CARBON DISCLOSURE PROJECT

Carbon Disclosure Project Report 2008 Global 500

On behalf of 385 investors with assets of $57 trillion

Report written for Carbon Disclosure Project by:

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Carbon Disclosure Project 2008

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Helaba Invest KAG mbH **Germany**

Henderson Global Investors **United Kingdom**

Hermes Investment Management **United Kingdom**

HESTA Super **Australia**

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IDEAM – Integral Development Asset Management **France**

Ilmarinen Mutual Pension Insurance Company **Finland**

Industrial Bank **China**

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ING **Netherlands**

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Jupiter Asset Management **United Kingdom**

KBC Asset Management NV **Belgium**

KCPS and Company **Israel**

KfW Bankengruppe **Germany**

KLP Insurance **Norway**

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La Banque Postale Asset Management **France**

LBBW – Landesbank Baden-Württemberg **Germany**

Legal & General Group plc **United Kingdom**

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Libra Fund **U.S.**

Light Green Advisors, LLC **U.S.**

Living Planet Fund Management Company S.A. **Switzerland**

Local Authority Pension Fund Forum **United Kingdom**

Local Government Superannuation Scheme **Australia**

Lombard Odier Darier Hentsch & Cie **Switzerland**

London Pensions Fund Authority **United Kingdom**

Macif Gestion **France**

Macquarie Group Limited **Australia**

Maine State Treasurer **U.S.**

Man Group plc **United Kingdom**

Maple-Brown Abbott Limited **Australia**

Maryland State Treasurer **U.S.**

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MEAG MUNICH ERGO KAG mbH **Germany**

Meeschaert Gestion Privée **France**

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Merrill Lynch & Co.,Inc. **U.S.**

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Mirae Investment Asset Management **South Korea**

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Mitsui Sumitomo Insurance Co.,Ltd. **Japan**

Mizuho Financial Group, Inc. **Japan**

Monega KAG mbH **Germany**

Monte Paschi Asset Management SGR S.p.A **Italy**

Morgan Stanley Investment Management **U.S.**

Morley Fund Management **United Kingdom**

Motor Trades Association of Australia Superannuation Fund Pty Ltd **Australia**

Münchner Kapitalanlage AG **Germany**

Munich Re Group **Germany**

Natcan Investment Management **Canada**

Nathan Cummings Foundation **U.S.**

National Australia Bank Limited **Australia**

National Bank of Kuwait **Kuwait**

National Grid Electricity Group of the Electricity Supply Pension Scheme **United Kingdom**

National Grid UK Pension Scheme Trustee Ltd **United Kingdom**

National Pensions Reserve Fund of Ireland **Ireland**

Natixis **France**

Nedbank Group **South Africa**

Needmor Fund **U.S.**

Nest Sammelstiftung **Switzerland**

Neuberger Berman **U.S.**

New Alternatives Fund Inc. **U.S.**

New Jersey Division of Investment **U.S.**

New Jersey State Investment Council **U.S.**

New Mexico State Treasurer **U.S.**

New York City Employees Retirement System **U.S.**

New York City Teachers Retirement System **U.S.**

New York State Common Retirement Fund (NYSCRF) **U.S.**

Newton Investment Management Limited **United Kingdom**

NFU Mutual Insurance Society **United Kingdom**

NH-CA Asset Management **South Korea**

Nikko Asset Management Co., Ltd. **Japan**

Nissay Asset Management Corporation **Japan**

Norfolk Pension Fund **United Kingdom**

Norinchukin Zenkyouren Asset Management Co., Ltd **Japan**

North Carolina State Treasurer **U.S.**

Northern Ireland Local Government Officers' Superannuation Committee (NILGOSC) **United Kingdom**

Northern Trust **U.S.**

Oddo & Cie **France**

Old Mutual plc **United Kingdom**

Ontario Municipal Employees Retirement System (OMERS) **Canada**

Ontario Teachers Pension Plan **Canada**

Opplysningsvesenets fond (The Norwegian Church Endowment) **Norway**

Oregon State Treasurer **U.S.**

Orion Energy Systems, Inc. **U.S.**

Pax World Funds **U.S.**

Pension Fund for Danish Lawyers and Economists **Denmark**

Pension Plan of the Evangelical Lutheran Church in Canada **Canada**

PETROS – The Fundação Petrobras de Seguridade Social **Brazil**

PGGM **Netherlands**

Phillips, Hager & North Investment Management Ltd. **Canada**

PhiTrust Active Investors **France**

Pictet Asset Management SA **Switzerland**

Pioneer Investments KAG mbH **Germany**

Portfolio 21 Investments **U.S.**

Portfolio Partners **Australia**

Porto Seguro S.A. **Brazil**

PREVI Caixa de Previdência dos Funcionários do Banco do Brasil **Brazil**

Prudential Plc **United Kingdom**

PSP Investments **Canada**

QBE Insurance Group Limited **Australia**

Rabobank **Netherlands**

Railpen Investments **United Kingdom**

Rathbones/Rathbone Greenbank Investments **United Kingdom**

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REDEPREV – Fundação Rede de Previdência **Brazil**

RREEF Investment GmbH **Germany**

Rei Super **Australia**

Rhode Island General Treasurer **U.S.**

RLAM **United Kingdom**

Robeco **Netherlands**

Rock Crest Capital LLC **U.S.**

Royal Bank of Canada **Canada**

SAM Group **Switzerland**

Sanlam Investment Management **South Africa**

Santa Fé Portfolios Ltda **Brazil**

Sauren Finanzdienstleistungen **Germany**

Savings & Loans Credit Union (S.A.) Limited **Australia**

Schroders **United Kingdom**

Scotiabank **Canada**

Scottish Widows Investment Partnership **United Kingdom**

SEB Asset Management AG **Germany**

Second Swedish National Pension Fund (AP2) **Sweden**

Seligson & Co Fund Management Plc **Finland**

SERPROS Fundo Multipatrocinado **Brazil**

Service Employees International Union Benefit Funds **U.S.**

Seventh Swedish National Pension Fund (AP7) **Sweden**

SH Asset Management Inc. **South Korea**

Shinhan Bank **South Korea**

Shinkin Asset Management Co., Ltd **Japan**

Shinsei Bank **Japan**

Siemens KAG mbH **Germany**

Signet Capital Management Ltd **Switzerland**

Skandia Nordic Division **Sweden**

SNS Asset Management **Netherlands**

Société Générale **France**

Sompo Japan Insurance Inc. **Japan**

SPF Beheer bv **Netherlands**

Standard Chartered PLC **United Kingdom**

Standard Life Investments **United Kingdom**

State Street Corporation **U.S.**

Storebrand ASA **Norway**

Sumitomo Mitsui Financial Group **Japan**

Sumitomo Trust & Banking **Japan**

Sun Life Financial Inc. **Canada**

Superfund Asset Management GmbH **Germany**

Sustainable World Capital **U.S.**

Svenska Kyrkan, Church of Sweden **Sweden**

Swedbank **Sweden**

Swiss Reinsurance Company **Switzerland**

Swisscanto Holding AG **Switzerland**

TD Asset Management Inc. and TD Asset Management USA Inc. **Canada**

Teachers Insurance and Annuity Association – College Retirement Equities Fund (TIAA-CREF) **U.S.**

Telstra Super **Australia**

Tempis Capital Management **South Korea**

Terra fondsforvaltning ASA **Norway**

TfL Pension Fund **United Kingdom**

The Bullitt Foundation **U.S.**

The Central Church Fund of Finland **Finland**

The Collins Foundation **U.S.**

The Co-operators Group Ltd **Canada**

The Daly Foundation **Canada**

The Dreyfus Corporation **U.S.**

The Ethical Funds Company **Canada**

The Local Government Pensions Insitution (LGPI) (keva) **Finland**

The RBS Group **United Kingdom**

The Russell Family Foundation **U.S.**

The Shiga Bank, Ltd. **Japan**

The Standard Bank of South Africa Limited **South Africa**

The Travelers Companies, Inc. **U.S.**

The United Church of Canada – General Council **Canada**

The Wellcome Trust **United Kingdom**

Third Swedish National Pension Fund (AP3) **Sweden**

Threadneedle Asset Management **United Kingdom**

Tokio Marine & Nichido Fire Insurance Co., Ltd. **Japan**

Trillium Asset Management Corporation **U.S.**

Triodos Bank **Netherlands**

Tri-State Coalition for Responsible Investing **U.S.**

TrygVesta **Denmark**

UBS AG **Switzerland**

Unibanco Asset Management **Brazil**

UniCredit Group **Italy**

Union Asset Management Holding AG **Germany**

Unitarian Universalist Association **U.S.**

United Methodist Church General Board of Pension and Health Benefits **U.S.**

Universal-Investment-Gesellschaft mbH **Germany**

Universities Superannuation Scheme (USS) **United Kingdom**

Vancity Group of Companies **Canada**

Vårdal Foundation **Sweden**

VERITAS SG INVESTMENT TRUST GmbH **Germany**

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Visão Prev Sociedade de Previdencia Complementar **Brazil**

Wachovia Corporation **U.S.**

Walden Asset Management, a division of Boston Trust and Investment Management Company **U.S.**

WARBURG-HENDERSON KAG für Immobilien mbH **Germany**

West Yorkshire Pension Fund **United Kingdom**

WestLB Mellon Asset Management (WMAM) **Germany**

Winslow Management Company **U.S.**

XShares Advisors **U.S.**

YES BANK Limited **India**

York University Pension Fund **Canada**

Youville Provident Fund Inc. **Canada**

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Executive Summary

It is often said that a business can only manage what it measures. Since 2000, the Carbon Disclosure Project (CDP) has, on behalf of institutional investors, challenged the world's largest companies to measure and report their carbon emissions, integrating the long-term value and cost of climate change into their assessment of the financial health and future prospects of their business.

Corporations' ability and willingness to monitor and report these activities and issues reflects the inexorable rise of climate change from debate at the fringes of society to the boardroom agenda. The effects of climate change may include physical impacts on assets, changing market dynamics for goods and services, escalating regulation and greater scrutiny from an increasingly sophisticated range of stakeholders. Investors want to know how companies are future-proofing themselves against these, whilst maximizing the opportunities they present.

