/climate/commuting.shtml

CO_2 emissions; offering employees the possibility to offset their air travel carbon dioxide emission and utilising energy saving technologies in offices and in office equipment/hardware.[110]

Sony is introducing an employee education scheme to facilitate the energy conservation that people can achieve in their daily work. Together with a data collecting system that enables the company to monitor how much CO2 emissions are reduced by these efforts, Sony is promoting energy efficiency and environmental communication within the workplace.[111]

110 http://nds2.ir.nokia.com/environment/our-responsibility/environmental-strategy/energy-saving-targets.

111 www.sony.net/SonyInfo/csr/environment/communication/internal/index.html

REACHING OUT

121. Developing and implementing climate change strategies dealing with emission reductions *within* the company is a crucial step for enterprises to contribute to a low carbon economy. But companies also need to act *outside* of the company and interact with others to make that contribution meaningful. This section looks at five areas in which companies reach out to others as part of their strategies to reduce emissions and contribute to a low carbon future. All these areas are subject of recommendations of the Guidelines for Multinational Enterprises.

122. A company's carbon footprint is not limited to the GHG emissions it produces directly, but also includes those produced by its suppliers, by the use of its products and by their final disposal. Engaging with suppliers to reduce emissions throughout the supply chain can have important benefits for companies, both in terms of reducing emissions and costs. Important multiplier effects can be gained from the spread of emission disclosure and reduction practices along the supply chain of companies.

123. Together with governments and industry, consumers are key pillars in the fight against climate change. Heating houses, using electric appliances, driving cars and travelling, eating and drinking – each of the things that millions of consumers do day after day generates GHG emissions and contributes to climate change. Because consumers have such an important impact on climate change, and because changes in their behaviour are essential for GHG reduction measures to succeed, it is crucial that companies include engagement with consumers in their climate strategies.

124. Another key area of business engagement outside the company boundaries is participation in the policy debate and in policy-making processes. Business has contributed to environmental policy debates and policy-making for many years; this participation is particularly active in the climate change debate.

125. A further way for business to engage others and get engaged is through partnerships and co-operation with others – including other enterprises, local communities, and NGOs.

126. Technology transfer is a key element of the international climate change architecture. As key pillars in the development of clean technologies and related knowhow, companies are expected to contribute to the technology needs of the countries in which they operate.

Managing emissions throughout the supply chain

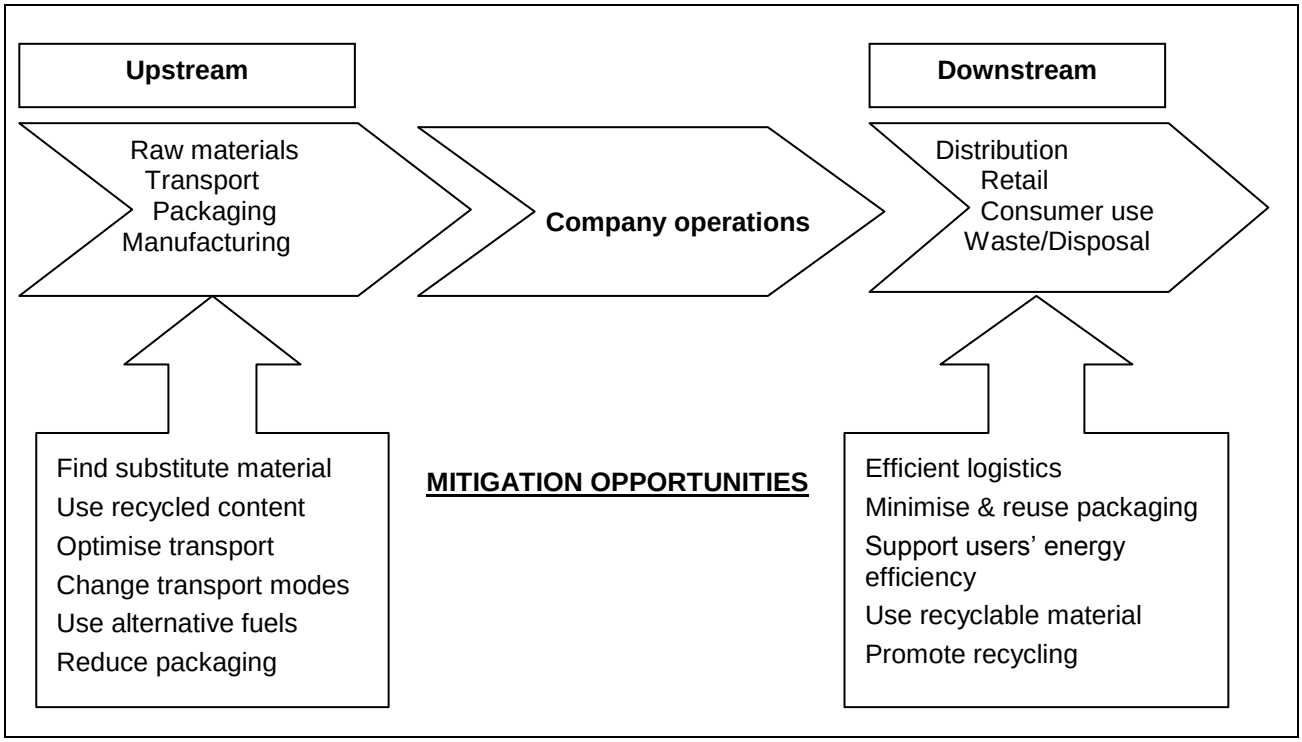
> *Enterprises should "encourage, where practicable, business partners, including suppliers and sub-contractors, to apply principles of corporate conduct compatible with the Guidelines".* Chapter II of the *Guidelines* (General Policies).

127. While for an increasing number of companies managing their own GHG emissions is becoming part of the corporate strategy and of daily practice, managing emissions generated throughout the supply

chain is still a great challenge for many. At the same time, pressure for companies to reduce emissions beyond their immediate borders is growing. As underlined by the CDP Supply Chain Report 2009, "an organisation could be put at risk by the inability of its suppliers to manage the climate-related risks".

128. The ability to reduce emissions generated throughout the supply chain may determine the capacity of a company to fulfil its own emission reduction commitment and to comply with current or forthcoming regulation. Conversely, the inability to reduce emissions generated through the supply chain may increase risks for companies, and generate substantial costs. For example, WRI and A.T. Kearney (2008) estimate that companies from the consumer goods sector that do not develop strategies to mitigate the risks posed by environmental pressures (including from more stringent climate change regulations and a greater consumer demand for green products) could face a reduction of 13 to 31% in earnings before interest and taxes (EBIT) by 2013. Figure 6 shows the mitigation opportunities, both upstream and downstream within a supply chain.

Figure 6. Composition of supply chain and mitigation opportunities



129. In practice only few companies look beyond the boundaries of their company when it comes to managing GHG emissions. Among respondents to the OECD survey, 26 out of 61 declared that they estimate the emission generated throughout the supply chain and by consumption of their products, 30 that they don't. The rest did not respond or did not provide a clear answer.

130. In a survey by McKinsey of 2000 executives, while half of respondents considered climate change to be an important issue in purchasing and supply chain management, only a quarter of them took it into consideration in practice (McKinsey, 2008b). A supply chain approach to carbon emissions management can generate substantial cost reductions indirectly, through energy savings and greater efficiency. Box 13

provides a few examples. Reducing costs meets the main strategic goal that a majority of companies have for managing supply chain, as McKinsey found in a survey on managing global supply chains (for 57 respondents out of 273) (McKinsey, 2008c). However, in this survey, only 4 respondents mentioned reducing the company's carbon footprint as an objective in itself.

Box 13. Reducing emissions through the supply chain: examples China

General Motors took part and supported a pilot project (the China Greening Supply Chain Pilot Project), involving 8 top-level suppliers. The project was implemented by Shanghai General Motors (SGM) and the World Environment Center (WEC). After a short training course, the suppliers evaluated opportunities to improve quality and reduce environmental impacts, and lower costs. Through the evaluation, suppliers were able to identify actions and investments that ultimately resulted in a combination of net financial savings as well as improved environmental performance, including: replacing electric powered utilities with wind-powered utilities; eliminating or reducing electric lighting by installing transparent roofing and walls, dimmer switches and lower wattage lighting; eliminating leaks in air and water systems; reducing the necessity for emergency deliveries and the energy necessary to complete them; installing sensors on conveyor belts that turn off power when no parts are present. These improvements, among others, by the suppliers, resulted in the net savings of over USD 200 000 USD and the reduction of over 1 800 tons of CO2, as well as important savings in water consumption.[112]

The Chinese shipping and logistics giant **COSCO** used a tool developed by IBM, "Green Supply Chain", to gain a better picture of its supply chain infrastructure. According to IBM, the tool can be used to evaluate the CO2 emissions of materials and aid in identifying alternatives; consider CO2 emissions when selecting suppliers for sourcing; determine CO2 emissions associated with manufacturing production processes; evaluate the environmental impact of warehousing and storage requirements; and analyze CO2 emissions for various transportation and distribution modes, shipment sizes and service levels. After receiving a detailed analysis of its operations, COSCO reduced the number of its distribution centers from 100 to 40, lowered logistics costs by nearly 25% and reduced CO2 emissions by 15%. These reductions enabled COSCO to avoid 100 000 tons per year of CO2 emissions, while maintaining service levels for clients and incurring no additional costs.[113]

Assessing the GHG emission-intensive segments of a supply chain

131. The key challenge in reducing the carbon footprint of goods and services by managing emissions throughout the supply chain lies in collecting the right information and putting in practice climate change strategies across suppliers and partners. This process can be costly in terms of information requirements and monitoring. It may also involve dealing with several jurisdictions and regulations (in the procurement process for instance), and may require important expertise. On the other hand, evidence shows that the benefits of applying a supply chain approach to emission reduction can be significant, both in terms of cost and of emission reductions.

132. The benefits and challenges of managing emissions in the supply chain vary from sector to sector, as the share of a company's total carbon footprint borne by suppliers varies widely. For example, Wal-Mart – the largest retailer in the world - estimates that its suppliers generate 10 times its own emissions (some 200 million tons CO2-equivalent per year). Unilever calculates emissions from its own activities (factories, offices, laboratories and business travel) to be in the order of 4 million tonnes of CO2 equivalent

112 www.wec.org/programs-initiatives/capacity-building

113 www.research.ibm.com/files/pdfs/2010_IBM_Research_brochure.pdf.

per year, its wider footprint (sourcing of agricultural and chemical raw material) to amount to around 10 times as much, and consumer use and disposal of products to reach between 30 and 60 times as much.[114]

133. In addition, not all areas of the supply chain bear similar impacts. Identifying and focusing on the areas where the most important impacts can be achieved may help avoid a costly extensive analysis of the overall emissions throughout the supply chain. While many business initiatives have focused on reducing emissions upstream of the supply chain, emissions from waste reduction, recycling and improved product design to reduce end-of life impacts can also be significant. A recent study by USEPA estimates that doubling the recycling of construction and demolition debris would help save 150 million metric tons of CO_2 equivalent per year and reducing product packaging by half would save 105 million tons. For example, General Mills reduced the size of hamburger packages by 20%, which eliminated the need for 500 distribution trucks per year. ConAgra Foods recycled 30 to 40% of plastic in its meal trays, saving 8 million pounds of plastic (WRI and A.T.Kearney, 2008).

134. Reducing the carbon footprint throughout the supply chain has concrete benefits for companies, both in terms of achieving its GHG reduction targets, and of cost savings. As one company representative put it: "look for the carbon, find the money". Box 14 presents the experience of some of the companies having assessed their products carbon footprint, and identified and implemented GHG reduction opportunities.

Box 14. Reducing the carbon footprint of goods and services: examples

Innocent smoothies discovered that raw materials, packaging and manufacturing of smoothies account for almost 80% of its GHG emissions, while fruit transport was only a minor contributor. Based on this discovery, the company focused its emission reduction strategy on higher priority areas such as packaging. By using 100% recycling plastic bottles, it reduced materials by 20% and carbon emissions from the bottle manufacturing process by 55%, while saving costs.

Boots eliminated the need for some of its regional distribution centres which allowed it to remove a transport leg and extra storage facilities from its products' footprints, as well as its own corporate footprint.

Fujitsu has made it obligatory to carry out life cycle assessment, following a methodology developed by the company itself, for all its "green products" and has established strict environmental and energy efficiency criteria. As a result, the energy saving and environmental performance of many products is constantly being improved.

As part of its ambitious GHG reduction program**, Bayer** carries out a "Climate Check" of production processes worldwide, including raw materials, logistics and energy to determine their interaction with the climate. The check has two components - the Climate Footprint, which identifies the quantities crucial to evaluating the impact of different process variant and sites have on the climate; and the "Climate Impact Analysis", a systematic, climate-focused examination of manufacturing processes and production plants. Once the potential for CO2 saving has been identified, measures for optimizing processes and plants are assessed.

As one of Koreas' leading enterprises, **Samsung** is focusing on developing and producing "carbon-lean eco-friendly products". It cooperates with business partners to minimise the environmental impact of products throughout their life cycle, from development, production, distribution, use and disposal.

Source: The Carbon Trust (2009) and company websites.