How far have we travelled? This year CDP, backed by 385 leading institutional investors representing more than US$57 trillion of funds under management, has sent questionnaires to more than 3,000 of the world's largest corporations requesting information on greenhouse gas emissions, the potential risks and opportunities climate change presents and strategies for managing those risks and opportunities. The corporations' responses and reports assessing the results of these will be published in more than 20 countries around the world in 2008 and are freely available at www.cdproject.net.

This report, prepared by CDP's global adviser, PricewaterhouseCoopers LLP (PwC), analyzes responses from the 500 largest corporations in the FTSE Global Equity Index Series, the "Global 500". As of March 2008, the market capitalization of these companies was US$22 trillion.

The logic for CDP is simple; addressing the climate change challenge depends on a dialogue, between shareholders and corporations, supported by high quality information. Companies need to articulate their position in a coherent way to an increasingly sophisticated set of stakeholders.

CDP6 Highlights

Overall response rate maintained, despite changing make-up of the Global 500.

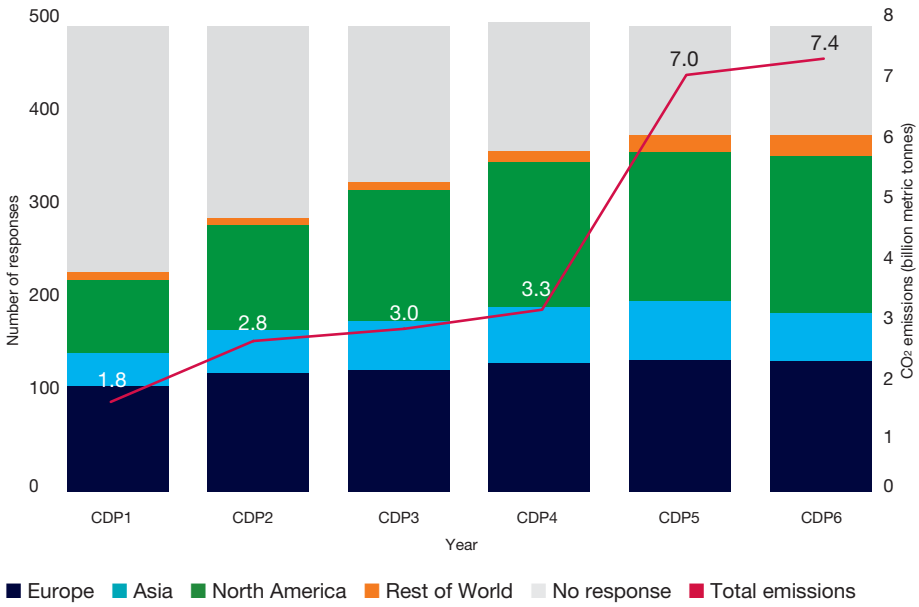
- **The overall response rate for CDP6 is 77%** – consistent with the record level achieved in CDP5, despite deteriorating economic conditions in many countries in the world and substantial changes in the composition of the Global 500 – 58 out of the 383 companies who completed the questionnaire were responding to CDP for the first time.
- **European and North American companies set the pace** – with 83% and 82% response rates respectively, but only 50% of Asian Global 500 companies responded.
- **Economic pressures drive shifts in the Global 500** – high energy and commodity prices have boosted oil and gas, raw materials and mining sector representation, while the credit crunch has helped to trim the financial services sector, although this remains the dominant sector by number. Companies in carbon intensive sectors now account for 44% of the Global 500 population, up from 40% in CDP5.
- **Higher response rate amongst companies with a longer history in the Global 500** – 417 out of this year's Global 500 were also there last year. The response rate for these companies was 82%, up marginally from CDP5, suggesting a trend of increasing carbon disclosure amongst the world's largest companies and demonstrating the cumulative impact of CDP's work each year.
- **Global 500 reporting companies account for around 5.8% of global total emissions – on the basis of direct, or Scope 1 emissions which were 2,690 million metric tons of CO_2-equivalent ($MtCO_2$-e).** Total reported emissions under Scope 2 and Scope 3 were 494 $MtCO_2$-e and 4,175 $MtCO_2$-e respectively[a].

The Carbon Disclosure Leadership Index (CDLI)

- **CDLI demonstrates range and depth of carbon disclosure** – the CDLI includes the companies with the highest scores for disclosure in the carbon-intensive sectors and in the non-carbon-intensive sectors. The range of scores for Leaders in the non-carbon-intensive sectors is narrower than for Leaders in the carbon-intensive

58 out of the 383 companies who completed the questionnaire were responding to CDP for the first time.

Fig. 1: CDP1-CDP6 respondents by geography



Source: Carbon Disclosure Project

a IPCC estimate total anthropogenic emissions at 49 Gigatonnes CO_2-Equivalent in 2004. Scope 1, 2 and 3 emissions are terms used under the GHG Protocol. For a full description see: GHG Protocol: A Corporate Accounting and Reporting Standard, available at www.ghgprotocol.org/files/ghg-protocol-revised.pdf

Europe demonstrates another strong performance – with an overall response rate of 83%.

The North American response rate is up from 76% to 82%.

Brazil had an 86% response rate...ahead of many of its Western counterparts.

sectors – 90-98, against 66-82 – suggesting that standards are higher on a more consistent basis in the non-carbon-intensive sectors. However, throughout the Global 500, the quality of disclosure in non-carbon-intensive sectors was much more variable[b].

- **Experience shows through, but the CDLI is by no means a static group** – all of this year's Leaders also responded to the CDP5 questionnaire and, with two exceptions, were also members of the Global 500 last year. However, more than half (35 out of 67) are new entrants to the CDLI compared to last year, demonstrating that competition to lead in the race to a low carbon world is intensifying.

Significant variations in response rates and the quality of disclosure

- **Very mixed response rates from the 'BRIC' countries (Brazil, Russia, India and China) within Global 500** – no Russian companies completed CDP6, while only 14% of Indian companies and 15% of Chinese companies responded. Although the high proportion of new entrants from these countries will have contributed to these low response rates, CDP plans to do more to engage companies in these important economies. Brazil, in contrast, had an 86% response rate and an average CDLI score among responding companies of 61 points, ahead of many of its Western counterparts.
- **The North American response rate is up from 76% to 82%** – reflecting increasing engagement on the climate change issue. However, the quality of reporting and disclosure was somewhat mixed. Despite 27 companies in the CDLI, the average score for North American respondents was 57 out of 100 points, only marginally ahead of the average for Asia, and some way behind the overall average of 62 points.
- **Europe demonstrates another strong performance** – with an overall response rate of 83% despite the absence of any Russian responses. Europe also recorded the highest average score – 69 points. This result reflects the relative maturity of the climate change issue in the region – pan-European regulation has been in place to regulate emissions since 2005 – and there is increasing consumer interest in climate change.
- **Carbon-intensive vs. non-carbon-intensive sectors**[b] – although the overall response rates for the two sector groupings was very similar, the carbon-intensive sectors performed slightly better in most aspects of disclosure. Non-carbon-intensive sectors were slightly better at identifying risks and opportunities and at reporting Scope 3 emissions; equally good at reporting energy usage and at forecasting emissions; but worse or significantly worse at all other aspects of disclosure.
- **Utilities perform well, Oil & Gas sector outpaced** – within the carbon-intensive group, three sectors – Utilities, Construction and Mining and Metals – scored equally well overall, with Utilities and Chemicals & Pharmaceuticals leading the field in the CDLI. Oil & Gas, having been an early adopter of carbon reporting, is now falling behind other sectors, achieving only sixth place on the basis of CDLI scores within the carbon-intensive peer group, ahead of only Transport & Logistics.

The highest scoring companies in each category

Carbon Intensive Sectors	Non Carbon Intensive Sectors
BASF – Chemicals & Pharmaceuticals	Barclays – Financial Services
Iberdrola – Utilities	Merrill Lynch & Co – Financial Services
Bayer – Chemicals & Pharmaceuticals	Munich Re – Financial Services
Exelon – Utilities	National Australia Bank – Financial Services
Nissan Motor – Manufacturing	EMC – Technology, Media & Telecoms
Scottish & Southern – Utilities	

b It is important to note that the different reporting requirements for the two sector categories make it difficult to draw direct comparisons between their scores.

- **More consistent performance amongst the non-carbon-intensive sectors** – sector average scores ranged from 69-71 points in the non carbon intensive grouping. However, the CDLI representation was dominated by Financial Services, which continued to demonstrate a very strong understanding of carbon risks and opportunities. Response rates were up for most sectors in this group.

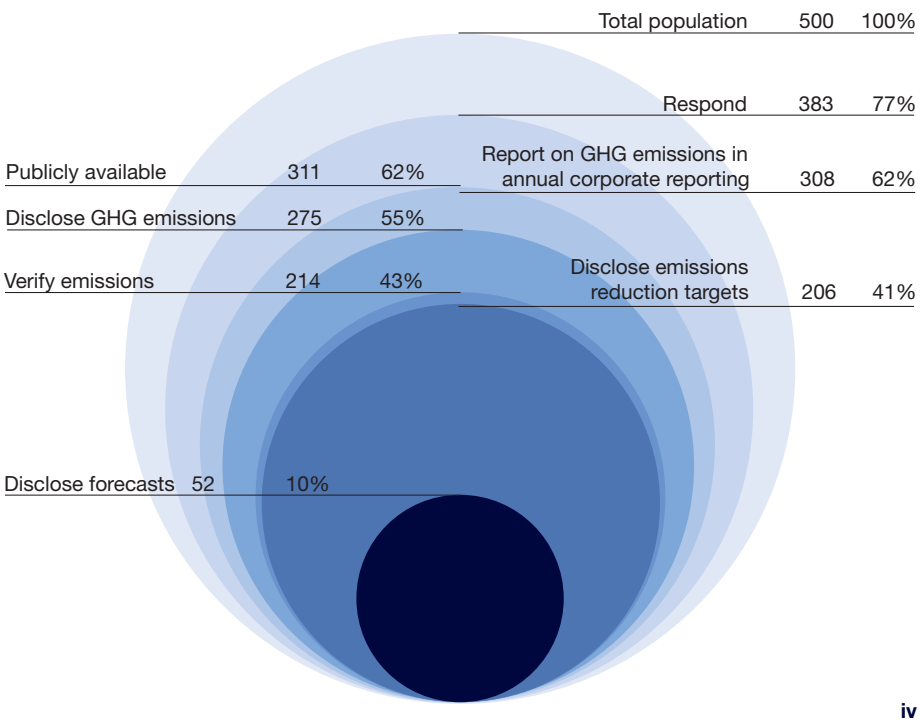
Drivers for action

- **The impact of uncertainty** – although there is now a broad consensus on climate science, the implications for corporate value are less certain. For some CDP6 respondents, this translates into a "wait and see" strategy. Others clearly feel that late starters risk missing out on opportunities.
- **Regulation remains a key issue** – with more countries and regions now contemplating emissions trading schemes for carbon-intensive sectors, regulation featured frequently as a key risk factor. Companies are looking for greater visibility on climate policy and on carbon prices, and many also mentioned the lack of harmonization on regulatory issues, with European installations currently disadvantaged by the cost impact of EU ETS.
- **Increasing consumer awareness** – consumer attitudes are featuring increasingly as a driver of risks and opportunities in the Business-to-Consumer (B2C) sectors, especially in the Retail and Consumer and Utilities sectors. However, carbon disclosure to customers is still very much in its infancy. Some corporations are exploring carbon labeling, but there is little clarity on what information is relevant or whether this actually impacts upon consumer choice.
- **More focus on the supply chain** – retailers such as **Wal-Mart**, **Tesco** and **Carrefour** noted that they were devoting significant resources to investigating supply chain emissions, possibly motivated as much by cost-savings and reputational benefits as by their wider environmental impact. This mirrors experience in the CDP Supply Chain Project, where a number of leading companies are working together to develop a standardized and cost-effective way to engage their supply chains in carbon reporting and to factor climate change into best practice procurement processes.

Reporting and management of emissions

- **Focus on Scope 1 and 2** – there is reasonable comfort around the reporting of Scope 1 and Scope 2 emissions under the framework established by the GHG Protocol, but less than half of companies that disclosed Scope 1 and Scope 2 emissions disclosed any emissions data for Scope 3. Even among the CDLI, 33% of carbon-intensive Leaders and 12% of non-intensive Leaders did not provide any Scope 3 data.
- **Need for more guidance on Scope 3** – those that did provide Scope 3 data often limited this to easy-to-calculate impacts such as business travel, rather than addressing more complex issues such as supply chain or product usage. Although a number of leading companies are starting to explore supply chain emissions, others appear reluctant to claim ownership of emissions which they

Fig. 2: Proportion of Global 500 at each disclosure level



72%

of questionnaire respondents are now reporting Scope 1 and Scope 2 emissions, compared to 58% last year.

74%

of respondents reported that they have emissions reduction targets in place.

Clearly there will be winners and losers in the transition to a low carbon economy and investors should be concerned about companies who are not able to provide the information they require.

cannot directly control. Companies need more guidance on how to define organizational boundaries and carbon accountability, and to better understand and use their carbon influence.

- **Very few companies were willing to provide emission forecasts** – although many companies may undertake forecasts for regulatory and other purposes, these are generally seen as too commercially sensitive to make public.
- **Assuring credibility** – the overall level of carbon reporting continues to improve, with 72% of questionnaire respondents now reporting Scope 1 and Scope 2 emissions, compared to 58% last year. The majority of companies that report emissions want external assurance of their emissions data: 59% of companies stated that they had, or planned to have, their numbers externally verified.
- **Emissions reduction targets** – 74% of respondents reported that they have emissions reduction targets in place (though only 56% disclosed them), suggesting that companies are increasingly taking climate change mitigation seriously, irrespective of direct regulation on carbon.

Governance and communication

- **Governance still not at the forefront** – climate change is still not a regular agenda item for most Boards. It is commonly discussed twice or four times a year at formal meetings, rather than being a routine Key Performance Indicator.
- **More regular communication with investors** – most companies now communicate their climate change policies and performance to shareholders and other stakeholders. Most commonly, this is done through disclosure to CDP; but many also dedicate a section of their annual report or corporate social responsibility report to climate change.
- **Need for comparability and benchmarking** – a number of companies said that they also keep stakeholders informed through investor road shows. However, these less formal methods make it harder for equity analysts to benchmark performance and risks within and between sectors. Given the increasing number of funds and indices focused on climate change and other environmental metrics, there is a clear demand for transparent and comparable reporting.

Conclusion

The depth and quality of the responses from the world's largest companies to the latest CDP questionnaire are a measure of shareholder and corporate engagement on the issue of climate change. They demonstrate the many positive steps that have been taken by Global 500 companies over the past year. Climate change is becoming a bigger issue for the majority of large businesses and companies are keen to share information on their carbon performance and climate risks and opportunities with investors and other stakeholders.

But progress is not uniform, either geographically or by industry sector. Responses exhibited a wide range of completeness and sophistication. Whilst it is evident that many companies are devoting significant, senior-level resource to reporting through CDP, some companies failed to recognize this opportunity to engage with a wide range of stakeholders on climate change. Clearly there will be winners and losers in the transition to a low-carbon economy and investors should be concerned about companies who are not able to provide the information they require.

Over the next twelve months, policy makers and negotiators from around the world will be working hard, trying to agree a new global deal on climate change. It is essential that the voice of business and investors is heard clearly in these negotiations. The corporate sector has a crucial role to play in addressing climate change, through investment and innovation. CDP6 has demonstrated clearly that the Global 500 are increasingly ready for this challenge.

Contents

1

Introduction: The Carbon Disclosure Project

CDP's mission is to facilitate a dialogue between investors and corporations, supported by high quality information from which a rational response to climate change will emerge.

Overview

The Carbon Disclosure Project is the largest investor coalition in the world: more than 385 signatory investors, with a combined asset base of $57 trillion, signed CDP's sixth annual request for information in 2008 (CDP6) which was sent to over 3000 companies worldwide.

The CDP annual information request is sent to the Chair of the Board of the world's largest companies by market capitalization. It 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.

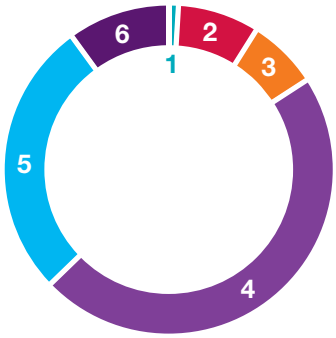
The CDP6 information request can be viewed in Appendix 2.

The responses from companies to CDP's annual requests for corporate data provide investors with vital information regarding the current and prospective impact of climate change on their portfolios, and therefore represents an important resource for investment decisions. The fact that CDP's requests are made on behalf of investors serves to raise the awareness of senior management that climate change is a business issue that requires serious strategic focus.

After eight years of consecutive growth, CDP currently runs projects in more than 20 countries, with new projects launched in China, Korea, Latin America, the Netherlands and Spain in 2008. CDP has also entered into a key strategic relationship with Merrill Lynch and has appointed PricewaterhouseCoopers as its global advisor. These associations will support growth over the next three years.

We are pleased to report that CDP received a record number of company responses to its 2008 annual request – more than 1550 in total. This demonstrates an increasing understanding by the

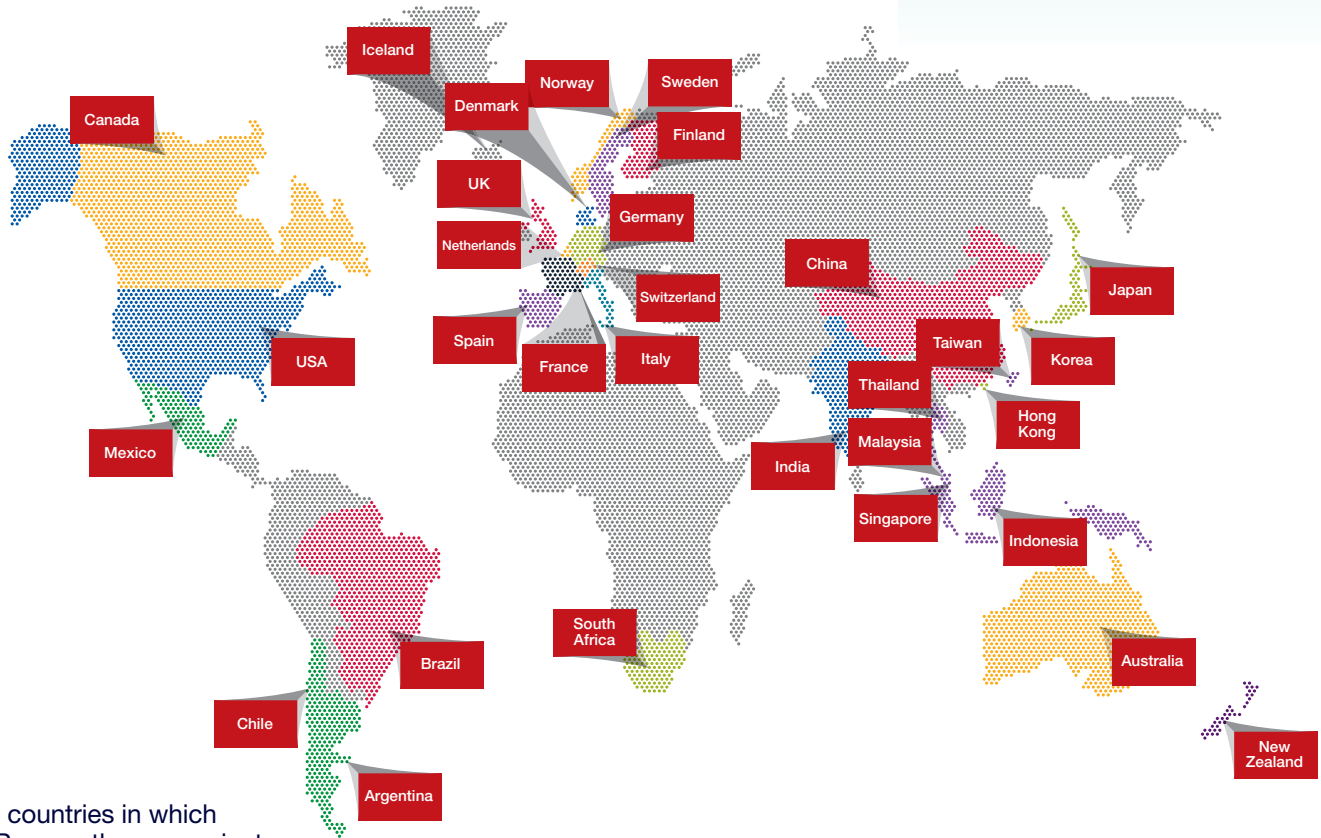
Fig. 3: CDP6 signatory location by region



1. Africa (1%)
2. Asia (8%)
3. Australasia (7%)
4. Europe (47%)
5. North America (27%)
6. South America (10%)

"The Carbon Disclosure Project is vital, and we've got to get everybody to participate in it."