[114] www.unilever.com/sustainability/environment/climate-change/default.aspx.

Reorganising the business model and reaching out to suppliers

135. Companies have developed different practices to manage emissions throughout their supply chain. Some approaches focus on the internalisation of a supply chain approach (i.e. through internal objectives that have strong impacts on the supply chain or a reorganisation of operations to reduce emissions). Others focus on engaging their suppliers to reduce their own emissions, e.g. through specific procurement criteria or capacity building.

136. To signal a strong commitment to address emission reduction through the supply chain, Wal-Mart has set climate change targets that explicitly incorporate supply chain considerations. These include, for example, to be fully supplied by renewable energy and to increase energy efficiency of buildings by 20-30% within 7 years and of the truck fleet by 50% within 10 years. In addition, Wal-Mart announced in 2010 that it will massively reduce GHG emissions from its supply chain within five years, which, according to the company is an effort equivalent to taking more than 3.8 million cars off the road for a year. Wal-Mart says it will reach that goal by having its suppliers reduce emissions involved in the sourcing, manufacturing, transportation, and disposal of the thousands of products it sells in its stores.[115]

137. To reduce emissions throughout the supply chain, Carrefour has reorganised its logistics chain, in order to both rationalise the flows of merchandises and to minimise road transport. By 2008, Carrefour had reached its objective of shipping 40% of the merchandises by rail and river, de facto reducing the number of trucks used by 3300. Carrefour is also developing "consolidation platforms", i.e. intermediary warehouses that help suppliers minimise the number of kilometres necessary to provide merchandises. Carrefour estimates that these platforms have allowed saving 25% of CO_2 emissions per "palette". For products bearing its own brand, Carrefour provides its suppliers with a "sustainable development auto-diagnosis" tool, to help them make progress in environmental management system[116].

138. Using emission-related criteria in procurement decisions may contribute to reduce emissions in the supply chain and constitute a strong signal to suppliers. As the experience of Deutsche Telekom shows, this approach may require some internal reorganisation, including better connection between the procurement division and the division in charge of emission reduction within the company (which in Deutsche Telekom's case, in located in the CSR unit)[117].

139. Some companies have been prompted to innovate and develop new products or production methods as a consequence of their clients' low carbon policies and efforts to diminish their carbon footprint. One motivation for the Sri Lankan company Brandix to improve its production methods to, inter alia, enhance energy efficiency, was the ambitious climate change policy of its client Marks and Spencer.[118] The French

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115 www.wbcsd.org/plugins/DocSearch/details.asp?type=DocDet&ObjectId=Mzc2NDQ

116 Carrefour, Rapport de Développement Durable, 2008, 2009, www.carrefour.com/cdc/commerce-responsable/rapports-developpement-durable.

117 www.telekom.com/dtag/cms/content/dt/en/30352

118 www.brandix.com/sustainability/green_agenda.php and http://plana.marksandspencer.com/we-are-doing/climate-change/stories/31.

company L'Oreal lists among its objectives for 2009, "to encourage and co-develop environmental innovations together with its suppliers".

140. Accompanying measures such as the development of training tools and technical assistance may be required to bring existing partners up to speed with new requirements (see Box 15). Deutsche Telekom for example provides on-line training tools and organises workshops for suppliers, addressing the company's expectations and best practices. Carrefour and Wal-Mart use their partnership with the Carbon Disclosure Project to enhance awareness and build capacity among their suppliers. In addition, Wal-Mart sends engineers into the value chain of its suppliers to help them find ways to reduce GHG emissions and partners with 200 Chinese suppliers with the aim of improving energy efficiency by 20% in 2012.

Box 15. Greening the Supply Chain Initiatives of the World Environment Center

Launched by the World Environment Center, "Greening the Supply Chain Initiatives" aim to reduce raw material use, conserve natural resources, advance energy efficiency, implement cleaner production techniques, improve recycling and reduce emissions through supply chain partnerships.

As of 2008, 8 projects had been put in place; involving, respectively, 15 suppliers of Alcoa in Mexico, 12 suppliers of Dow in Sao Paulo, 14 suppliers of Johnson & Johnson in Mexico and Brazil, suppliers of Alcoa Fujikura in Romania, suppliers of the beverage, food and hotel sector in El Salvador, 8 suppliers of General Motors in Shanghai, 40 suppliers to SGM, 25 suppliers of GM Holden in Australia.

Based on these initiatives, the following emerged as important factors to achieve successful supplier engagement:

- Obtaining senior management commitment from both customer and supplier companies

- Providing direct, on the ground support to suppliers, including training, technical support, mentoring, monitoring and performance assessment

- Acknowledging the wide range of supplier competencies

- Creating benefits for suppliers

- Recognizing external incentives for greener supplier performance

- Working within the national culture with local people

Source: World Environment Center (2008), www.wec.org/programs-initiatives/capacity-building.

141. In addition to individual company's efforts, a range of collective initiatives have emerged to promote the management of GHG emissions throughout the supply chain. Many of these initiatives focus on a specific sector, e.g., the electronic industry or the transportation sectors, where often the same suppliers work for different clients. These type of partnerships help create economies of scale, by, for example, harmonising requirements from suppliers, rather than submitting them to a multiplicity of individual company's standards. Another initiative is the Carbon Disclosure Project on Supply Chain which aims to help large companies identify opportunities for reducing GHG emissions from external operations. Table 9 provides a description of selected initiatives.

Table 9. Selected supply chain partnerships

Description	Partners
Carbon Disclosure Project Supply Chain : www.cdproject.net/corporate-supply-chain-faqs.asp	
In 2007, CDP launched its Supply Chain initiative.. Member companies provide the CDP with a list of their suppliers, and encourage them to complete a standardized survey that includes questions on GHG emissions, energy consumption and cost, and energy/GHG management strategies. CDP analyzes the responses and provides the member company with a report detailing comprehensive supply chain emissions and energy costs.	Acer, Banco Bradesco, Boeing, BT Group, Cadbury, Carrefour, CELESC, Colgate Palmolive, Dell, Exelon, Fiji Water, Heinz, Hewlett-Packard, IBM, Imperial Tobacco, Johnson Controls, Johnson & Johnson, Juniper Networks, Kellogg's, L'Oréal, Merrill Lynch & Co., National Grid, Nestle, Newmont Mining, PepsiCo, Proctor & Gamble, Prudential, Reckitt Benckiser, Royal Mail, SSL International, Tesco, Unilever, Vale and Vodafone Group
Electronic Industry Citizenship Coalition (EICC): www.eicc.info	
EICC works on advancing Corporate Social Responsibility across the Information and Communications Technology supply chain. Its Work Group on de-carbonizing the supply chain aims to develop a common measurement approach, a common way of reporting carbon emissions in the supply chain and share best practices and tools.	Acer, Adobe, AMD, Analog Devices, Apple, Applied Materials, Best Buy, Celestica, Cisco, DSG International plc, Dell, EMC2, Flextronics, Foxconn, HP, IBM, Intel, Jabil, Kodak, Lenovo, Lexmark, Liteon, Logitech, Micron, Microsoft, Numonyx, NXP, Nvidia, Pegatron, Philips, Quanta Computer, Samsung, Sanmina-Sci, Seagate, ST, Solectron, Sony, Spansion, Sun Microsystems, Talison, Tellabs, Venture, Western Digital, Xerox
SmartWay (EPA): www.epa.gov/otaq/smartway	
Launched in 2004 to work on reducing emissions from transportation in distribution and supply chain operations. SmartWay works with companies to develop emissions reduction targets and sustainable strategies. To participate, a company must measure and improve its environmental performance, create a strategic plan to achieve those goals, and report progress to the EPA.	SmartWay has over 1400 partners, including Baxter, Cummins, Deere and Co., Holcim, HP, IBM and Whirlpool. Complete list : www.epa.gov/otaq/smartway/transport/partner-list/index.htm
The Clean Cargo Working Group (CCWG): www.bsr.org/consulting/working-groups/clean-cargo.cfm	
Collaboration between 27 multinational manufacturers and their supply chains to integrate Corporate Social Responsibility standards into transportation needs. CCWG focuses on emissions calculation, environmental performance reporting, and identifying and pursuing opportunities for environmental improvement. In addition to providing tools to collect standardized information on upstream practices, the CCWG brings suppliers and carriers together, and helps them share best practices, identify areas to reduce emissions and increase efficiency in supply chain operations.	APL, Chiquita Brands, Inc., Cisco, Systems, Inc., CMA CGM, The Coca-Cola Company, COSCON, Fiji Water Company, LLC, Gap Inc., General Electric, H&M, Hamburg Sud, Hapag Lloyd, Hyundai Merchant Marine, IKEA, K Line, Maersk, Mediterranean, Nike, Nordstrom, NYK Line, OOCL, Safmarine, Shell Marine, Starbucks Coffee Company, The Timberland Company, UPS, Wal-Mart Stores, Inc., Yang Ming Marine Transport Corp.
Electric Utility Industry Sustainable Supply Chain Alliance: www.euissca.org	
Initiative of investor-owned utilities who work with non-fuel suppliers to improve the energy efficiency and environmental performance of utility supply chains. The Alliance develops voluntary standards to decrease the environmental impact of utilities and utility suppliers. Among other goals, the Alliance is committed to identifying and implementing best practices related to energy efficiency.	American Electric Power, Duke Energy, Entergy, Exelon, National Grid, Pacific Gas & Electric, PPL Corp, Progress Energy, San Diego Gas & Electric, Southern California Edison, Ameren, APS, Northeast Utilities and Southern Company.
Green Suppliers Network (GSN): www.greensuppliers.gov	
Joint collaboration between the EPA and the National Institute of Standards and Technology's Manufacturing Extension Partnership (NIST MEP). Large companies are	American Electric Power, Baxter International Inc., Duke Energy Corporation, Exelon, Lockheed Martin, Pacific Gas and Electric, and

invited to show leadership and help decrease the environmental impact of their supply chains by joining the GSN as Corporate Champions. A Corporate Champion nominates five supply chain partners annually to the GSN. NIST MEP experts visit supply chain facilities and perform technical assessments to identify improvement opportunities. EPA experts provide program support and environmental information and tools.	Boeing. www.greensuppliers.gov/gsn/page.gsn?id=corporate#Who
Suppliers Partnership (SP): www.supplierspartnership.org	
Launched by automobile equipment manufacturers and their suppliers with the EPA in 2003 to improve general environmental performance in the automotive supply chain. The SP is primarily a platform for information exchange, and organizes conferences and workshops to help companies share best practices concerning environmental impacts.	Member companies include Chrysler, Ford, General Motors and Johnson Controls. www.supplierspartnership.org/page03.html

Source: based on information from the Pew Centre on Global Climate Change: **www.pewclimate.org**.

142. There is currently limited government regulation and guidance to companies in the area of supply chain management of GHG emissions. The summary report of the World Business Summit, held in May 2009 to provide business views into the Copenhagen Conference, (Copenhagen Climate Council, 2009) discusses the opportunities to deal with climate change by focusing on comprehensive approaches to value chains. The report points out the key difficulties for companies in reducing emissions in supply chains: "Supply chains in most businesses are currently managed for cost, time and quality, and exclude parameters such as impacts on climate, water, and waste. Furthermore existing policies that relate to supply chain management have covered standards for labour, factories and poverty alleviation at source."

143. The report also includes recommendations on focus areas for business and recommendations to policy-makers. The latter include:

- Establishing a transparent international standard for greenhouse gas measurement of products and services across value chains. Any standards need to be simple, consistent, but unrestrictive, for example by setting minimum and common measurement methods.

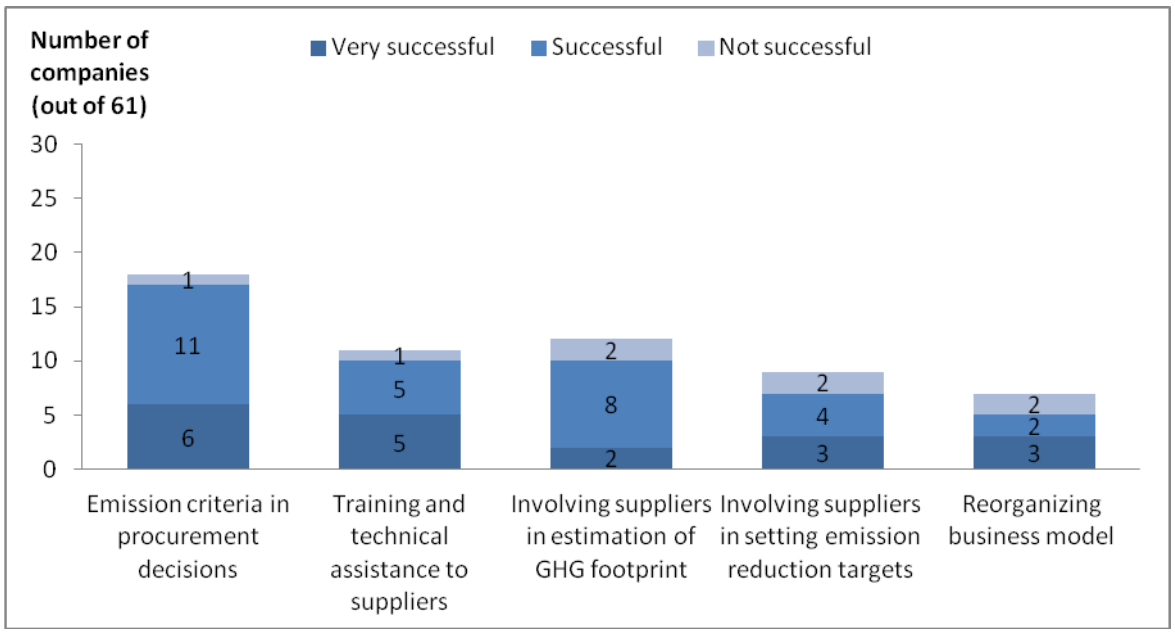
- Increasing the quality and information available to the public, including providing education to and increasing awareness of consumers, businesses and students.