Bill Clinton
former U.S. President



The countries in which CDP currently runs projects

"Before CDP we had no comprehensive data on corporate greenhouse gases. But with CDP, policy makers, investors and companies themselves can take better informed decisions."

Fredrik Reinfeldt
Swedish Prime Minister

"The Carbon Disclosure Project is independent and impartial, it is a clear and transparent mechanism for anyone to see our carbon footprint and to judge our performance at reducing it."

Sir Terry Leahy
Chief Executive, Tesco plc

"The CDP supports AIG Investments' efforts to assess and analyze trends in risks and opportunities associated with climate change and its mitigation. Climate change continues to be a major financial and investment concern for us and our clients."

Win J Neuger
Chief Executive, AIG Investments

world's largest corporations of the importance of climate change and its relation to business strategy and shareholder value. Analysis of this year's responses shows an advance in greenhouse gas emissions accounting with scope 3, or indirect emissions reporting, registering an increase since 2007.

CDP is currently conducting further research into how investors use CDP data in order to improve its understanding of the investment community's requirements. The results to date show signatory investors using company responses to CDP in:

- Company engagement;
- Qualitative checking;
- Sell-side research;
- The filing of shareholder resolutions; and
- The creation of new products and indices.

This year more than 2,000 additional companies were brought into CDP's system through the new CDP Supply Chain Project. More than 30 companies, including **Tesco**, **HP**, **Kellogg** and **Vodafone** now use the CDP system to collect climate change relevant data from their suppliers. This represents a significant achievement by the corporate community, demonstrating how collaboration is key to better understand climate change and its impacts on procurement.

Carbon disclosure has assumed heightened importance on the political agenda and the CDP process has received support from political leaders globally.

Government and public sector organizations also understand the importance of measuring their own carbon risks and emissions. More than 30 cities in the U.S. are currently working together to report through the CDP system, a development that will yield a much better understanding as to how cities are preparing for the low carbon economy. CDP is also working with central and local government departments in the UK including the Foreign and Commonwealth Office and the Office of Government Commerce in HM Treasury to understand supply chain emissions, risks and opportunities.

CDP acts as secretariat for the Climate Disclosure Standards Board (CDSB), which aims to promote and advance climate-change-related disclosure in mainstream reports through the development of a global framework for corporate reporting on climate change. This framework will elicit comprehensive, consistent and comparable information for investors, as well as offering greater certainty on disclosure requirements for corporations, and thereby provide an influential model for use by national regulators.

By working with information users, their advisors, regulators and public interest groups, as well as the four leading accountancy majors and the associated accountancy bodies CDSB aims to support, harmonize and strengthen existing climate-change-related reporting initiatives and standards. Rather than creating a new standard, the aim is to bring together and enhance current best practice in the form of a single consistent framework that can be used for disclosure in mainstream reports.

CDP in the future:

- CDP is continuously working to improve the quality and quantity of reporting on climate change. CDP is also improving its online reporting system and providing extensive guidance on what should be measured and reported;
- CDP will refine its offering to investors through the provision of more bespoke data to service the requirements of individual investment institutions. CDP is also working to expand the availability of its information through professional data distribution channels;
- CDP plans to continue its expansion around the globe and aims to launch projects in Russia and other locations in 2009;
- CDP has recently launched a new project, 'CDP Finance', working with banks to better understand the opportunities, risks and liabilities with relation to climate change across their client base, including the lending and private equity portfolios;
- CDP is also developing strategic relationships with a range of organizations to further expand CDP's work and reach in the future;
- CDP is working towards a unified global business response to climate change and through its associations with investors, corporations, governments and the other key stakeholders, will continue to help catalyze a sustainable, low carbon economy.

Improved access to CDP Data via CORE

In September 2008 CDP launched the CORE 2.0 database. CORE stands for COrporate REsponses and it is the enhanced access function for presentation and analysis of the CDP data, allowing all the CDP responses to be searched and sorted by index, geography, sector or CDP question. The results are displayed on screen via a web interface and can be downloaded to Microsoft Excel.

CORE 2.0 is designed to enable the user to efficiently manipulate the CDP data to their requirements. The CORE 2.0 system has been built utilizing feedback from our signatory members in 2007.

For more information about CORE 2.0 please see www.cdproject.net or contact Daniel Turner at the CDP London office: daniel.turner@cdproject.net

"CDP is one of the most valuable tools we have to help us evaluate climate risk across our whole portfolio."

Brian Rice
Investment Officer, CalSTRS

"The Carbon Disclosure Project is an excellent tool for increasing the exchange of climate information between companies and their institutional investors."

Bendt Bendtsen
Danish Minister for Economic and Business Affairs

"The specialist focus of the Carbon Disclosure Project provides a suitably rigorous structure for an overview of a company's response to climate change, and the survey template is a very helpful management tool for us to assess climate-related risks and opportunities in our own business. It also allows us to benchmark our practices against peers."

Sir Tom McKillop
Chairman, Royal Bank of Scotland Group

"The Fourth Assessment Report of the Intergovernmental Panel on Climate Change (IPCC) has provided a strong scientific basis and rationale for timely action to stabilize the earth's climate.

Failure to do so could lead to very serious impacts of climate change, which have been assessed for different sectors and regions in the world.

At the same time the cost of stringent mitigation has been found to be modest and the co-benefits from such actions immense.

Scientific knowledge of climate change, therefore, requires urgent mitigation action by human society as an imperative."

RK Pachauri
Director General, The Energy and Resources Institute (TERI) & Chairman, Intergovernmental Panel on Climate Change (IPCC)

Climate change remains high on the agenda

The intervening year since the results of CDP5 were published in September 2007 has been eventful across the climate change agenda, with important developments in climate science, climate change policy and the carbon markets.

Since the last CDP report, **climate science** has become more certain, and also more worrying. The latest assessment of the science was presented by the Intergovernmental Panel on Climate Change (IPCC) in late 2007. The IPCC's Fourth Assessment Report, which involved over 2,500 scientists and reviewers from 130 countries[1], concluded that warming of the climate system is unequivocal and that it is more than 90% certain that it is caused by human activity.

The report projected possible average temperature rises of between 1.1°C-6.4°C by 2100, more extreme weather events and increased stress on various global systems including agriculture, water, and transport and energy infrastructure, with the threat of abrupt or irreversible impacts. In recognition of their efforts, the IPCC were awarded the Nobel Peace Prize jointly with Al Gore.

Global climate change policy also moved forward on a number of fronts. The UN meeting in Bali in December reached agreement on a new negotiating mandate for a successor treaty to the Kyoto Protocol. The 'Bali roadmap' aims to finalize a new climate treaty by December 2009 in Copenhagen. The roadmap is a collection of initiatives and decisions around key areas such as climate change mitigation and adaptation, technology transfer and financing. The roadmap also includes consideration of quantified targets by developed countries (which given its recognition of the IPCC's work could mean deep reductions on 1990 levels), as well as mitigation actions by developing countries.

The last year has also seen some important policy developments at a regional and country level. Following the election of the new premier in **Australia**, Kevin Rudd, that country moved quickly to re-engage in international climate change policy and ratify the Kyoto Protocol. The Rudd administration is now working on the design of a national, multi-sectoral emissions trading scheme which could be operational by 2011. In the **United States**, there have been a number of bi-partisan proposals to the U.S. Senate for firm carbon targets and State-level initiatives such as the Regional Greenhouse Gas Initiative (RGGI) are now being implemented. Meanwhile, in **Europe**, the European Commission released proposals in January 2008 to strengthen the EU's response to climate change including an update of the EU Emissions Trading Scheme (EU ETS) in time for Phase 3 of the Scheme which will start in 2013.

Carbon markets saw continued, dramatic growth over the year. Traded volumes in the EU ETS grew strongly, with an estimated two billion metric tons traded in 2007 – a year-on-year increase of over 85% – representing a value of around €37 billion[2]. Transaction activity in the project-based carbon credits market was also up, with the market worth around €10 billion; the majority of this was accounted for by Certified Emissions Reductions (CERs) under the Clean Development Mechanism (CDM). The market expects this

1 Intergovernmental Panel on Climate Change Fourth Assessment Report Climate Change 2007: Synthesis Report Summary for Policymakers, Geneva, Switzerland, 2007.

2 State and Trends of the Carbon Market (2008), World Bank, Washington DC.

growth to continue, up to and beyond 2012, with the expansion of the EU ETS and new carbon markets expected to come on stream in the U.S., Japan and Australia over the next couple of years. Furthermore, the market is beginning to mature with a greater understanding of how to price carbon risk and increasing product sophistication.

The last year has also seen more **corporate engagement** in the climate change agenda, with many leading companies taking active and public stances on climate change. Although companies are increasingly concerned about the impacts on markets and regulation, as well as the physical impacts of climate change, the focus for many companies is the very real and immediate opportunities that climate change presents, through new and changing markets, new technology and the transition to a low carbon economy.

Consumer awareness has also increased, driven by the intensive media coverage of the issue and concerns about high energy prices. Whether this is leading to any significant and sustained changes in consumer behavior is harder to assess, although there is evidence that some consumer groups in the U.S. and Europe are starting to factor carbon and wider environmental impacts into spending decisions, whilst high energy prices are having an impact more widely in some product markets (e.g. energy-efficient vehicles and home appliances). Many companies in the Retail & Consumer sectors are responding to these developments, with increased environmental information on companies and products, green marketing and new low-carbon products.

Clean technology markets had mixed fortunes. Much has been written about the complex sustainability interactions around biofuels, but the sector has faced more straightforward cost issues over recent months due to the surge in prices for global agricultural commodities. Many alternative energy technologies have benefited from technological innovation, improved efficiencies and economies of scale in production and deployment – however, high commodities prices and supply chain bottlenecks have impacted more established sectors such as biofuels.

Nonetheless, the clean tech sector globally attracted US$148bn of investment during 2007, with a large majority of this U.S.-based and focused on large-scale solar, biofuels or transportation solutions[3]. Within Europe, there is renewed interest in tidal technologies; and the value chains around carbon capture and storage are attracting increasing interest globally, with a number of new pilot and demonstration projects emerging. While there is much debate over the 'green' credentials of nuclear power, there also appears to be increasing momentum towards more investment in new facilities in Europe and the US for reasons of both energy security and carbon reduction.

The continuing focus of policy makers, businesses, NGOs and consumers on climate change has turned the heat up on **corporate reporting and disclosure** around climate change and carbon. The expansion of emissions trading is requiring more and more companies to measure and report their emissions; but pressure for disclosure goes beyond carbon, with a number of leading institutional investors standing alongside environmental

"Copenhagen must produce a fully workable action plan to meet head-on the biggest challenge we have ever faced as a civilization. Global warming is a problem with major ramifications, there are plenty of solutions to hand, and the need to decarbonize our economies will create new challenges for innovation from the private sector. This will stimulate economic growth in a new sustainable direction fit for the twenty first century."

Professor Sir David King
Director,
Smith School of Enterprise and the Environment
Oxford University

3 United Nations Environment Programme, July 2008 – http://sefi.unep.org/english/globaltrends

CDP remains the world's leading proponent of climate change and carbon disclosure, with a strong and growing history of corporate disclosure through its annual questionnaires and its database of corporate responses.

The scientific and economic imperative for a bold response to the threat of climate change is clear.

NGOs to call for mandatory reporting of climate change risks. Many leading companies are also embracing more comprehensive disclosure, with a number of initiatives in the retail and consumer sectors in particular driving the reporting imperative down the supply chain e.g. CDP's Supply Chain Project.

CDP remains the world's leading proponent of climate change and carbon disclosure, with a strong and growing history of corporate disclosure through its annual questionnaires and its database of corporate responses (the world's largest repository of corporate climate change information). At the same time it is seeking to broaden the reporting agenda, through leadership and innovation in this important area.

Looking forward to 2009

2009 is set to be a defining year in the climate change calendar. Much rests on the outcome of the Copenhagen Climate Conference in December 2009. The outcome of this conference is likely to shape the policy response for the next decade and, potentially, the speed and severity of climate change impacts for many decades to come.

Policy makers in Bali have set the agenda, but much needs to be done in the next twelve months to turn their ambition into a reality. The scientific and economic imperative for a bold response to the threat of climate change is clear. But the political challenge; in particular, how to reconcile the economic growth goals of developing nations with the desire for deep cuts in GHG emissions, and how to galvanize the investment necessary to create the pathway to a low carbon economy, in a year when many of the leading economies of the world are confronting the possibility of a sustained economic downturn – is as great as ever.

The CDP6 report

This report has five key aims:

- To provide institutional investors and other stakeholders with information that facilitates a better understanding of the risks and opportunities stemming from climate change;
- To highlight best practice in activities to address climate change across a range of sectors;
- To benchmark action and disclosure between different geographies and sectors;
- To analyze key issues in relation to climate change disclosure and to comment on differences in responses geographically and on a sector-by-sector basis; and
- To use companies' responses to CDP6 as a way of highlighting key concerns, challenges and future directions around carbon disclosure and wider corporate sustainability.

The report is split into five main sections:

Section 2 presents the results from the CDLI and offers comment on the comparability of these results with those from CDP5;

Section 3 introduces the Global 500 population and its changing composition over time by sector and geography and highlights overall response and disclosure trends;

Section 4 provides a geographical perspective on the results from CDP6;

Section 5 presents the bulk of the industry analysis, separating the performance of carbon-intensive and non-carbon-intensive industries; and

Section 6 offers conclusions on the analysis and reflects on the way ahead.

Experience has shown that the analysis and information in CDP reports, as well as the on-line database of responses to the questionnaires for CDP6 and earlier reports, are used by a wide range of stakeholders from investors through to corporations, policymakers, consultants and academics.

2

Carbon Disclosure Leadership Index 2008

The Carbon Disclosure Leadership Index (CDLI) includes the companies with the highest scores in the two categories of the carbon-intensive sectors and the non-carbon-intensive sectors[4], and provides a valuable perspective on the range and quality of responses to CDP's questionnaire.

The CDLI includes the top 34 companies in the non-carbon-intensive sectors and the top 33 in the carbon-intensive sectors (the index is nominally the top 30 in each category, but in both cases several companies are tied for 30th place). 16% of carbon-intensive companies and 11% of non-carbon-intensive companies in the Global 500 are members of the CDLI, reflecting the greater number of non-carbon-intensive companies in the Global 500.

Scores for the Leaders in the carbon intensive sectors ranged from 66 up to 82. In the non-carbon-intensive sectors, Leaders' scores were higher, ranging from 90 to 98. This difference reflects the different levels of minimum disclosure expected of the two sector groupings and the different scoring system used (see Appendix 2 for more information on scoring). Consequently the results are not directly comparable between these two groupings[5].

It is important to bear in mind that while the CDLI score is a good indicator of how well a company has responded to the CDP6 questionnaire. It does not fully provide a complete picture of companies' other efforts to provide carbon or wider sustainability disclosure, for example: through corporate responsibility reporting, through environmental statements in annual reports, or through meetings and engagement with stakeholders and policymakers, etc.

The CDLI score is also not a metric of a company's performance in relation to climate change management, as it does not take into account levels of emissions, reduction achievements or plans, or carbon intensity in awarding the rating.

We have, however, listed Scope 1 emissions (direct combustion of fossil fuels), Scope 2 emissions (purchased energy), and corresponding carbon intensity (proportional to gross revenues, based on the sum of Scope 1 and Scope 2 emissions) in the CDLI listing overleaf.

4 Sector breakdown was determined by PwC purely for the purposes of this report.

5 The allocation of companies between the two groupings is in some cases subjective. As a result, some companies with relatively low emissions in high-emitting sectors and some companies with relatively high emissions in low-emitting sectors, may appear to be disadvantaged or rewarded.

"Future price signals for carbon could influence consumer choices for automotive and industrial fuels that will require oil & gas companies to adapt to the changing dynamics. This represents a commercial risk, but it also provides an opportunity as the demand for cleaner products produced and marketed by the Company increases."

Repsol

"The climate changes that have already taken place or are forecast offer BASF new market opportunities. BASF is developing and selling products and technologies that help mitigate and adapt to climate change and therefore have sales potential in line with changes in climate conditions."

BASF

"We strongly promote Netmeeting software as an alternative tool to travelling."

Siemens AG

Scope 3 (business travel, external logistics/transport, supply chain, product use and disposal) emissions are also stated, although it is recognized that the methods for measuring Scope 3 are at an early stage of development and hence caution should be exercised when comparing these between companies. To date, we are not aware of any company that is currently able to make a fully comprehensive and verifiable assessment of Scope 3 emissions.

It should also be noted that, in contrast to previous years, any CDP6 response that is 'not public' was not considered for inclusion in the CDLI on the grounds that this is not within the overall spirit of the disclosure exercise. All publicly available CDP6 responses can be viewed in full at www.cdproject.net.

Carbon-intensive sectors

The average CDLI score for Leaders in the carbon-intensive companies overall was 73 points, which compares with the average for all respondents in these sectors of 52 points. Although each of the carbon-intensive sectors is represented in the CDLI, Raw Materials, Chemicals and Utilities are overrepresented, highlighting the strong performance of leading companies in these sectors, while Manufacturing, Oil & Gas, Construction and Transport companies are underrepresented.

The highest scoring carbon-intensive companies in CDP6 are **BASF** and **Iberdrola**, each with 82 points. These scores reflect the quality, completeness and comprehensiveness of the climate change disclosures made. From their questionnaire responses, it seems that these companies are making climate change an integral part of their overall strategy and are planning to benefit from the transition to a low-carbon economy. Both companies had also featured in the CDLI in CDP5[6], although they did not achieve such a high ranking.

At this top end of disclosure, there appears to be little correlation between emissions intensity (measured in terms of CO_2-e per unit revenue) and CDLI score: **Iberdrola** is relatively low in intensity for a utility, and while **BASF** is much higher intensity than other companies in its sector, it is relatively low-intensity in overall terms.

The composition of the CDLI reflects the benefit of accumulated experience, but is by no means a static group. In the carbon-intensive sectors, all of the Leaders had also responded to the CDP5 questionnaire and, indeed, with the exception of **Public Service Enterprise Group**, all were members of the Global 500 last year. However 18 of the 33 Leaders are new entrants to the CDLI compared to last year.

CDLI company numbers by sector for carbon-intensive sectors

	Companies in G500	Companies in CDLI	% of G500 in CDLI
Chemicals & Pharmaceuticals	44	9	20%
Construction & Building Products	11	1	9%
Manufacturing	43	3	7%
Oil & Gas	54	4	7%
Raw Materials, Mining, Paper & Packaging	25	6	24%
Transport & Logistics	11	1	9%
Utilities	30	9	30%

6 Produced by Innovest Strategic Value Advisors, based on a different scoring methodology.

Carbon Disclosure Leadership Index for carbon-intensive sectors

Sector	Company	CDLI score	Scope 1*	Scope 2*	Scope 3**	Intensity***
Chemicals & Pharmaceuticals	BASF	82	23,463	4,050	28,190	346
	Bayer	78	3,890	3,710	-69,800[7]	171
	Baxter International	74	252	476	162	65
	Johnson & Johnson	74	343	580	244	15
	Praxair	74	3,168	11,000	260	1,507
	AstraZeneca	73	442	276	576	24
	Novartis	69	586	883	146	39
	Pfizer	67	1,058	1,136	–	45
	Dow Chemical Company	66	29,600	7,700	–	691
Construction & Building Products	Lafarge	66	96,166	8,087	2,265	4,318
Manufacturing	Nissan Motor	78	975	1,840	165,468	30
	Siemens	77	1,550	2,410	499	35
	Renault	73	671	1,021	90,000	30
Oil & Gas	Suncor Energy	75	10,419	118	–	588
	Chevron Corporation	74	63,759	-3,097[8]	–	275
	Repsol YPF	72	27,403	1,830	173,180	381
	Royal Dutch Shell	68	92,000	13,000	743,180	295
Raw Materials, Mining, Paper & Packaging	BHP Billiton	77	21,394	30,626	330,165	1,096
	Alcoa	74	31,100	27,900	–	1,919
	Rio Tinto	71	29,600	20,600	660,300	1690
	Xstrata	70	14,979	9,135	174	845
	Companhia Vale do Rio Doce – CVRD	66	13,805	1,417	–	407
	Newmont Mining Corporation	66	2,886	983	–	700
Transport & Logistics	Deutsche Post	66	7,050	950	23,260	83
Utilities	Iberdrola	82	37,769	3,462	1,363	1,616
	Exelon Corporation	78	11,000	150	–	589
	Scottish & Southern Energy	78	22,724	17	38	751
	FPL Group	77	50,000	18,346	18	4,350
	Centrica	74	9,562	123	28,300	295
	Fortum	74	7,730	408	1,725	1,173
	Public Service Enterprise Group	69	24,682	1,146	–	2,009
	E.ON	68	121,261	3,286	–	1,323
	RWE	67	152,500	34,600	300	3,169

* 000s metric tons

** Any Scope 3 emissions reported, 000s metric tons

*** The intensity score has been calculated by summing the Scope 1 and 2 emissions and dividing this by the company's revenue reported to CDP. Where no revenue figure was given this was taken for 2007 year end from Datastream database. Intensity is therefore in metric tons per million US$.