- When considering the adoption of low-carbon innovations, include focus on disseminating these technologies along supply chains and consider the complex interactions between different stakeholders along each chain.

144. The OECD survey invited companies to indicate, among a list of suggested measures, which ones had been successful in triggering suppliers' action to reduce emissions (Figure 7). Less than half of the companies responded to this question. This seems to confirm the fact that many companies have not taken significant action to motivate suppliers in this area or do not have enough experience to report on yet. Among the responding companies, 17 companies considered including emissions criteria in procurement decisions to be successful or very successful; two measures were cited by 10 companies: involving suppliers in estimating the company's footprint and providing training and technical assistance to

suppliers. Involving suppliers in setting the company's emission reduction targets and reorganising the business model were mentioned only by few companies.

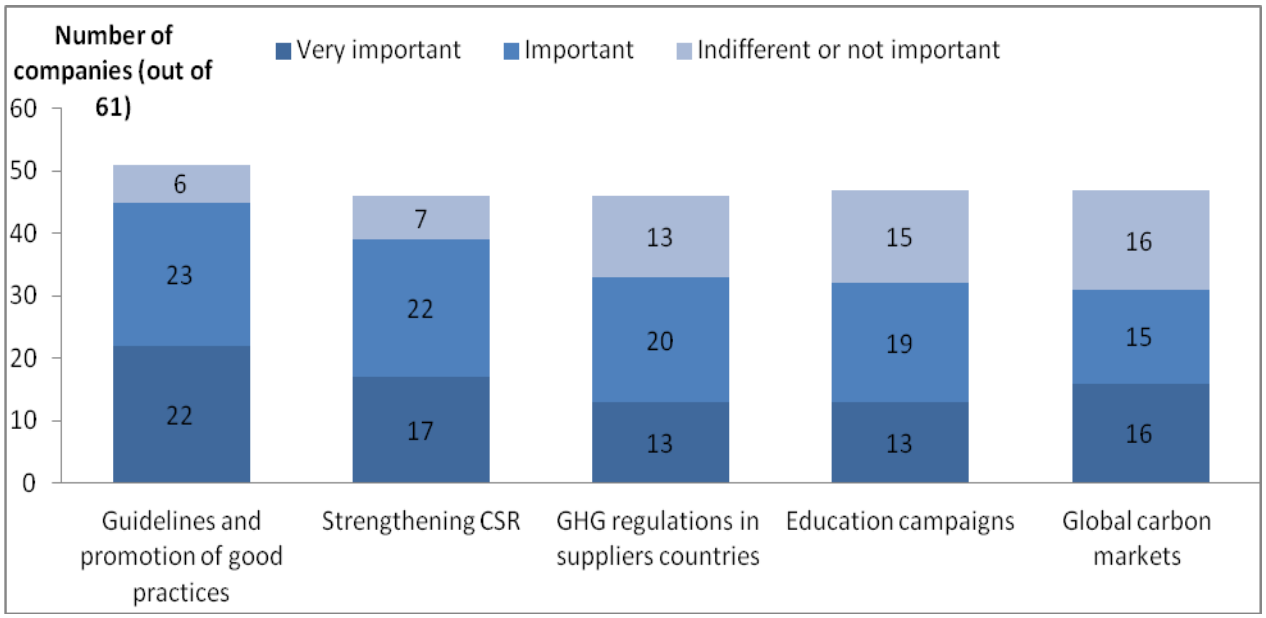
Figure 7. Usefulness of company measures to trigger suppliers' action to reduce emissions



Source: OECD survey on business practices to reduce emissions

145. Companies were also invited to rank measures which would be helpful for companies to engage more efficiently with suppliers (Figure 8). Among the suggested measures, "guidelines and promotion of good practice" ranks first (with 43 companies considering it a very important or important measure); followed by "strengthening corporate social responsibility" (38). Implementation of GHG regulation in suppliers' countries and global carbon markets were mentioned by over 30 companies.

Figure 8. Usefulness of government measures to engage suppliers



Source: OECD survey on business practices to reduce emissions

Engaging consumers

Enterprises should "continually seek to improve corporate environmental performance, by inter alia, such activities as (…):

- development and provision of products and services that have no undue environmental impacts, are safe in their intended use; are efficient in their consumption of energy and natural resources; can be reused, recycled, or disposed of safely;

- promoting higher levels of awareness among customers of the environmental implications of using the products and services of the enterprise." Chapter V of the *Guidelines* (Environment).

"When dealing with consumers, enterprises should act in accordance with fair business, marketing and advertising practices and should take all reasonable steps to ensure the safety and quality of the goods or services they provide. In particular, they should:

- Ensure that the goods or services they provide meet all agreed or legally required standards for consumer health and safety, including health warnings and product safety and information labels.

- Provide accurate and clear information regarding their content, safe use, maintenance, storage, and disposal sufficient to enable consumers to make informed decisions.

- Not make representations or omissions, not engage in any other practices that are deceptive, misleading, fraudulent, or unfair." Chapter VII of the *Guidelines* (Consumer Interests).

146. Consumers are becoming increasingly aware of their role in contributing to climate change – but also, of their responsibility in contributing to fight it. According to a survey of 2734 people in the US and the UK (Consumers International and AccountAbility, 2007), climate change "is a mainstream consumer

issue: consumers are strongly concerned and are ready to take action". A 2008 survey by McKinseyQuarterly of 7751 consumers in Brazil, Canada, China, France, Germany, India, the UK and the US revealed that more than half of them say they are willing to recycle, buy energy-efficient appliances and to drive more fuel efficient cars (Mc Kinsey, 2008d).

147. Research by The Climate Group covering 1000 people in each of the US, UK and China confirms an increasingly receptive market interested in what companies are doing, and eager to do more (The Climate Group, 2008). Compared to similar research done in 2007, more people are "doing something" in the more obvious high-carbon activities such as household energy use and driving, and people who previously did not know what could be done or were not interested in changing their consumption habits, have now changed their food shopping and driving behaviour.

148. However, there is still a huge gap between consumer awareness, what consumers declare they are willing to do, and what they actually do. There are many types of consumers, and their readiness to take action in order to reduce their impact on climate change, also varies.[119] Connecting with these different types of consumers and delivering a convincing message is an important challenge. There is enormous potential for improvements in engaging consumers in the development towards a low carbon economy. Realising this potential requires co-operation between the different actors - including governments, business and NGOs.

Raising awareness

149. The Guidelines reflect the expectation that companies contribute to raising awareness on the environmental implications of the consumption of the goods and services they offer. However, there is surprisingly little said in the recent business literature on how best to raise customers' awareness on climate change. The "CEO's guide to climate action" (PricewaterhouseCoopers International, 2008), lists, among the five key CEO roles, that of empowering others" - which includes staff, suppliers, stakeholders and other businesses in the sector - but there is no reference to consumers. In its study "Towards a low carbon economy", the World Business Council for Sustainable Development (WBCSD) lists lack of awareness and information on energy consumption and costs as one of the barriers to the deployment of energy-efficient technologies and practices, and recognises that "there is a need to educate consumers about the financial and environmental benefits of energy conservation, which will support effective consumer decisions".

150. Many governments have undertaken campaigns to raise consumer awareness about climate change and provide information to consumers about ways to lower their carbon footprints. Examples include the UK's ACT ON CO2 Campaign ("How can I make a difference?")[120], which provides a CO2 calculator for

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31.

LINK "http://campaigns2.direct.gov.uk/actonco2/home.html" |http://campaigns2.direct.gov.uk/actonco2/home.html**}**

121 http://campaigns2.direct.gov.uk/actonco2/home.html**}**

121 www.bmu-klimaschutzinitiative.de/en/for_consumers.

ies/31.

everyday actions (in the home, driving, shopping, etc); Germany's consumer campaign "For me-for you-for the climate", which includes a telephone hotline to advise consumers on reducing CO_2 emissions at home[121]; the webpage by France's Agence de l'environnement et de la maîtrise de l'énergie (ADEME) dedicated to the "eco-citizen"[122], and the information portal by Australia's Department of Climate Change ("Think climate, think change")[123].

151. A range of initiatives by business, NGOs and other civil society groups have also emerged to help educate consumers and inform them of their role in lowering their carbon footprint in their daily life. The Climate Group developed "Together.com", a consumer engagement campaign, aimed at delivering consumers "easy and affordable ways to fight climate change.[124] It shows "how the little action people take in their everyday lives - like switching to energy-saving light bulbs - can make a big difference to both CO_2 emissions and household bills". Individual companies are also taking action to inform consumers on ways of reducing their carbon footprint in daily life (see box 16).

Box 16. Informing consumers on ways to reduce their carbon footprint

Philips Lighting's campaign "A simple switch", aims at offering more energy-efficient products and providing easily accessible information to consumers on the impacts of the use of the company's products.[125]

Tesco's "Greener Living" website contains a wealth of accessible information on climate change and provides suggestions to consumers on how to reduce their carbon footprint.[126]

Deutsche Telekom's "low carbon society" webpage provides information to consumers, inter alia, on how to track their energy consumption.[127]

Gas de France provides on its website a simulator to help consumers measure their homes' energy consumption and then sends customised advice on energy saving measures.[128]

Providing information on the carbon footprint of products

152. To empower consumers and help them make informed choices, they need to be given the necessary information about the "climate friendly" goods and services on offer. Providing this information does not necessarily imply that consumers will actually make the "right" choices: knowing about the health implications of junk food does not deter many people from eating it. Similarly, knowing the carbon footprint of travelling by plane will not necessarily make many travellers opt for other modes of transport.

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ies/31.

122 http://ecocitoyens.ademe.fr

123 www.climatechange.gov.au/index.html

124 www.theclimategroup.org/what_we_do/together

125 www.asimpleswitch.com/global

126 www.tesco.com/greenerliving/cutting_carbon_footprints/default.page

127 www.telekom.com/dtag/cms/content/dt/en/675918

128 http://dolcevita-economiesdenergie.fr.

However, it is a necessary step in raising consumers' awareness of their own impact on climate change and on the need to change behaviour.

153. Companies are increasingly using their websites to inform consumers about their corporate climate change strategies and the carbon footprint of their products in terms which are accessible to the average consumer. Examples include the shoe maker Timberland, which publishes an easy-to-read Climate Change Strategy on its website[129] or the special feature on a low carbon society by electronics producer Sharp.[130] Other enterprises follow a mixed approach – they provide information related to the carbon footprint of their own goods and services on their company websites, as well as links to broader government sponsored information campaigns. The French retailer Monoprix, for example includes links to the government's energy-saving campaign, on its sustainable development policy webpage".[131]

154. A further approach are joint business-government initiatives. The involvement of governments can have the advantage of increasing the credibility of companies' messages in the eyes of the consumer. An example of such initiative is the "day of sustainable (dish) washing" involving a variety of actors, including government bodies, academia, consumer associations and industry groups (washing powder producers, the chemical industry, etc). The campaign' website includes calculators showing the water usage, energy cost and GHG emission reductions of, for example, washing at lower temperature.[132]

155. Labels are another way to provide information. Labels indicating the energy consumption and efficiency of products have been in place for many years, such as the North American "Energy Star"[133], or the European energy label.[134] The latter has been replicated also in other countries, such as Brazil, China and South Africa. More recently, a range of "carbon labels" have emerged, which indicate the amount of GHG emitted in various or all phases of the product's life cycle. These include Climatop developed in Switzerland[135], CarbonCounted (Canada)[136] and CarbonFree (US)[137]. Most of these carbon labels have been developed by non-government institutions and their coverage, stages of the product's life cycle and measurement methodology vary.

156. A number of government-backed carbon labels have also recently emerged. One is the UK's Carbon Reduction label, developed in 2008 by the British Standard Institute, the Carbon Trust and the Department for Environment, Food and Rural Affairs (Defra).[138] Around 20 companies participate in the

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129 www.timberland.com/corp/Timberland_Climate_Strategy_2009_report.pdf

130 www.sharp-world.com/corporate/eco/csr_report/2008pdf/sharp09_14e.pdf

131 www.monoprix.fr/Groupe/DeveloppementDurable/Default.aspx and www.faisonsvite.fr

132 www.forum-waschen.de/e-trolley/page_8751/index.html; www.sustainable-washing.eu.

133 www.energystar.gov.

134 www.energy.eu/focus/energy-label.php.