7 In the absence of any specific guidance requiring the calculation of Scope 3 emissions on a "gross" basis, without taking account of any reduction, avoidance or abatement, negative Scope 3 emissions are shown here to reflect the company's calculations. Guidance for CDP 2009 will be amended to specify the basis on which Scope 3 emissions should be calculated.

8 See Chevron response for more detail on how its Scope 2 emissions have been reported.

"Establishing a carbon price will be a key driver for investment in innovation, providing the certainty and incentive required for long-term investment decisions. With this in mind, carbon trading in the United Kingdom should be introduced as soon as possible, with the Carbon Reduction Commitment rewarding early action and recognizing the role of growth that helps deliver a low-carbon economy."

Tesco

"As the economic and global environments converge, climate change has become one of the biggest challenges facing this generation…We believe that the market for alternative energy, clean technology and carbon trading will continue to grow exponentially."

Merrill Lynch

"Carbon emissions data is not consistently available from suppliers, but most large suppliers are already measuring or starting to measure CO_2 emissions."

Barclays

Non-carbon-intensive sectors

All the Leaders in the non-carbon-intensive sectors chose to provide comprehensive answers to all the questions, rather than just addressing the minimum requirements stipulated by CDP. This demonstrates a positive, proactive approach to carbon disclosure, and highlights the fact that many companies in non-carbon-intensive sectors recognize that carbon is strategically important to their overall value chain, even if their own direct emissions are low.

As a result, the Leaders in these sectors have scored very highly, with all 34 companies attaining over 90 points, compared to an average of 69 points for all non-carbon-intensive companies in the Global 500. As noted previously, these results are not directly comparable with the scores for companies in the carbon intensive sectors.

The composition of the CDLI by the non-carbon intensive sector is broadly consistent with the composition of the Global 500 as a whole, although with a stronger performance from financial services companies and a weaker performance from technology companies:

Financial Services companies have traditionally featured strongly in the CDLI, reflecting the commitment of the sector to carbon disclosure and the strategic importance of climate change to the sector, notwithstanding the relatively low level of their own Scope 1 and Scope 2 emissions. Institutional investors in particular increasingly understand that the impact that they have on GHG issues is substantial because of their investment portfolios. The highest scoring companies in this sector were **Barclays**, **Merrill Lynch**, **Munich Re** and **National Australia Bank**, who all scored 98.

The only other company to score 98 points was technology company **EMC Corporation**. The technology sector is typically an area with relatively low emissions in absolute terms, but with a strong focus on environmental risks and opportunities.

Again we see the benefit of accumulated experience. Other than **Johnson Controls**, all of the Leaders in the non intensive sectors were also in the Global 500 at the time of CDP5; and all 33 responded to last year's questionnaire. However 17 of the Leaders are new entrants to the CDLI this year.

CDLI company numbers by sector for non-carbon-intensive sectors

	Companies in G500	Companies in CDLI	% of G500 in CDLI
Financial Services	121	18	15%
Hospitality, Leisure & Business Services	30	4	13%
Retail & Consumer	58	7	12%
Technology, Media & Telecoms	73	5	7%

Carbon Disclosure Leadership Index for non-carbon-intensive sectors

Sector	Company	CDLI score	Scope 1*	Scope 2*	Scope 3**	Intensity***
Financial Services	Barclays	98	31	457	78	11
	Merrill Lynch & Co.	98	12	365	98	6
	Munich Re	98	7	138	42	2
	National Australia Bank	98	19	218	14	12
	Australia and New Zealand Banking Group	97	14	198	18	20
	Citigroup	97	45	1,366	79,666	17
	Lloyds TSB	97	30	101	30	6
	Royal Bank of Canada	97	11	32	44	2
	Wells Fargo & Company	97	42	539	95	15
	HBOS	95	41	35	31	2
	Westpac Banking	95	7	109	–	5
	Royal Bank of Scotland Group	94	92	395	89	8
	Standard Chartered	94	11	209	58	20
	Credit Suisse	92	17	169	101	5
	Allianz SE	91	73	415	221	3
	HSBC Holdings	91	109	595	115	8
	Bank of Montreal	90	54	96	16	6
	Hartford Financial Services	90	36	92	16	5
Hospitality, Leisure & Business Services	Taiwan Semiconductor Manufacturing	95	2,466	1,967	3,009	416
	Carnival	93	9,858	82	–	763
	International Business Machines	92	599	2,266	–	29
	Johnson Controls	91	524	1,133	69	48
Retail & Consumer	Tesco	96	1,705	2,691	70	42
	Coca Cola Company	93	1,933	3,050	55	173
	Matsushita Electric Industrial	91	937	3,020	20,170	43
	Sony	91	526	1,546	20,480	23
	Colgate-Palmolive	90	244	431	23	49
	Diageo	90	604	133	1,505	38
	PepsiCo	90	2,332	1,471	–	96
Technology, Media & Telecoms	EMC	98	32	232	85	20
	Cisco Systems	96	66	479	206	16
	Nokia Group	95	13	223	2,297	3
	BT Group	94	238	557	22	21
	Dell	91	35	403	52	7

* 000s metric tons

** Any Scope 3 emissions reported, 000s metric tons

*** The intensity score has been calculated by summing the Scope 1 and 2 emissions and dividing this by the company's revenue reported to CDP. Where no revenue figure was given this was taken for 2007 year end from Datastream database. Intensity is therefore in metric tons per million US$.

3

Global 500 Overview

This report covers the 500 largest companies in the FTSE Global Equity Index Series – the 'Global 500'. The FTSE Global Equity Index Series covers over 8,000 securities in 48 different countries and captures 98% of the world's investable market capitalization. As of March 2008, the Global 500 represented companies with a total market capitalization of US$22 trillion, covering all key sectors and regions of the world economy.

The Global 500 is not a static group. It changes with the market capitalization of companies as well as as a result of changing exchange rates. So that questionnaires could be sent out to them in good time, the list of companies in the Global 500 in CDP6 is based on market capitalizations and exchange rates as of end November 2007.

417 of this year's Global 500 companies were also in last year's Global 500[9], and 336 (81%) of these submitted responses to CDP5. Out of these 417 companies, 343 (82%) responded to CDP6, 22 of them for the first time, indicating an improvement in response rates among established Global 500 companies. Out of the 83 companies that were new entrants to the Global 500, only 36 (43%) submitted responses. In total, 58 companies in the Global 500 this year were reporting to CDP for the first time.

Changes in geographic and sector mix

The changes in the composition of the Global 500 used by CDP have changed the geographic mix of the group, with greater representation from Asia in particular: there has been a net gain of eight Asian companies, with 21 new companies joining in total and 13 exiting the index. For North America, there has been a net loss of 12 companies, with 15 new joiners more than offset by 27 companies exiting the index. The net change in Europe has been zero, 29 companies left and 29 new companies joined. The net change in the rest of the world was a gain of four, with two companies exiting and six joining (of which four were from Australia and South Africa).

The number of carbon-intensive companies in the Global 500 has risen from 198 to 218, a net gain of 20 companies, with the number

9 In previous years, CDP used the Financial Times Global 500 index. This also measures the leading 500 companies by market capitalization, but uses a different methodology particularly when considering emerging markets.

of non carbon-intensive-companies falling commensurately. The most marked gains have been in Oil & Gas, and the most marked fall was in Financial Services. There were 22 new entrants from the Oil & Gas industry, with 13 companies leaving for a net gain of nine companies. This meant that 22 out of 54 companies in Oil & Gas (41%) were new entrants, compared to 17% of all companies.

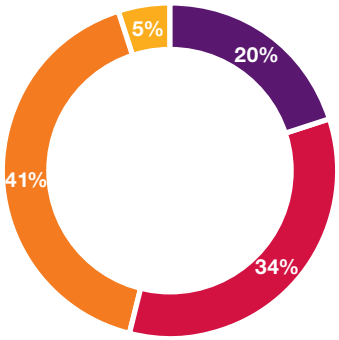
Continuing strong response rate, but with geographic variations

CDP has issued questionnaires to the world's largest companies each year since 2003. Between the first questionnaire CDP1 (2003) and CDP5 (2007), the questionnaire response rate grew rapidly, mirroring the growing concern about climate change and recognition of the important role that business has to play in responding to it.

CDP6 achieved an overall response rate of 77%, the same level as last year, notwithstanding the substantial changes in the Global 500 population.

However, the geographical analysis of responses reveals a less consistent trend. CDP respondents have risen in North America and in the Rest of the World, despite a fall in North American Global 500 constituents. This has been offset by a decline in Asian respondents, despite the increase in Asian Global 500 constituents.

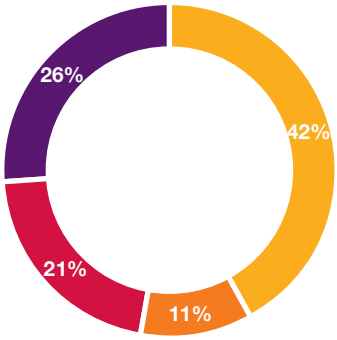
Fig. 4: Global 500 population split and year-on-year change by geography



	Composition of CDP6 Global 500	Change from CDP5
Asia	101	+8
Europe	168	no change
North America	205	-12
Rest of World	26	+4

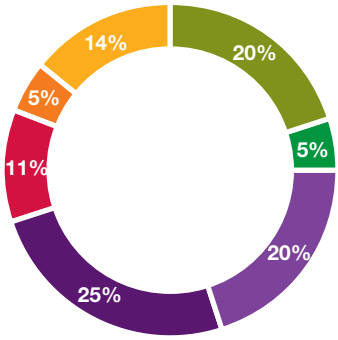
Fig. 5: Global 500 population split and year-on-year change by industry

Non Intensive (n=282)



	Composition of CDP6 Global 500	Change from CDP5
Financial Services	121	-11
Hospitality, Leisure & Business Services	30	-2
Retail & Consumer	58	-4
Technology, Media & Telecoms	73	-3

Intensive (n=218)



	Composition of CDP6 Global 500	Change from CDP5
Chemicals & Pharmaceuticals	44	+4
Construction & Building Products	11	+4
Manufacturing	43	+1
Oil & Gas	54	+9
Raw Materials, Mining, Paper & Packaging	25	+4
Transport & Logistics	11	-2
Utilities	30	no change

The industries showing the greatest decline in the number of responses were Financial Services and Oil & Gas, for very different reasons. In Financial Services, a slight increase in response rates was more than offset by the decline in Financial Services companies as a proportion of the index; in Oil & Gas, a rise in companies as a proportion of the index was more than offset by a substantial decline in response rates.

The change in Asian distribution also reflects an absolute decline in Asian response rates: five out of six Indian companies that responded to CDP5 did not respond to CDP6 nor did six out of seven Chinese CDP5 respondents.

This may be explained, at least in part, by late submissions by countries in these regions, with four Indian responses expected but not delivered at the time this report went to press; the final CDP6 response rate may therefore be expected to improve. The fact that 47 out of 101 Asian companies this year were new entrants into the Global 500 is also likely to be relevant.

However, more work is required to determine why the response rates in these countries are so much lower than the overall rate, whether this is a genuine reflection of attitudes to climate change and the role of business, or whether it reflects a lack of awareness of CDP's work, and how this can be addressed in future.

A small decline has also occurred in Europe, driven by the growing proportion of Russian companies – none of which responded to CDP. CDP plans to prioritize its engagement with Russia in 2009 to address this.

Fig. 6: CDP1-CDP6 respondents by geography

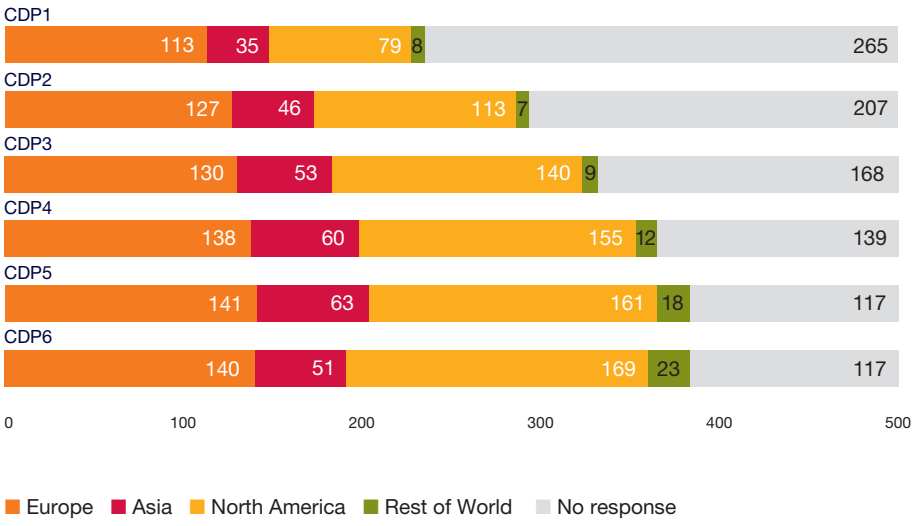
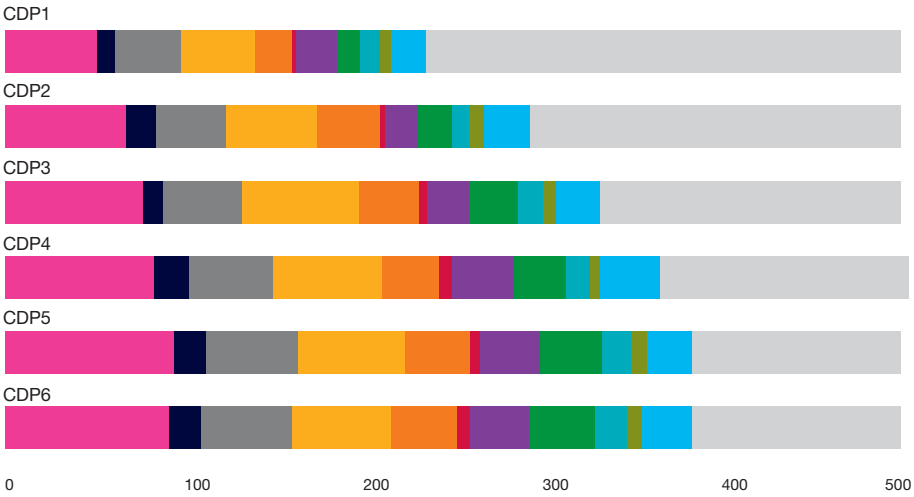


Fig. 7: CDP respondents by sector



	CDP1	CDP2	CDP3	CDP4	CDP5	CDP6
Financial Services	51	67	77	83	94	91
Hospitality, Leisure & Business Services	10	17	11	19	18	18
Retail & Consumer	37	39	44	47	51	51
Technology, Media & Telecoms	41	51	65	61	60	55
Chemicals & Pharmaceuticals	21	35	34	32	36	37
Construction & Building Products	2	3	4	7	6	7
Manufacturing	23	18	24	35	33	33
Oil & Gas	13	19	27	29	35	37
Raw Materials, Mining, Paper & Packaging	11	10	14	13	16	18
Transport & Logistics	6	8	7	6	9	8
Utilities	20	26	25	33	25	28
No response	265	207	168	139	117	117

Response rates within industry sectors were broadly in line with CDP5, other than in oil and gas, which has seen nine net new companies in the Global 500 representation but only two net new CDP respondents, and in construction and building products, which is a small sector and hence individual non-respondents can have a substantial impact on the overall rate. Utilities saw a substantial rise in responses to 93%.

Carbon emissions of the Global 500

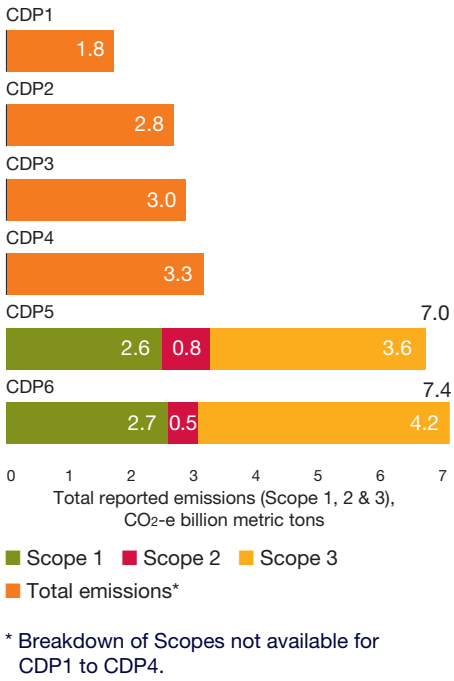
Over the period CDP1 (2003) to CDP4 (2006) there was a steady increase in the level of total emissions disclosed in the Global 500 responses (figure 9). Between CDP4 (2006) and CDP5 (2007) the total emissions disclosed rose by more than 100%. The increase this year was smaller, with total Scope 1 emissions of 2.7 billion metric tons; total Scope 2 emissions of 0.5 billion metric tons; and total Scope 3 emissions of 4.2 billion metric tons.

These changes reflect a range of factors, including in particular the mix of carbon and non-carbon-intensive companies, organic growth and mergers and acquisitions activity and changes in the emissions intensity of the Global 500, as well as changes in the scope of reported emissions. It is difficult to draw any conclusions from these aggregate statistics on the scale of emissions reductions achieved by the Global 500; however the sector analysis and individual company returns provide some valuable insights.

The continuing rise throughout the period covered by CDP is primarily a result of the increase in response and disclosure rates among the Global 500 and the widening of emissions scope, particularly at Scope 3 level. Although CDP has always tracked Scope 3 emissions, companies' ability and willingness to measure Scope 3 has increased substantially in recent years.

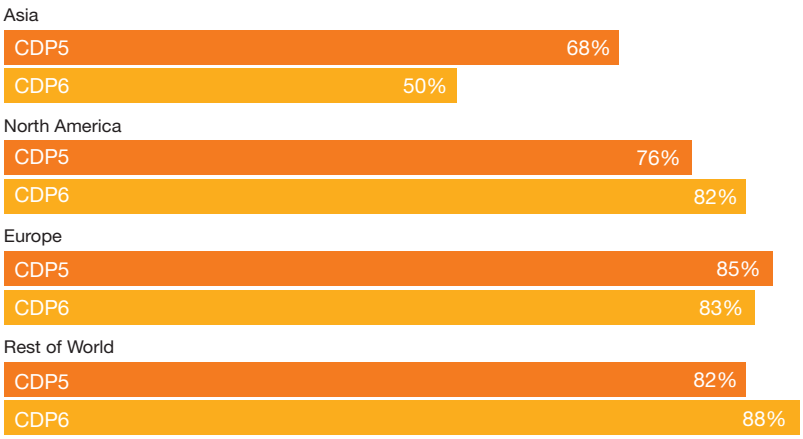
Although the total emissions figure is a good way of understanding how the proportion of carbon emitting companies responding to CDP has grown over time, it cannot be taken as an aggregate measure of global carbon emissions: there will be double-counting as some companies' Scope 2 or Scope 3 emissions are also Scope 1 emissions for other companies (utilities and transport providers in particular).

Fig. 9: Sum of Scope 1, 2 and 3 emissions: CDP1-CDP6



* Breakdown of Scopes not available for CDP1 to CDP4.

Fig. 8: Response rates CDP5-CDP6 by geography



"We have in-house estimates on Scope 1, Scope 2 and electricity consumption by FY2010; however, we are not disclosing these figures."