135 www.climatop.ch

136 www.carboncounted.com

137 www.carbonfund.org

138 www.carbon-label.com

scheme. Another government-backed carbon label is the Japanese Carbon Footprint Scheme, launched in 2009 by the Ministry of Economy, Trade and Industry (METI)[139]. One of the pilot companies using this label is the supermarket chain AEON, which among others, has measured the carbon footprint (covering production, transport and consumption) of rice, one of its key staples.[140] The French government envisaged making carbon labelling mandatory as part of the "Grenelle de l'environnement" process, but eventually decided to postpone the project and carry out a one-year trial first.[141]

157. Some companies have developed their own carbon label, such as the French retailer Carrefour. Its "Carbon Index"(indice carbone) displays three indicators: grammes of CO2-equivalent emitted per 100 grammes of a product, an absolute scale indicating the carbon intensity of the product, and an illustration of the improvement achievable in waste sorting, and the specific percentage of possible recycling, if consumers properly sort product packaging. Another French retailer, Leclerc, has launched a carbon label on a pilot basis.[142]

158. One problem often raised in relation with environmentally-related labels is their number. There is a risk of competition between different environmental and social labels. Another problem is the readability of labels (how much and what kind of information can be usefully provided through a label?). The fruit drink producer Innocent, from example, says on its website that it does not have a carbon label because what the company does in terms of reducing its environmental footprint cannot be reflected in a label.[143] Comparability of labels is another problem: different methodologies or labelling criteria yield different results, and make comparison between carbon content of similar products impossible. A report by the Öko-Institut for the German Ministry for Environment (2009) exploring different approaches to carbon footprinting and carbon labels argues in favour of international standardisation.

159. Corporate claims in relation to climate change can meet scepticism and mistrust. Research by Consumers International and AccountAbility (2007) shows that only 10% of consumers trust what companies and government tell them about global warming. It says that "corporate and government efforts to inform consumers on climate change are falling on deaf ears, with barely one in ten people in the UK and US believing what they say on the issue". Furthermore, 75% of consumers, although concerned about how their consumption affects climate change, feel paralysed to act beyond small changes around the home (such as turning off stand-by modes and converting to energy-efficient light bulbs). The study indicates that this is due to a lack of understanding about what individuals can do; concerns over the financial cost of acting; a perceived lack of availability, and a mistrust of corporate claims about energy efficient products and services.

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139 www.meti.go.jp/english/press/data/20090303_01.html

140 www.aeon.info/en/environment/report/imgsrc/e_section02.pdf ; www.unescap.org/tid/projects/csr_tueb1_tsuchiya.pdf

141 www.legrenelle-environnement.fr/spip.php?article1

142 Both Casino's and Leclerç's labels are analysed in OECD (2009), "Counting Carbon in the Marketplace [COM/TAD/ENV/JWPTE(2009)7ANN/REV1" (not published yet). See also www.produits-casino.fr/developpement-durable/dd_indice-carbone-demarche.html.

143 www.innocentdrinks.co.uk/us/ethics/sustainable_production/carbon/faqs/#10.

160. Indeed, examples of "carbon claims" and of related breaches of regulations on environmental claims seem to be on the rise. In 2008, the UK's Advertising Standard Authority conducted its first "Environmental claims survey 2008", following a significant rise in complaints about "green" and ethical claims in previous years.[144] The report notes that "Global concerns about climate change are making us more and more aware of our collective responsibility to help preserve the planet. Advertisers have been quick to realise that environmental factors could play a strong part in consumers' buying decisions and are keen to promote the "green" or ethical credentials of their products". The survey found a rate of breach of advertising rules of 6%, out of roughly 200 examined claims. Interestingly, a significant number of cases of breach were related to climate change-related claims.[145] Similarly, among the "Flop 10", a "greenwashing ranking" established by the French "observatoire indépendent de la publicité" in cooperation with consumers and publicity experts, half of the companies' advertisements listed relate to claims regarding energy savings and CO2 emissions from vehicles.[146]

161. Some countries have adopted regulation and monitoring mechanism to prevent false "green" claims ("greenwashing").[147] These regulations help protect consumers, but are also important for companies wishing to communicate honestly about their efforts to improve the environmental performance of their products. These regulations cover environmental claims in general, but there have been some recent developments to provide guidance on climate change-related claims. Futerra, commissioned by the UK government, issued in 2005 "The rules of the Game"- rules about climate change communication.[148] The Australian Competition and Consumer Commission published in 2008 a guide for business on "carbon

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144 The survey aimed to determine the compliance rate of advertisements making environmental claims with the British Code of Advertising, Sales Promotion and Direct Marketing (the CAP Code) and with the BCAP TV and Radio Advertising Standards Codes (the BCAP Codes).

145 For example, an ad for low-fuel consumption tyres claimed the tyres used less fuel, saved money and lowered emissions, and stated that the claims were based on a comparison with the market average. The ad was considered confusing and unclear. An ad for a hybrid car that can be fuelled by either petrol or hydrogen referred to "zero emissions", "emission-free motoring" and, later in the ad, "near zero CO2 emissions". The ad was considered confusing and contradictory, and to emphasise the "green" credentials of the car and underplayed the environmental impact the car would have when used in petrol mode. A circular for a solar energy company claiming the advertised system had been proven to harness a huge amount of free energy all year round was considered to be unclear on the basis for the claim and to overstate the product's impact.

146 http://observatoiredelapublicite.fr/wp-content/uploads/2010/02/TABLEAU.jpg

147 Australia Competition and Consumer Commission: Green Marketing and Trade Practices Act Business Guide (www.accc.gov.au), Canada Competition Bureau and Canadian Standards Association: Environmental Claims: A Guide for Industry and Advertiser (www.competitionbureau.gc.ca), Finland Kuluttaja Consumer Agency and Ombudsman: Guidelines on the use of Environmentally Oriented Claims in Marketing (www.kuluttajavirasto.fi), New Zealand Commerce Commission: The Fair Trading Act – Guidelines for Green Marketing (www.comcom.govt.nz), European Commission: Guidelines for Making and Assessing Environmental Claims (http://ec.europa.eu/consumers/cons_safe/news/green/guidelines_en.pdf), UK, Department for Environment, Food and Rural Affairs: Green Claims – Practical Guidance (www.defra.gov.uk/environment/consumerprod/glc/claims.htm), US Federal Trade Commission: Guides for the Use of Environmental Marketing Claims (www.ftc.gov/bcp/grnrule/guides980427) cited in International Consumer Protection and Enforcement Network, Green Claims Working Group, Reference document for the development if environmental marketing claim guides.

148 www.futerra.co.uk/downloads/RulesOfTheGame.pdf. Futerra has also published "The new rules of the game", aimed at changing consumer behavior www.futerra.co.uk/downloads/NewRules_NewGame.pdf.

claims". It examines issues surrounding carbon offset and neutrality claims, explains the meaning of key terms and provides examples of proper and misleading carbon claims.[149] The US Federal Trade Commission is currently revising its 1998 "Guides for the Use of Environmental Marketing Claims", to ensure that they are responsive to today's marketplace. According to a Commission representative, the revision "is looking into topics beyond the scope of the existing guides, because many currently used green claims, such as 'sustainable' and 'carbon neutral,' were not common when the Commission last revised the Guides".[150]

Shaping consumer demand: offering low-carbon goods and services

162. Enterprises have primary responsibility for the carbon footprint in the production, use and disposal of the goods and services they offer to consumers, and therefore have a key role in shaping consumer demand and proposing consumers less carbon intensive choices. The 2008 consumer survey by The Climate Group reveals strong consumer demand for innovative solutions that will help people reduce their impact on the climate. On the other hand, spending extra money is not being considered as an option by many. Instead, a majority of people is ready to make changes to their lifestyle and invest their time. However, this will not be enough to achieve significant carbon reductions.

163. According to the World Resources Institute, "corporate climate strategies will not succeed in they rely only on consumers to do the right thing. Some climate-conscious consumers will buy low carbon products or make behavioural adjustments, such as turning down their thermostats to save energy. These actions are important, but they alone will not achieve the reductions needed at the pace required. Companies must drive consumer preferences by advancing mass market, low-carbon products and services. They must attract consumers based on cost and performance, in addition to being a "green" or "responsible" product" (WRI, 2009).

164. Many enterprises have lowered the carbon footprint of their products and services, and have provided incentives to consumers to purchase them or to become more aware of their availability and usefulness (see examples in Box 17). Governments have also provided incentives. For example, France has granted financial assistance to households to replace inefficient heaters, appliances, etc. and insulate homes, install solar panels, or purchase low consumption gas boilers. Another example is the "*bonus-malus*" systems used in several countries to discourage purchase of high emitting vehicles.

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149 Australia Competition and Consumer Commission Carbon Claims and the Trade Practices Act Business Guide http://intranet.accc.gov.au/content/index.phtml/itemId/960248.

150 www.wbcsd.org/plugins/DocSearch/details.asp?type=DocDet&ObjectId=MzczOTU. Guidance has also been developed by non-governmental institutions, e.g. "Understanding and Preventing Greenwash: A Business Guide" by BSR and Futerra, www.bsr.org/reports/Understanding%20_Preventing_Greenwash.pdf

Box 17. Business initiatives to facilitate low carbon consumption

Tesco has cut its prices for energy efficient products to reduce costs for customers choosing low-carbon products. By cutting the price of energy efficient light bulbs by 50%, the company quadrupled its sales in the products. Tesco met its target to sell 10 million energy efficient light bulbs over one year.[151]

Limited Brands is increasing e-commerce sites to allow customers to shop without travelling.[152]

Ford worked with the Energy Saving Trust to put on the Smart Driving Challenge in 2007 and 2008. These five regional 'smarter driving' events resulted in a total of 494 drivers achieving an average increase in miles per gallon of 33.4% and average decrease in fuel consumption and CO2 of 22.5%.[153]

Nokia has launched a service for sustainable lifestyle, the "Green Explorer", helping people make more sustainable choices when travelling. Green Explorer works with its partners to provide sustainable tips and advice on how "to live and travel green", and invites the public to share experiences and ideas.[154]

Barclays recently launched Barclaycard Breath, aimed at encouraging the purchase of greener goods through discounts from a range of businesses. In adidtion, 50% of profits from the credit card go to projects tackling climate change. (CBI, 2009)

165. In spite of progress in this area, engaging better with consumers remains a key challenge for business, and there is a demand for more government action to help changing consumer habits and behaviour. In the 2009 survey of Caring for Climate Signatories (UN Global Compact, 2009), companies where asked to rate the helpfulness of a range of national policy approaches in terms of assisting companies in achieving their climate change objectives. "Providing incentives for consumers to purchase climate friendly products" ranked fourth (out of 12 policy measures). When asked to suggest other actions that national governments should take to help to address climate change, "educate/raise awareness" was ranked first (out of 14) (followed by support research/innovation, and incentives/facilitate investments).

166. The OECD survey asked companies to indicate, among a choice of options, the most useful measures to increase consumer awareness and shape consumer demand for low carbon goods and services Figure 9). The preferred option for companies was that governments provide financial incentives (45 companies considered it very useful or useful). Other options considered useful or very useful by respondents were "education campaigns" (42), "leading by example" (36); taxing use of "high carbon" (or carbon intensive) products (31).

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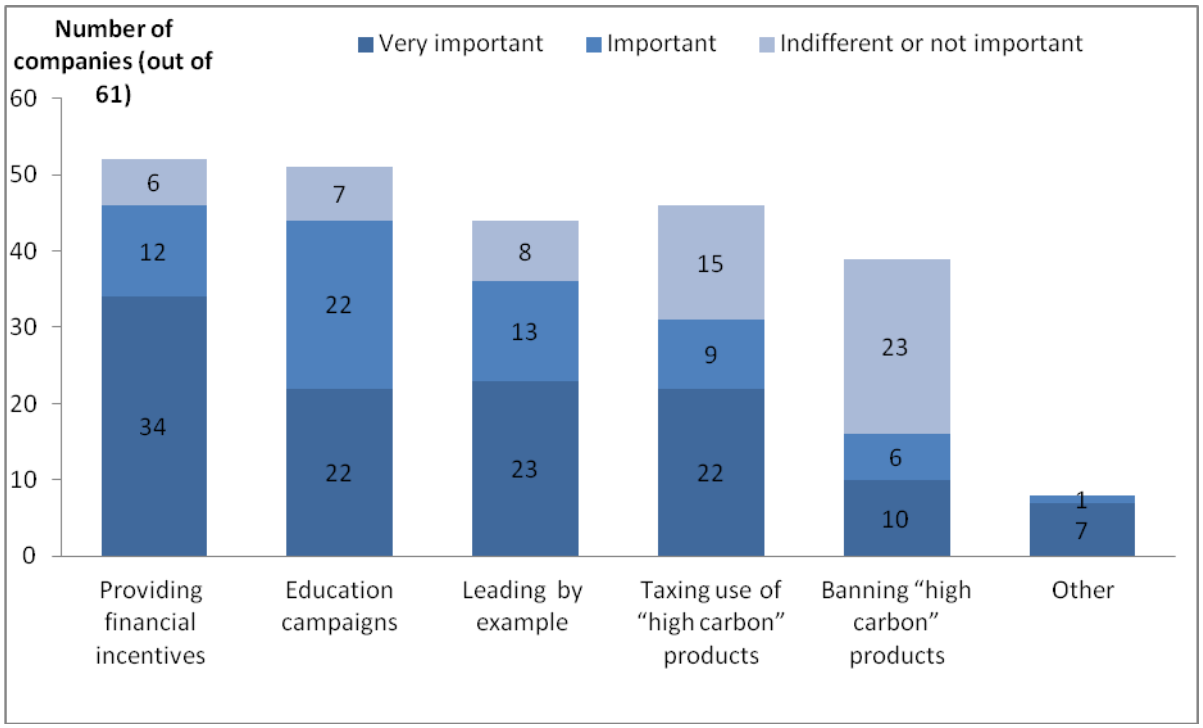
151 www.tesco.com/climatechange/lightbulbs

152 www.limitedbrands.com/responsibility/environment/energy_climate.aspx

153 CBI (2009), *"Everyone's business: time to focus on consumers and climate change,"* http://climatechange.cbi.org.uk/uploaded/Everyone's%20business%20-%20time%20to%20focus%20on%20consumers%20and%20climate%20change.pdf

154 http://greenexplorer.nokia.com/greenexplorer/home.html

Figure 9. Measures to raise consumer awareness



Source: OECD survey on business practices to reduce emissions

167. Only a quarter of companies considered banning of high carbon or carbon intensive products to be a useful measure. This contrasts with the results of a survey by Consumers International and AccountAbility (2007), according to which over half of surveyed citizens (51.5%) believe governments should be forcing businesses to remove products that are most damaging to global warming. Among the recommendations of this study is that choice reduction policies should be developed for all high impact consumer products and services where viable alternatives exist. One example is the ban of incandescent light bulbs, initiated by the Australian government and followed by others, or that of new construction norms which are moving low quality windows out of the market in many countries.

Contributing to the development of climate change policies

Enterprises should contribute to the development of environmentally meaningful and economically efficient public policy, for example, by means of partnerships or initiatives that will enhance environmental awareness and protection. Chapter V of the *Guidelines* (Environment).

168. For many companies, "ensuring a seat at the table" in the climate change policy debate is "straightforward business strategy". Any policy that regulates GHG emission will set the rules of the game and change the competitive landscape, favouring certain actions, companies and industries. To maintain a measure of control over their future business environment, it is important that companies monitor and anticipate the options being considered (Hoffmann and Woody, 2008). Interest in making an impact on the development of climate change policies can also be a trigger for companies to implement ambitious corporate climate change practices, and thus gain expertise and legitimacy to contribute to shaping

policies. Taking a leadership position on climate change gives companies a distinctive identity in the eyes of government officials, scientists and environmental groups (O'Neill and Reinhardt, 2000). For some companies this has clearly paid off. Hoffmann and Woody (2008) cite the example of Shell and BP, both of which had a role in influencing the development of the EU and UK Emission Trading rules based on their long experience in carbon reductions.

169. By participating in consultations business can have their interests and expertise in dealing with climate change issues heard and taken into account in the design of policies, and ensure that policy changes reflect business realities. This in turn may result in better design and implementation of policies. Because of the wide-reaching effects of climate change and of the policy response to it, business' involvement in national and international climate change debates has been particularly strong. This debate is also occurring at a time where transparent and consultation-based policy making has matured and become the rule in many countries. The current momentum around a new international climate change architecture has also heightened the interest and active participation from business.

170. This participation can materialise in a variety of forms, including support, opposition and calls for action. There are many examples of business initiatives against planned government policies and of lobbying to keep changes toward a low carbon economy at minimum levels. Particularly in times of economic crisis, some companies or industry sectors are mobilising themselves to attempt to lower the ambitions of planned government policies, including in the field of climate change. But the contrary is the case, too – with business prodding governments to put in place stronger climate change regulations, as has been the case by some parts of industry in the United States, or some airlines asking for the aviation sector to be included in the EU Emission Trading System. In 2009, the decision by Apple and other major companies to leave the US Chamber of Commerce because of the latter's opposition to planned government regulation to reduce GHG emission hit the headlines.[155]

171. Reconciling divergent points of view is an integral part of policy-making. The *Guidelines* recognise the value of constructive involvement by business in policy making and recommend that enterprises contribute to the development of public policy. However, the Guidelines also recommend that enterprises "refrain from seeking or accepting exemptions not contemplated in the statutory or regulatory framework related to environmental, health, safety, labour, taxation, financial incentives, or other issues … and "abstain from any improper involvement in local political activities." (Chapter II of the Guidelines, General Policies). There is a fine line between constructive business co-operation with government, and improper involvement in policy making, or in seeking to unduly influence the implementation of regulation.[156] Indeed, a number of the 31 specific instances brought to the attention of National Contact Points on environmental grounds alleged violation of national environmental regulations or active company lobbying to avoid compliance with environmental regulations (OECD, 2009).[157]

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155 www.washingtonpost.com/wp-dyn/content/article/2009/10/05/AR2009100502744.html.

156 The OECD Council adopted in February 2010 a Recommendation on Principles for transparency and Integrity in lobbying: http://webnet.oecd.org/oecdacts/Instruments/ListByInstrumentDateView.aspx.

157 One of the specific instances filed before an NCP on climate change grounds alleged, among other claims, that the company had directly and indirectly been involved in the distribution of false information about

Participation in government consultations

172. One way for business to engage in the policy-making process is taking part in government consultations. There is no unique formula to determine how much and how long to consult, and the risk of criticism that consultations are insufficient or inadequate will always exist. This is particularly true in a complex area as climate change, which affects the whole of industry and the economy. In the framework of the recent consultation process set up by the French government to develop new policies and orientations in various environment – related areas, including climate change (the "Grenelle de l'environnement"), five consultative stakeholder committees were put in place and closely involved in the process: the State, local communities, NGOs, employers and employees.[158] The UK Government has also worked with business and other stakeholders to develop a carbon reporting framework[159] The US Environmental Protection Agency is consulting on its proposed rule for mandatory reporting of GHG.[160]

173. At the international level, numerous business groups are accredited before the United Nation Framework Convention for Climate Change (UNFCCC) and take part in consultations and in events at the margins of climate negotiations. [161] However, there has been a demand from business to have a more active role in the UNFCCC process and in shaping the international climate change architecture. The EU Commission has recently launched a study exploring options for institutional engagement of the private sector in the UNFCCC. The study, carried out by the WBCSD, Climatefocus and Ecofys starts from the premise that, while opportunities for dialogue in international climate negotiations have increased, the expertise and knowledge of the business community has yet to be fully tapped by governments, and aims to evaluate "the communication and knowledge gap between international climate change negotiation and the private sector."[162]

174. A range of business initiatives have emerged, gathering companies, either from a variety of sectors or from one single sector, to provide their views on policies under development. One example at national level is the United States Climate Action Partnership (USCAP)[163], a group of business and leading environmental organisations "that have come together to call on the federal government to quickly enact strong national legislation to require significant reductions of greenhouse gas emissions". USCAP has issued a set of principles and recommendations to underscore the urgent need for a policy framework on

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climate change or planned policy measures and lobbied against various climate policy frameworks (www.germanwatch.org).

158 www.legrenelle-environnement.fr/grenelle-environnement/spip.php

159 For insights into the carbon reporting consultation process, see: the UK Department for Environment, Food and Rural Affairs website (www.defra.gov.uk/corporate/consult/greenhouse-gas/index.htm), the contribution of the Aldersgate Group (www.aldersgategroup.org.uk), the CBI report "All together now: a common approach for greenhouse gas emissions reporting" (http://climatechange.cbi.org.uk/reports/00195)

160 www.epa.gov/climatechange/emissions/ghgrulemaking.html

161 http://maindb.unfccc.int/public/ngo.pl

162 The conclusions of the study will be presented at a side event the UNFCCC meetings in June 2010: www.wbcsd.org/templates/TemplateWBCSD9/layout.asp?type=p&MenuId=MTY5Nw&doOpen=1&ClickMenu=LeftMenu

163 www.us-cap.org

climate change, including, most recently a report, "A Blueprint for Legislative Action", a detailed framework for legislation to address climate change. According to USCAP, "It is a direct response to federal policymakers who recognize, as we do, that well-crafted legislation can spur innovation in new technologies, help create jobs and provide a foundation for a vibrant, low-carbon economy."

175. Other examples, involving multinationals from various countries, include the CEO Climate Policy recommendations and the Open Letter to the G20 Leaders by the Task Force on Low-Carbon Economic Prosperity[164] and the WBCSD's "Policy Directions to 2050: A business contribution to the dialogues on co-operative action"[165], through which the WBCSD "hopes to stimulate the debate by contributing business insights that can help encourage the required technological and behavioural changes".

176. Another example is the UN Global Compact "Caring for Climate" initiative.[166] Companies adhering to the initiative sign up to a statement and undertake a series of commitments aimed at contributing to a low carbon economy. These commitments include "engaging fully and positively with our own national governments, inter-governmental organizations and civil society organizations to develop policies and measures that will provide an enabling framework for the business sector to contribute effectively to building a low carbon economy."

177. In the run-up to the COP15, a number of business initiatives have emerged that demonstrate strong support for a low-carbon economy and call on political leaders to agree on ambitious commitments to fight climate change. Examples include is the CBI's (Confederation of British Industries) climate change board, which brings together senior business leaders "to demonstrate business commitments to managing the risks of climate change" by, inter alia, "influencing a post-2012 international climate change agreement"[167]. International coalitions include the "Copenhagen call".

178. In addition to multi-company coalitions contributing to the climate change debate, some sectoral partnerships have also emerged. Examples include the report "Smart 2020: Enabling the low carbon economy in the information age", by The Climate Group and the Global e-Sustainability Initiative, which describes the contribution by the information and communications sector to reduce its own GHG emissions and help others reduce theirs (e.g, through "smart motor systems, logistics, buildings, and smart grids).[168] The WBCSD's initiative "Energy Efficiency in Buildings" aims at producing a roadmap for reaching energy self-sufficiency in buildings by 2050, while being economical and socially acceptable.[169] The White Paper on Waste and Climate Change by the Solid Waste Association (ISWA) analyses in detail the

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164 www.weforum.org/en/initiatives/ghg/index.htm

165 www.wbcsd.org/web/publications/policydirectionsto2050-low.pdf

166 www.unglobalcompact.org/Issues/Environment/Climate_Change

167 Confederation of British Industries, www.cbi.org.uk/climate_change

168 www.theclimategroup.org

169 www.wbcsd.org/web/eeb.htm

possible contribution of the solid waste industry in reducing GHG emissions and provides suggestions to policy-makers.[170]

179. After the Copenhagen Conference, parts of the business community have continued prodding governments for action to develop a clear regulatory framework for climate change. The contrary has also been the case, with companies lobbying against the adoption of climate change regulation or carbon taxes, for example.[171]

Partnerships and co-operation with stakeholders

180. In addition to government-led processes, enterprises are increasingly seeking to maintain a dialogue and co-operate with other stakeholder in the framework of their own corporate climate change strategies. These include, for example, partnerships with NGOs, private-public partnerships with different levels of government (e.g.., cities) and involvement with the public at large.

181. While business and environmental NGOs have often maintained opposite views on environmental issues, co-operation between enterprises and environmental NGOs has existed for many years. Partnerships focusing on climate change are a relatively new, but quickly developing phenomenon. WWF's "Climate Savers" initiative, for example, mobilises companies to cut carbon dioxide emissions. [172] Under this programme, "leading corporations are partnering with WWF to establish ambitious targets to voluntarily reduce their greenhouse gas (GHG) emissions. By 2010, the Climate Savers companies will collectively cut carbon emissions by some 14 million tons annually. By increasing efficiency, Climate Savers companies are saving hundreds of millions of dollars, proving again that protecting the environment makes good business sense. "Partners include companies from a range of sectors including information and communications (Nokia, HP), cement (Lafarge), food and beverages (The Coca Cola Company), and transport (Sagawa). Box 18 provides further examples of partnerships between companies and NGOs.

Box 18. Business and NGO partnerships

The Australian bank **Macquarie Group** has entered into a partnership with **Flora and Fauna International** (FFI) to develop a task force to invest in the management of tropical forests and generate carbon credits for sale. Between June 2008 and June 2011, the collaboration expects to support the protection of six forests at risk from deforestation in South East Asia, South America and Africa. Macquarie Group will provide capital and financial services for the projects, ensure compliance with voluntary carbon standards and sell the carbon credits internationally. Macquarie is also exploring a range of investment opportunities linked to the carbon assets such as ecotourism, sustainable agriculture, renewable energy, transport and infrastructure.FFI will draw on its conservation experience to work with local governments and communities to implement the projects.[173]

WalMart will implement its plan to drastically reduce GHG emissions from its supply chain, announced in 2010, in cooperation with the **Environmental Defence Fund**. The objective is to reduce the carbon footprint from the life cycle

170 www.iswa.org/nc/en/110/news_detail/article/iswa-white-paper-on-waste-and-climate-change-released/109.html. .

171 One example is the lobbying against the adoption of a carbon tax in France in 2010 www.medef.com/nc/actualites/detail/article/taxe-carbone-nous-avons-su-convaincre.html.

172 www.worldwildlife.org/climate/climatesavers2.html

173 www.fauna-flora.org

of Walmart's products and supply chain by 20 million metric tons of CO_2 equivalent from calendar year 2010 to 2015. According to the latter, "Walmart's unparalleled size not only gives it a massive environmental footprint but also unparalleled potential to make huge environmental gains. Our goal in working with Walmart is to leverage what the retailer does best — creating efficient systems, driving change down though its supply chain and accessing a huge customer base — in order to dramatically advance environmental progress.[174]

In France, **WWF** has partnered with **Vigeo**, a rating company, to produce a report on the challenges of climate change for different environmental sectors (Vigeo/WWF, 2009). When asked why Vigeo had chosen to co-operate with WWF, the company responded that "today's NGOs' causes prefigure tomorrow's regulation. Companies and investors have well understood to identify, through the pleas of NGOs like WWF, the risk factors which they will need to use as leverages for change to ensure their future performance. The example of GHG emissions is emblematic - those enterprises which have seized the message in NGOs campaigns have been able to transform the inevitable constraints into levers for modernisation and success."[175]

182. As cities get more and more active in developing municipal climate change plans, public-private partnerships have emerged which local governments co-operate with business in achieving those plans. One initiative is the United States Conference of Mayors Climate Protection Agreement, where mayors commit to reduce GHG emissions in their cities.[176] Among the "best practices" published under the initiative are several partnerships involving business.[177]

183. The Climate Group (2008) recently analysed a range of public-private partnerships between cities and companies. One example cited in the report is the "energy saving partnership" between the city of Berlin and Johnson Controls. The primary benefits of the partnership are cost and energy savings; the company has guaranteed overall energy savings of 24.2% or EUR502 000 to the City of Berlin; which will lead to CO2 reductions of approximately 2 500 tonnes per year. Another case is that of the partnership between Fontenay-sous-Bois (Paris) and BASF to renovate low-income household apartments. The partnership has proven beneficial for both partners, and yielded both cost saving and GHG emission reductions, as well as better living conditions for the occupants.

184. Among the conclusions from the Climate Group's analysis is that "there are significant opportunities available for cities and businesses working together to reduce CO2 emissions, that these partnerships deliver results for the climate and that they are financially rewarding both for the city government and businesses involved.[178]

Sharing the benefits of innovation and contributing to technology transfer

Enterprises should endeavour to ensure that their activities (…) as appropriate contribute to the development of local and national innovative capacity.

174 www.edf.org/page.cfm?tagID=1458.

175 www.wwf.fr/partenariats-entreprises/actualites-de-nos-partenariats/etude-vigeo-et-wwf-les-entreprises-francaises-face-aux-defis-du-changement-climatique.

176 www.usmayors.org/climateprotection/agreement.htm.

177 www.usmayors.org/pressreleases/uploads/ClimateBestPractices061209.pdf.

178 www.theclimategroup.org/publications/2007/5/16/public-private-partnership-local-initiatives.

Enterprises should adopt, where practicable in the course of their business activities, practices that permit the transfer and rapid diffusion of technologies and know-how, with due regards to the protection of intellectual property rights.

When appropriate, perform science and technology development work in host countries to address local market needs, as well as employ host country personnel in an S&T capacity and encourage their training, taking into account commercial needs.

Where granting licences for the use of intellectual property rights or when otherwise transferring technology, do so on reasonable terms and conditions and in a manner that contributes to the long term development prospects of the host country.

Where relevant to commercial objectives, develop ties with local universities, public research institutions and participate in co-operative research projects with local industry or industry associations.

(Chapter VIII , Science and Technology).

185. The Guidelines' chapter on Science and Technology reflects the expectation that innovations developed by companies also benefit their host countries. According to the *Guidelines*' commentaries, "multinational enterprises are the main conduit of technology transfer across borders. They contribute to the national innovative capacity of their host countries by generating, diffusing, and even enabling the use of new technologies by domestic enterprises and institutions… Fostering technology diffusion can include the commercialisation of products which imbed new technologies, licensing of process innovations, hiring and training of S&T personnel and development of R&D co-operative ventures. When selling or licensing technologies, not only should the terms and condition negotiated be reasonable but MNEs may want to consider the long term developmental, environmental and other impacts of technologies for the home and host country."[179]

186. The commentaries to the Environment chapter further specify that "multinational enterprises often have access to technologies or operating procedures which could, if applied, help raise environmental performance overall. Multinational enterprises are frequently regarded as leaders in their respective fields, so the potential for a "demonstration effect" on other enterprises should not be overlooked. Ensuring that the environment of the countries in which multinational enterprises operate also benefits from available technologies is an important way of building support for international investment activities more generally."

187. As described earlier, the transition towards a low carbon economy is offering numerous opportunities for companies to innovate and develop new, clean technologies and know how. Through their day-to-day operations, many companies contribute to the transfer of technologies, by, *inter alia*, by training local staff, involving local researchers and taking part in international research co-operation, through joint ventures with local companies, and by selling or licencing the use of their technologies. Box 19 provides some concrete company examples of low carbon technology transfer.

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179 Commentaries on the Guidelines' Science and Technology chapter.

Box 19. Business' contribution to clean technology transfer: examples

Sharp uses the same high standards of technology and operating procedures in all its operation plants as a key element of its ambitious low carbon policy.[180]

Iberdrola Renovables inscribes dissemination of innovation and transfer of technologies into its ethical values. Among the principles of its innovation policy, is to "disseminate innovation activities, making the giving back to society of part of the knowledge acquired compatible with the necessary confidentiality regarding the company's own activities.[181]

Unilever highlights the importance for the company's innovation policy to address the social and environmental concerns of customers and to provide solution that meets these needs. The company is currently undertaking research on an environmental metrics programme to quantitatively monitor and improve emissions of greenhouse gases (e.g. CO2), waste, water use in water stressed countries and sustainable sourcing of materials for all its innovations around the world.[182]

IBM published almost 4,000 technical inventions in 2009, instead of seeking patent protection, thereby making the inventions freely available to others. IBM released these inventions through publication as part of its commitment to improving patent quality. Consequently, the inventions are freely available in a public database of prior art and can be cited by patent offices in limiting the scope of patent applications. The company's publication effort may also spur follow-on innovation, which enables dynamic business growth. [183]

188. The OECD survey asked companies to indicate, among a range of suggested options, in which ways they consider they contribute to technology transfer (Figure 10). The suggested options reflect the recommendations of the OECD Guidelines, but may not fully the whole range of ways in which companies transfer technologies and know how. Out of the 61 companies participating in the survey, 47 indicated that they transfer technologies by adopting the same level of advanced technology and operating procedures in all parts of the company; 40, by training local staff (one company gave the example of workshops in which examples of low carbon technologies are presented), 29 by sharing expertise with suppliers and 24 by collaborating with local companies. Only very few companies (10) indicated that they licence technologies at preferential conditions. Some companies also indicated other ways of contributing to technology transfer, e.g., through Clean Development Mechanism (CDM) projects[184]; by participating in international research projects and by funding research projects (e.g. on carbon capture and storage).

180 www.sharp-world.com/corporate/eco/csr_report/2009pdf/sharp05_08e.pdf

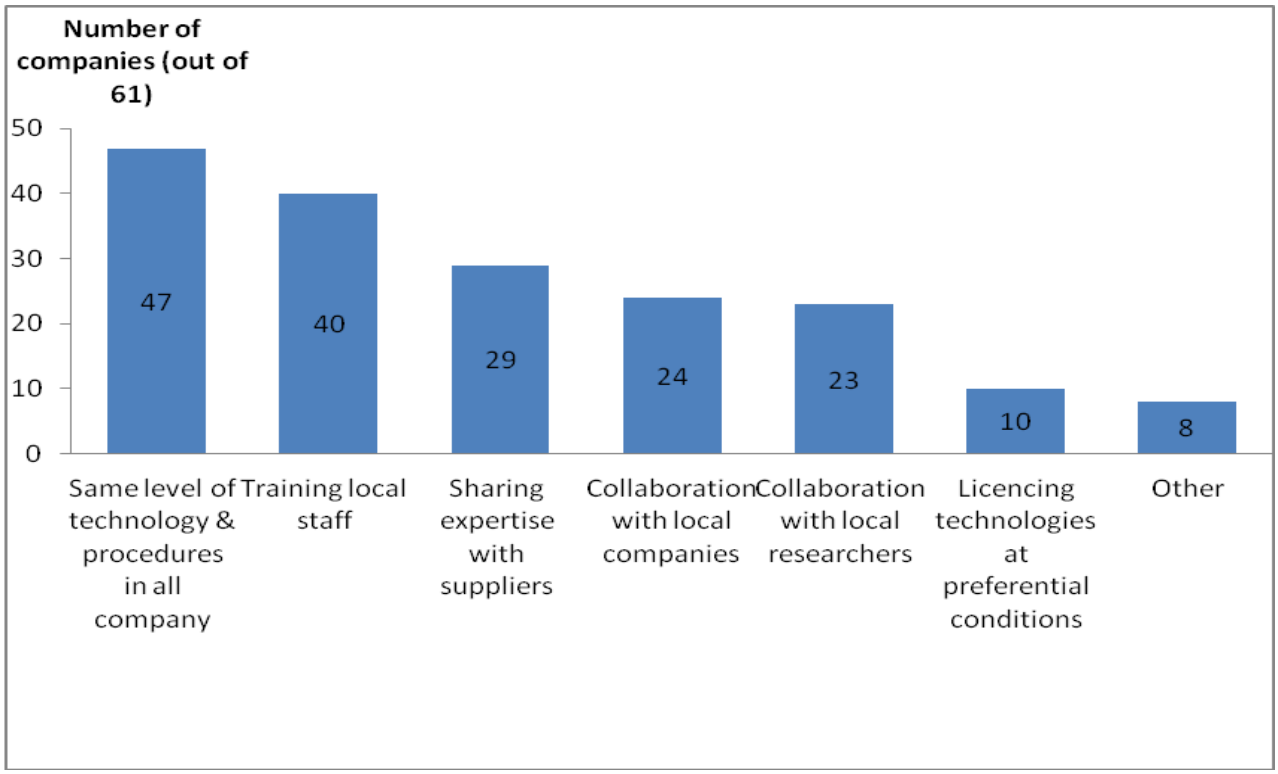
181 www.iberdrolarenovables.es/wcren/gc/en/doc/Politica_RSC_innovacion.pdf

182 www.unilever.com/innovation/innovationinunilever/thesciencebehindsuccess

183 www-03.ibm.com/press/us/en/pressrelease/29168.wss

184 The Clean Development Mechanism was put in place under the Kyoto Protocol to promote technology transfer to developing countries, see glossary.

Figure 10. How companies transfer clean technologies



Source: OECD survey on business practices to reduce emissions.

189. However, much more needs to be done to ensure that the technologies needed for a low carbon future are effectively available and used worldwide. Technology transfer and diffusion is one of the pillars of global climate change governance, and constitute one of the key issues for negotiation of a post-Kyoto regime[185]. In the Copenhagen Accord, the main outcome of the Copenhagen Conference in December 2009, Heads of government decided, "in order to enhance action on development and transfer of technology (…) to establish a Technology Mechanism to accelerate technology development and transfer in support of action on adaptation and mitigation that will be guided by a country-driven approach and be based on national circumstances and priorities.[186]

190. There is an extensive literature on the policy frameworks to promote and facilitate technology diffusion and transfer, assist developing countries in developing capacity to absorb and use these technologies, and, more generally, to ensure global access to low carbon technologies (see also chapter on "reducing emissions", section on "innovation"). A detailed analysis of this literature is beyond the scope of

185 According to Article 4.1 of the UNFCCC, "All Parties, taking into account their common but differentiated responsibilities and their specific national and regional development proprieties, objectives and circumstances, shall ... promote and cooperate in the development, application, and diffusion, including transfer, of technologies, practices and processes that control, reduce or prevent anthropogenic emission of greenhouse gases."

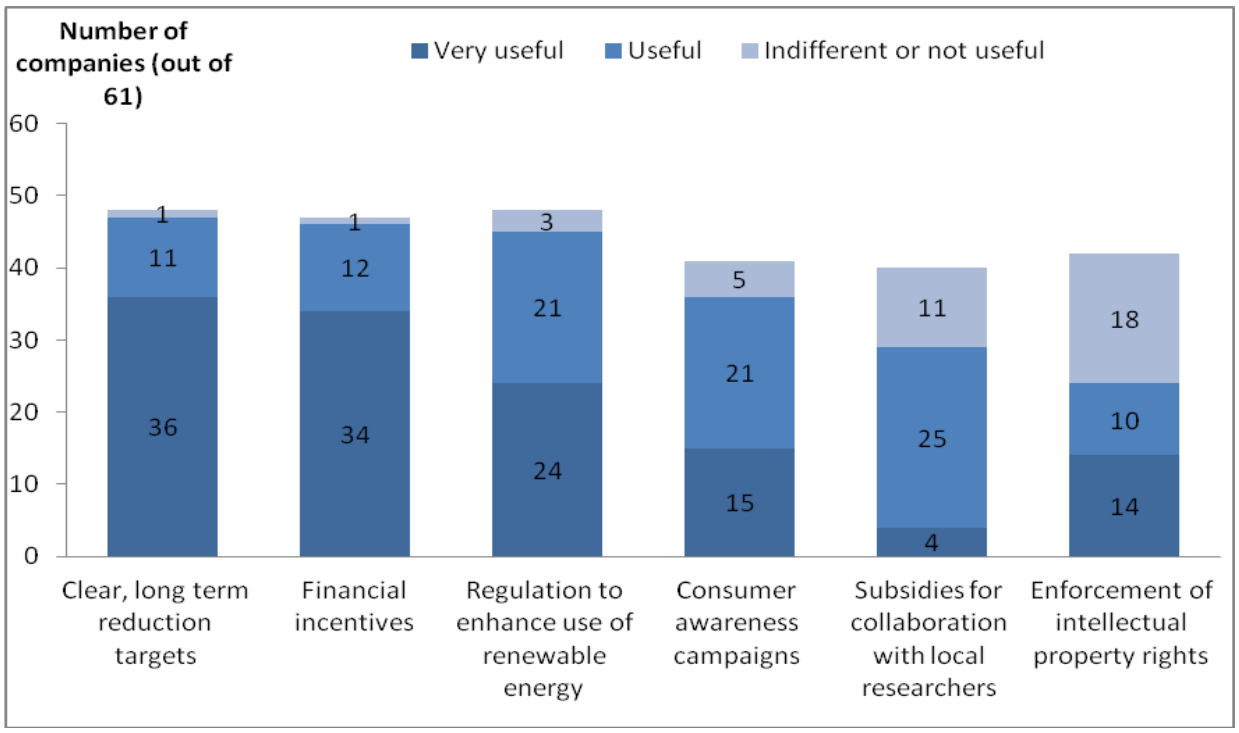
186 Copenhagen Accord, http://unfccc.int/resource/docs/2009/cop15/eng/l07.pdf.

this report. The remainder of this section will focus on business views regarding policy measures that could help support and promote technology transfer.

191. The study on options for private sector engagement in the UNFCCC process (WBCSD et al, 2010) explores why companies should be associated with the Technology Mechanism, and how this could be done. It says that, from a technical perspective, the private sector has "the knowhow and best practice expertise required to effectively build and run clean technology infrastructure. It also points out the risks of a formalised business engagement, for example, that businesses provide advice in areas where they have a commercial interest, or that they push particular technologies with a commercial interest in mind. The report suggests how Governments could leverage the skills and knowhow of the private sector (e.g, using private sector expertise to inform the design of cost-effective policies to overcome technology development or deployment barriers; partnerships to achieve technology development and deployment goals where costs and/or risks are too high for the private sector alone; consulting with private sector experts to understand appropriate technology options; engaging the private sector to support capacity building and share technical "know-how").

192. The OECD survey asked companies to indicate which among a list of suggested government measures in host countries they considered useful to encourage them to transfer technologies (Figure 11). Two measures were considered almost equally very useful by over half of the responding companies: clear and long term reduction targets; and financial incentives. The third measure considered very useful is implementation of regulation to enhance use of renewable energies. Another measure, consumer awareness campaigns, was cited by around half of the companies as being useful. Companies seemed less convinced by the need of measures related to enforcement of intellectual property rights.

Figure 11. Usefulness of government measures in host countries to support technology transfer by companies



Source: OECD survey on business practices to reduce emissions

193. These results complement, and to a certain extent echo those of the survey undertaken by the UN Caring for Climate initiative (UN Global Compact, 2009), where companies where asked to rate the helpfulness of national government policies. Among the most helpful measures, around 80% of responding companies cited "investing in national low-carbon technologies" and "supporting transfer of low carbon technologies in and from other countries" among the most useful ones. The survey points out that respondents with the most significant climate activity in developed countries find it more useful to transfer low-carbon technologies between countries than do their peers in developing countries. Other measures related to innovation and technology transfer cited as useful (67% of respondents) include setting national climate objectives. Some respondents emphasised the role of public- private partnerships, as governments may be able to fund risky or long-term innovative projects or cutting edge research that would otherwise be unviable from a business perspective; as well as tax incentives (e.g., through preferential treatment or deductions for innovative companies).

ANNEX 1. OECD SURVEY ON BUSINESS PRACTICES TO REDUCE EMISSIONS

1. Accounting and disclosing GHG emissions

Q1: When did your company make its first GHG emissions inventory (indicate year)?

Q2: What are your company's main motivations for making a GHG inventory? (please number by order of importance: 1 = very important, 2 = important, 3= indifferent, 4= not important).

	Importance	Comments or examples
Current regulation		
Expected regulation		
Assess the company's carbon footprint before taking action		
Identify sources of energy savings		
Identify risks		
Identify business opportunities		
Respond to shareholder demand		
Pressure from consumers		
Pressure from clients		
Other (specify)		

Q3: Which methodologies, standards or protocols does your company use to estimate its GHG emissions?

Q4: Please indicate whether your company has assessed the following climate change-related risks (tick where relevant). Please indicate particular difficulties in making this assessment.

	YES	Difficulties
Physical risks due to direct impacts of climate change		
Regulatory risks due to the fast development of national and international regulations		
Competitive risks due to loss of advantage vis-à-vis competitors		
Market risks due to the decline in demand of carbon intensive products		
Reputational risks due to perceived lack of action to address climate change by consumers and shareholders		
Operational risk due to rising inputs costs (energy and transport)		
Litigation risks due to threat of climate change-related law suits		
Supply chain risks due to the domino effect of suppliers not taking action to lower their costs and risks.		

Other (specify)		

Q5: In the following list, please indicate reporting frameworks under which your company reports its GHG emissions (tick where relevant).

	YES	Comments or examples
Regulatory frameworks (specify)		
Securities filing		
Annual report		
Sustainability report		
Website		
Voluntary registries and initiatives (specify)		
Other (specify)		

Q6: Does your company use (roughly) the same methodology to report on these frameworks? Yes No

Q7: Do you consider that current reporting frameworks are helpful for your company to design and monitor GHG emission reduction plans? Yes No

If no, please indicate in the following list the areas that pose difficulties (tick where relevant).

	YES	Comments or examples
Scope of emissions requested		
Methodology		
Boundaries		
Timeframe		
Other (specify)		

Q8: What are the main difficulties that your company faces in estimating and disclosing GHG emissions (tick where relevant)?

	YES	Comments or examples
Lack of technical expertise		
Uncertainty about the methodology to use		
Difficulty in collecting data		
Cost		
Other (specify)		

Q9: Which measures would facilitate your company's tasks in collecting and disclosing GHG emissions and other climate change-related information (tick where relevant)?

	YES	Comments or examples
Harmonisation of scope of information required by different authorities		
Harmonisation of methodologies for estimating emissions		
Harmonisation of reporting requirements		
More guidance on climate-related risks		
Other (specify)		

2. Corporate plans to reduce emissions

Q10: What are the main motivations for your company to reduce GHG emissions related to its operations? (please number by order of importance: 1 = very important, 2 = important, 3= indifferent, 4= not important).

	Importance	Comments or examples
Current regulation		
Expected regulation		
Reduce energy cost		
Reduce dependence on fossil fuels		
Limit risks		
Seize new business opportunities		
Improve access to finance		
Respond to shareholder demand		
Respond to consumer demand		
Respond to demands from client companies		
Pressure from employees		
Improve its image		
Other (specify)		

Q11: What actions has your company taken to reduce GHG emissions related to its operations? (please number by order of importance: 1 = very important, 2 = important, 3= indifferent, 4= not important).

	Importance	Comments and examples
Improving energy efficiency		
Using renewable energies		
Optimising logistics (e.g. reduce transport needs)		
Use of less carbon-intensive inputs		

Use of low-carbon technologies		
Reducing emissions of outputs		
Reducing waste generation		
Purchase of carbon offsets		
Other (specify)		

Q12: How does your company internalize climate change considerations and what have been the major challenges in doing it (tick where relevant)?

	YES	Challenges
The board is involved in piloting the company's climate change plan		
GHG emissions reduction is part of managers' performance targets		
The company has appointed a "climate change officer"		
Providing incentives and rewards to employees		
Employees are involved in the implementation of the company strategy to reduce emissions		
Providing training to employees		
Informing staff on progress in achieving the company's GHG emission reduction targets		
Other (specify)		

3. Interface with suppliers and consumers

Q13: Does your company estimate the share of its carbon footprint due to upstream emissions (emissions related to production and delivery of inputs by suppliers), to its own emissions and to downstream emissions (emissions related to the use and disposal of your products)? Yes No

Q14: How successful have the measures below been in triggering your suppliers' action to reduce emissions (by order 1= very successful, 2= successful, 3= indifferent/not applicable, 4 = not successful)?

	Success	Comments and examples
Involving suppliers in the estimation of the company 's total GHG footprint		
Involving suppliers in setting emission reduction targets		
Reorganizing the business model in view of reducing emissions		
Including GHG emission-related criteria in procurement decisions		
Training and technical assistance to suppliers		
Other (specify)		

Q15: Which measures would be useful in helping your company to more efficiently engage with suppliers? (please number by order of importance: 1 = very important, 2 = important, 3= indifferent, 4= not important).

	Importance	Comments and examples
GHG emission regulations in suppliers countries		
Global carbon markets		
Strengthening corporate social responsibility		
Education campaigns		
Development of guidelines and promotion of good practices		
Other (specify)		

Q16: How do you consider that your company is contributing to the transfer of low carbon technologies and know how (tick where relevant)?

	YES	Comments
By adopting the same high level of technologies and operating procedures in all parts of the company regardless of location		
By training local staff		
Through collaboration with local researchers in the development of new technologies		
By sharing expertise with suppliers		
Through collaborative approaches with local companies		
By licencing technologies developed or acquired by your company at preferential conditions		
Other (specify)		

Q17: Which government measures in host countries would you consider useful to encourage your company to transfer technologies? (please number: 1 = very useful, 2 = useful, 3= indifferent, 4= not useful).

	Importance	Comments
Clear and long term national emission reduction targets		
Regulation to enhance use of renewable energy		
Financial incentives		
Subsidies for collaboration with local researchers		
Enforcement of intellectual property rights		
Consumer awareness campaigns		
Others		

Q18: How does your company aim to reduce GHG emissions related to the use of its products?

	YES	Comments and examples
By reducing the carbon footprint of products		
By informing users on how to limit emissions when using and disposing of the products (indicate how: labels, website, etc)		
By raising user awareness on climate change (e.g. through information campaigns, general advice on reducing consumer's impacts, links to websites on climate change)		
Other		

Q19: How does your company ensure that the information provided to consumers on the carbon footprint of products can be trusted (tick where relevant)?

	YES	Comments and examples
Through labels (specify type of label)		
External certification		
Information on the webpage		
Other		

Q20: Which government measures would be useful in helping your company raise consumer awareness and consumer demand for low carbon goods and services? (please number by order of importance: 1 = very important, 2 = important, 3= indifferent, 4= not important).

	Importance	Comments and examples
Giving example through government use of low carbon products		
Education campaigns		
Providing financial incentives to buy low carbon products		
Taxing use of "high carbon" products		
Banning "high carbon" products		
Other (specify)		

ANNEX 2. THE OECD GUIDELINES FOR MULTINATIONAL ENTERPRISES AND CLIMATE CHANGE: RELEVANT GUIDELINES RECOMMENDATIONS

The *Guidelines for Multinational Enterprises* are recommendations from governments to business on responsible business conduct. Though the Guidelines do not specifically address climate change, many of their recommendations reflect governments and societies' expectations on what constitutes responsible business conduct in addressing climate change. The Guidelines thus have an important role to play in helping build international consensus and spread knowledge about advanced management practices in support of a low carbon economy. This overview highlights recommendations which are relevant to business action to address climate change.

Addressing climate change as part of responsible business conduct

Enterprises should contribute to economic, social and environmental progress with a view to achieving sustainable development (…), develop and apply effective self-regulatory practices and management systems that foster a relationship of confidence and mutual trust between enterprises and the societies in which they operate. (Chapter II.1 and 7, General Policies)

Enterprises should, within the framework of laws, regulation and administrative practices in the countries in which they operate, and in consideration of relevant international agreements, principles, objectives, and standards, take due account of the need to protect the environment, public health and safety, and generally to conduct their activities in a manner contributing to the wider goals of sustainable development. (Chapter V, Environment)

Consistent with the scientific and technical understanding of the risks, where there are threats of serious damage to the environment, taking also into account human health and safety, not use the lack of full scientific certainty as a reason for postponing cost-effective measures to prevent or minimise such damage. (Chapter V.4, Environment)

Accounting for GHG emissions

Corporate accounting and reporting of GHG emissions

Enterprises should ensure that timely, regular, reliable and relevant information is disclosed regarding their activities (…) and performance. This information should be disclosed for the enterprise as a whole and, where appropriate along business lines or geographic areas. Disclosure policies of enterprises should be tailored to the nature, size and location of the enterprise with due regard taken of costs, business confidentiality and other competitive concerns (Chapter III. 1, Disclosure).

Enterprises are encouraged to communicate additional information that could include: value statements or statements of business conduct intended for public disclosure including information on the social, ethical and environmental policies of the enterprise and other codes of conduct to which the company subscribes (…). (Chapter III.5, Disclosure)

Enterprise should [also] disclose material information on … material foreseeable risk factors. (Chapter III. 4, Disclosure)

Taking into account concerns about costs, business confidentiality and the protection of intellectual property rights, [enterprises should] provide the public and employees with adequate and timely information on the potential environment, health and safety impacts of the activities of the enterprise, which could include reporting on progress in improving environmental performance. (Chapter V.2, Environment)

The scope of GHG accounting and reporting

Enterprises should establish and maintain a system of environmental management appropriate to the enterprise, including collection and evaluation of adequate and timely information regarding the environmental, health and safety impacts of their activities (...). (Chapter V.1, Environment)

Enterprises should "assess, and address in decision-making, the foreseeable environmental, health, and safety-related impact associated with the processes, goods and services of the enterprise over their full life cycle". (Chapter V. 3, Environment)

Verifying GHG emission information

Enterprises should apply high quality standards for disclosure, accounting, and audit. Enterprises are also encouraged to apply high quality standards for nonfinancial information including environmental and social reporting where they exist. The standards or policies under which both financial and non-financial information are compiled and published should be reported. (Chapter III.2, Disclosure)

Achieving GHG emissions reductions

Establishing emission reduction plans

*Enterprises should establish and maintain a system of environmental management appropriate to the enterprise, including: (…) establishment of measurable objectives and, where appropriate, targets for improved environmental performance, including periodically reviewing the continuing relevance of these objectives, and regular monitoring and … verification of progress toward environmental, health and safety objectives or targets. (*Chapter V.1, Environment)

Putting climate change at the core of the business strategy

*Enterprises should continually seek to improve corporate environmental performance, by encouraging, where appropriate, such activities as: adoption of technologies and operating procedures in all parts of the enterprise that reflect standards concerning environmental performance in the best performing part of the enterprise (…) and research on ways of improving the environmental performance of the enterprise over the long term. (*Chapter V.6. , Environment).

Involving employees

Enterprises should provide adequate education and training to employees in environmental health and safety matters (…). (Chapter V .7, Environment)

Enterprises should provide information to employees and their representatives, which enables them to obtain a true and fair view of the performance of the (…) enterprise. (Chapter IV.3, Employment and Industrial Relations)

Reaching out

Involving suppliers

Enterprises should encourage, where practicable, business partners, including suppliers and sub-contractors, to apply principles of corporate conduct compatible with the Guidelines. (Chapter II, General Policies).

Engaging consumers

Enterprises should continually seek to improve corporate environmental performance, by inter alia, such activities as:

- development and provision of products and services that have no undue environmental impacts, are safe in their intended use; are efficient in their consumption of energy and natural resources; can be reused, recycled, or disposed of safely;

*- promoting higher levels of awareness among customers of the environmental implications of using the products and services of the enterprise. (*Chapter V. 6, Environment)

When dealing with consumers, enterprises should act in accordance with fair business, marketing and advertising practices and should take all reasonable steps to ensure the safety and quality of the goods or services they provide. In particular, they should:

- Ensure that the goods or services they provide meet all agreed or legally required standards for consumer health and safety, including health warnings and product safety and information labels;

- Provide accurate and clear information regarding their content, safe use, maintenance, storage, and disposal sufficient to enable consumers to make informed decisions;

- Not make representations or omissions, not engage in any other practices that are deceptive, misleading, fraudulent, or unfair. (Chapter VII, 1, 2, Consumer Interests)

Contributing to the development of climate change policies; partnerships

Enterprises should contribute to the development of environmentally meaningful and economically efficient public policy, for example, by means of partnerships or initiatives that will enhance environmental awareness and protection. (Chapter V.8, Environment)

Sharing the benefits of innovation and contributing to technology transfer

Enterprises should endeavour to ensure that their activities (…) as appropriate contribute to the development of local and national innovative capacity.

Enterprises should adopt, where practicable in the course of their business activities, practices that permit the transfer and rapid diffusion of technologies and know-how, with due regards to the protection of intellectual property rights.

When appropriate, perform science and technology development work in host countries to address local market needs, as well as employ host country personnel in an S&T capacity and encourage their training, taking into account commercial needs.

Where granting licences for the use of intellectual property rights or when otherwise transferring technology, do so on reasonable terms and conditions and in a manner that contributes to the long term development prospects of the host country.

Where relevant to commercial objectives, develop ties with local universities, public research institutions and participate in co-operative research projects with local industry or industry associations.

(Chapter VIII, Science and Technology)

ANNEX 3. GLOSSARY AND ACCRONYMS[187]

Absolute target:** A target defined by reduction in absolute emissions over time e.g., reduces CO2 emissions by 25% below 1994 levels by 2010.

Adaptation*: Adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities.

Annex I Parties*: The industrialized countries listed in this annex to the Convention which were committed return their greenhouse-gas emissions to 1990 levels by the year 2000 as per Article 4.2 (a) and (b). They have also accepted emissions targets for the period 2008-12 as per Article 3 and Annex B of the Kyoto Protocol. They include the 24 original OECD members, the European Union, and 14 countries with economies in transition. (Croatia, Liechtenstein, Monaco, and Slovenia joined Annex 1 at COP-3, and the Czech Republic and Slovakia replaced Czechoslovakia).

Annex II Parties*: The countries listed in Annex II to the Convention which have a special obligation to provide financial resources and facilitate technology transfer to developing countries. Annex II Parties include the 24 original OECD members plus the European Union.

Boundaries:** GHG accounting and reporting boundaries can have several dimensions, i.e. organizational, operational, geographic, business unit, and target boundaries. The inventory boundary determines which emissions are accounted and reported by the company.

Cap and trade system:** A system that sets an overall emissions limit, allocates emissions allowances to participants, and allows them to trade allowances and emission credits with each other.

Carbon market*: A popular but misleading term for a trading system through which countries may buy or sell units of greenhouse-gas emissions in an effort to meet their national limits on emissions, either under the Kyoto Protocol or under other agreements, such as that among member states of the European Union. The term comes from the fact that carbon dioxide is the predominant greenhouse gas and other gases are measured in units called "carbon-dioxide equivalents."

Carbon sequestration*: The process of removing carbon from the atmosphere and depositing it in a reservoir.

CDP: Carbon Disclosure Project.

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187 Terms marked with * are taken from the UNFCCC.s glossary (http://unfccc.int/essential_background/glossary/items/3666.php#T); those marked ** are taken from the GHG Protocol glossary (www.ghgprotocol.org/files/ghg-protocol-revised.pdf**}**).

Clean Development Mechanism (CDM)*: A mechanism under the Kyoto Protocol through which developed countries may finance greenhouse-gas emission reduction or removal projects in developing countries, and receive credits for doing so which they may apply towards meeting mandatory limits on their own emissions.

CO2: Carbon Dioxide.

CO2-e: (or CO2 equivalent) **- The universal unit of measurement to indicate the global warming potential (GWP) of each of the six greenhouse gases, expressed in terms of the GWP of one unit of carbon dioxide. It is used to evaluate releasing (or avoiding releasing) different greenhouse gases against a common basis.

Direct GHG emissions:** Emissions from sources that are owned or controlled by the reporting company.

GHG Emissions:** The release of GHG into the atmosphere.

Emissions trading*: One of the three Kyoto mechanisms, by which an Annex I Party may transfer Kyoto Protocol units to or acquire units from another Annex I Party. An Annex I Party must meet specific eligibility requirements to participate in emissions trading.

EU ETS: European Union Emissions Allowance Trading Scheme.

Global warming potential (GWP)*: An index representing the combined effect of the differing times greenhouse gases remain in the atmosphere and their relative effectiveness in absorbing outgoing infrared radiation.

GHG (Greenhouse Gases)*: The atmospheric gases responsible for causing global warming and climate change. The major GHGs are carbon dioxide (CO2), methane (CH4) and nitrous oxide (N20). Less prevalent --but very powerful -- greenhouse gases are hydrofluorocarbons (HFCs), perfluorocarbons (PFCs) and sulphur hexafluoride (SF6).

Indirect GHG emissions:** Emissions that are a consequence of the operations of the reporting company, but occur at sources owned or controlled by another company.

Intensity target:** A target defined by reduction in the ratio of emissions and a business metric over time e.g., reduce CO2 per tonne of cement by 12% between 2000 and 2008.

Inventory:** A quantified list of an organization's GHG emissions and sources.

IPCC: Intergovernmental Panel on Climate Change.

ISO: International Standards Organization.

Joint implementation (JI)*: A mechanism under the Kyoto Protocol through which a developed country can receive "emissions reduction units" when it helps to finance projects that reduce net greenhouse-gas emissions in another developed country (in practice, the recipient state is likely to be a country with an

"economy in transition"). An Annex I Party must meet specific eligibility requirements to participate in joint implementation.

Kyoto Protocol*: An international agreement standing on its own, and requiring separate ratification by governments, but linked to the UNFCCC. The Kyoto Protocol, among other things, sets binding targets for the reduction of greenhouse-gas emissions by industrialized countries.

Kyoto mechanisms*: Three procedures established under the Kyoto Protocol to increase the flexibility and reduce the costs of making greenhouse-gas emissions cuts; they are the Clean Development Mechanism, Emissions Trading and Joint Implementation.

Life Cycle Analysis** Assessment of the sum of a product's effects (e.g. GHG emissions) at each step in its life cycle, including resource extraction, production, use and waste disposal.

Mitigation*: In the context of climate change, a human intervention to reduce the sources or enhance the sinks of greenhouse gases. Examples include using fossil fuels more efficiently for industrial processes or electricity generation, switching to solar energy or wind power, improving the insulation of buildings, and expanding forests and other "sinks" to remove greater amounts of carbon dioxide from the atmosphere.

Offset:** Offsets are discrete GHG reductions used to compensate for (i.e., offset) GHG emissions elsewhere, for example to meet a voluntary or mandatory GHG target or cap. Offsets are calculated relative to a baseline that represents a hypothetical scenario for what emissions would have been in the absence of the mitigation project that generates the offsets. To avoid double counting, the reduction giving rise to the offset must occur at sources or sinks not included in the target or cap for which it is used.

Reporting:** Presenting data to internal management and external users such as regulators, shareholders, the general public or specific stakeholder groups.

Technology transfer*: A broad set of processes covering the flows of know-how, experience and equipment for mitigating and adapting to climate change among different stakeholders.

Value chain emissions:** Emissions from the upstream and downstream activities associated with the operations of the reporting company.

WBCSD: World Business Council for Sustainable Development.

WRI: World Resources Institute.

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Australia: Department of Climate Change, www.climatechange.gov.au/en/business.aspx.

Germany: BMU, www.bmu-klimaschutzinitiative.de/en/for_industry. http:///

UK: Defra, www.defra.gov.uk/environment/business/index.htm.

US: EPA, www.epa.gov/climatechange/wycd/businesses.html.

Other selected websites

Caring for Climate, www.unglobalcompact.org/Issues/Environment/Climate_Change.

Carbon Counts, www.carboncounts.org.

Carbon Concierge, www.carbonconcierge.com.

Carbon Disclosure Project, www.cdproject.net

Climate Compass, www.climate-compass.net

Climate Disclosure Standards Board (CDSB), www.cdsb-global.org

Climate Savers, www.worldwildlife.org/climate/climatesavers2.html

Climate Leaders, www.epa.gov/climateleaders

Global Reporting Initiative, www.globalreporting.org/CurrentPriorities/ClimateChange.

Greenhouse Gas Protocol, www.ghgprotocol.org.

CLIMATE CHANGE AND THE OECD GUIDELINES FOR MULTINATIONAL ENTERPRISES: ISSUES FOR POSSIBLE CONSIDERATION

Though the *Guidelines* do not specifically address climate change, the work on *Transition to a Low-Carbon Economy: Public Goals and Corporate Practices* shows that the guidance they provide on a range of issues is relevant to assist companies in developing responses to climate change. For example, the *Guidelines* recommend that companies:

- Collect data on and evaluate the environmental impact of their activities, provide the public and employees with this information, report on material risks, and ensure that disclosure meets high quality standards

- Develop environmental management systems, take action to reduce the environmental impacts of their operations and of the goods and services they produce and continuously improve environmental performance

- Educate and involve staff in environmental management,

- Address consumer concerns, engage suppliers and contribute to the development of environmentally meaningful and economically efficient public policy

- Contribute to technology transfer.

The update of the Guidelines launched in 2010 will review these recommendations and clarify whether there is a need to strengthen the guidance in relation to climate change. In particular, the update could consider whether to:

- Cite the international consensus on climate change as achieved within the United Nations Framework Convention on Climate Change, including through the Copenhagen Accord.

- Add guidance on business accounting and reporting of GHG emissions, e.g. on the scope of climate change related information to include. The report on *Transition to a low carbon economy: public goals and business practices* shows that reporting of direct emissions and of emissions generated by the consumption of energy has become a widespread practice among companies on the basis of recognised and widely used standards and methodologies, in particular the Greenhouse Gas Protocol.

- Clarify how companies could improve their performance so as to contribute to a low-carbon economy. This includes considering additional guidance on target setting that effectively lead to clear and measurable emission reductions and on actions that companies can take to reduce emissions.

- Clarify how companies can act beyond their immediate boundaries. This includes engaging efficiently with suppliers and consumers, and contributing to technology transfer. Considerations on how to act outside the company's boundaries area are linked to other discussions in the framework of the update of the Guidelines (on supply chain and consumers interest in particular…).