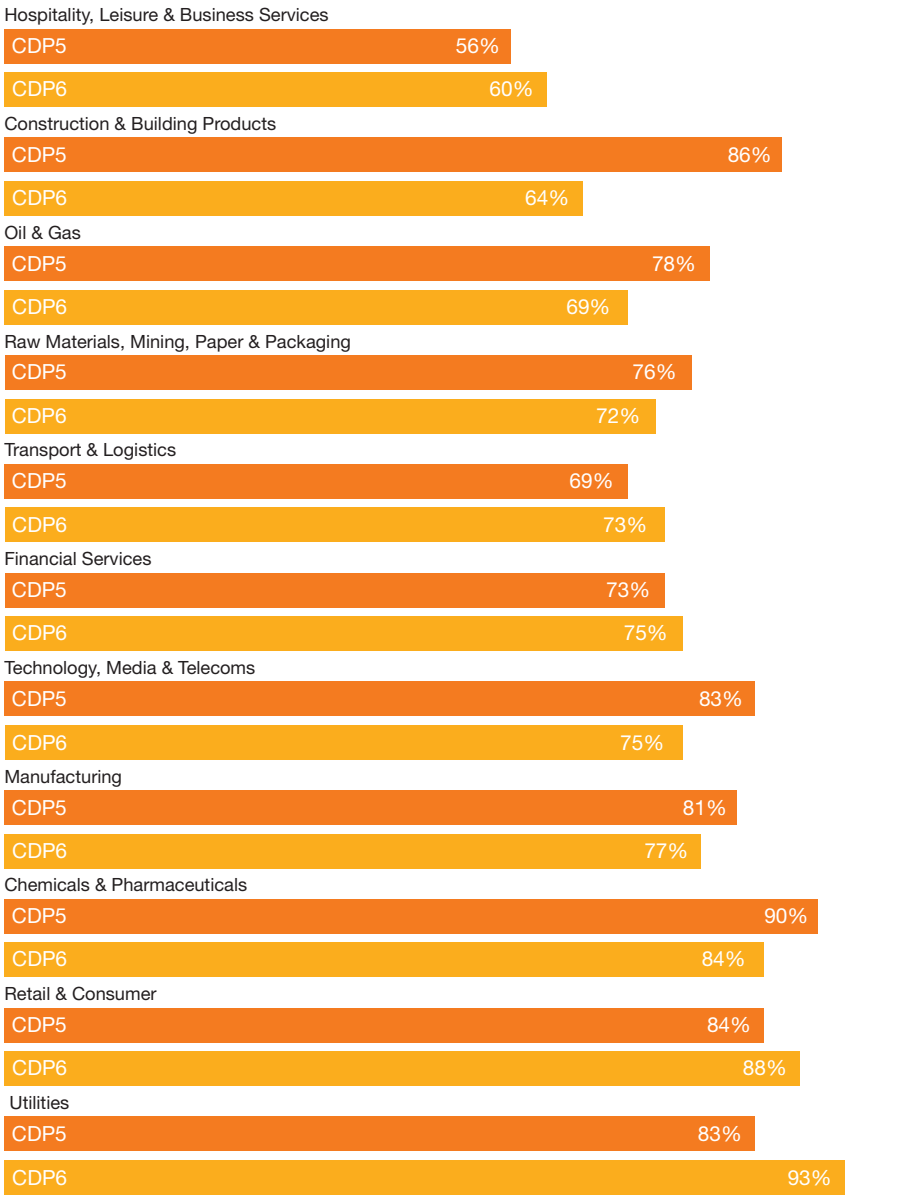
Sony Corporation

Level and quality of disclosure

The process of capturing, analyzing and disclosing data on carbon emissions should become continuous and embedded. Key actions can be undertaken to move this process along a path towards the point where disclosure is robust, informative and transparent. Within this report these key actions have been defined as follows:

1. Respond to the CDP;
2. Report on wider climate change issues in an annual company report;
3. Disclose actual levels of emissions;
4. Independently verify the emissions data;
5. Disclose targets for the reduction of carbon emissions; and
6. Disclose emissions forecasts.

Fig. 10: Response rates CDP5-CDP6 – by industry



The CDP questionnaire requests that companies do all of the above except for actions 2 and 4. Companies are also asked to disclose whether they have taken actions 2 and 4.

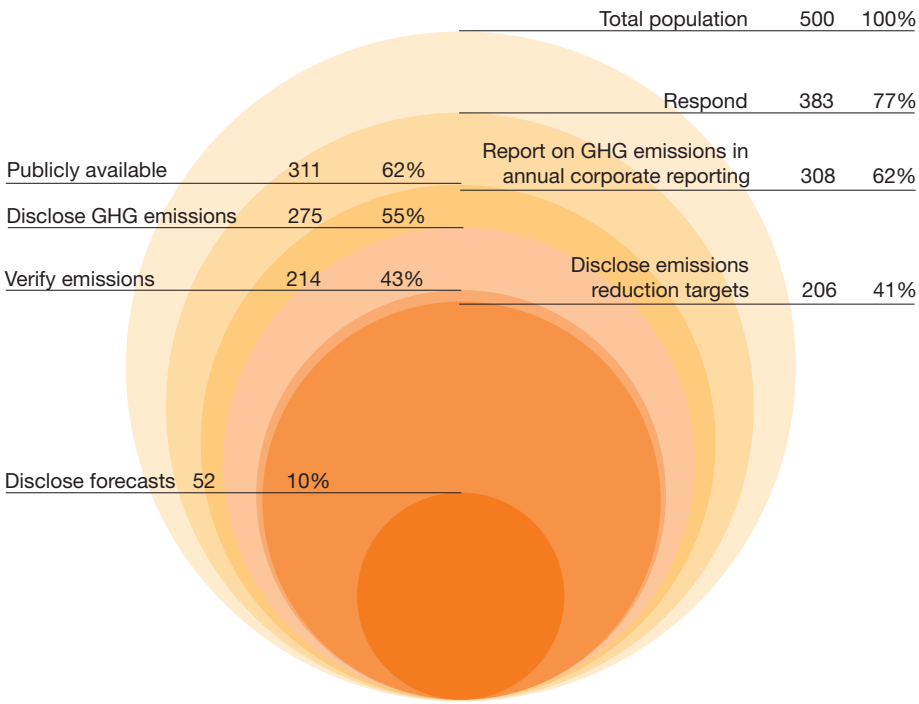
Figure 11 below provides a snapshot of the level of disclosure in CDP6. Each circle represents the proportion of the total population – the Global 500 – that has achieved each disclosure action[10]. The chart highlights three significant performance gaps between:

- The Global 500 population and the number responding to CDP;
- The number of companies responding to CDP and the number disclosing on climate change in a report of their own; and
- The number of companies disclosing emissions and the number that have their emissions data verified.

All three of these are important to address going forward, but the biggest gap remains whether or not a company responds to CDP at all. The priority is to encourage and engage new companies which are new to the Global 500 to respond for the first time.

The final step to disclosing emissions forecasts is not a critical performance gap, despite the low levels of disclosure, as the responses indicate that the low level of disclosure is primarily a result of commercial sensitivity.

Fig. 11: Proportion of Global 500 at each disclosure level



10 Note: this assumes that the companies responding to CDP and achieving the action are the only companies in the Global 500 achieving them.

The PricewaterhouseCoopers Perspective: A New Model for Corporate Reporting, a New Model for Carbon Disclosure

Reporting today

Discussion of the importance of non-financial information is not new. Many people agree that, by themselves, financial measurement and reporting – particularly when limited to historical data – is not enough to explain corporate performance and business activity. So most companies now report a number of financial and operational metrics with the aim of helping investors and others better understand the quality and sustainability of their performance.

At the same time, however, society's expectations of corporate reporting are increasing, with companies under ever greater obligations to provide clear information on a wider range of business activities. Measured against this, today's reporting model is still far from meeting the needs of capital market participants and other stakeholders.

Financial reporting is well-developed and highly complex – indeed many would argue too complex – with a plethora of accepted reporting standards and third party assurance processes. By contrast non-financial reporting is less well developed with few standards, less external assurance and mixed quality. This represents a challenge, but also an opportunity: to build on the experience of developing financial reporting in shaping non-financial reporting frameworks.

Some non-financial reporting is embedded in mainstream reports to shareholders. More often, information appears in separate 'corporate social responsibility' or 'sustainability' reports, aimed at many different stakeholders from the annual report and the quality of these reports, whilst improving, remains inconsistent.

So what is needed to move the reporting agenda forward? And how does carbon disclosure fit in?

Moving forward

Recasting the reporting model will not be best achieved by prescriptive regulation. Instead it requires a market-driven approach, like CDP; one that would stimulate a vibrant business environment, as well as facilitating a 'lighter touch' by governments.

So what should be the parameters for this high-quality corporate reporting model? We believe that they can be summarized as follows:

- a user-centric focus to ensure the provision of relevant and reliable information;
- principles-based reporting to reduce the risk of boilerplate compliance;
- external reporting that flows from internal management information, expressed in plain language so that it is easy to prepare, understand and access; and
- integration of financial, contextual and non-financial information so that investors have the content they need to make informed decisions.

Having established these parameters, the next step is to recast the current model to reduce its current complexity and enhance its overall information content.

Carbon disclosure

The imperative to address climate change is a clear challenge for corporate reporting, but also provides a real opportunity to develop and embed more relevant reporting models.

Climate change is driving major changes in government policy and regulation. Carbon now has a price in many markets; public attitudes and consumer behaviors are changing. Whatever the outcome of the global climate negotiations, these changes are likely to result in major shifts in corporate value, with winners and losers in all sectors and geographies.

Investors understand this challenge, and the risks and opportunities that it presents, but need clearer, more relevant information to help them understand the implications for their portfolios; and at the same time management needs this information to help manage risk and drive value in an increasingly carbon-constrained world. CDP's mission is to rapidly advance the quality and quantity of such meaningful information. Results to date show good progress has been made, with innovations and improvements in many areas evidenced in this report. However the needs and expectations of investors are also evolving.

The growing importance of carbon markets presents a strong case for action. Mandatory schemes are in operation or are planned for major emitters in many of the world's largest economies, and the project-based and voluntary markets are growing rapidly. The effective operation of these markets depends on the credibility and quality of emissions reporting.

But trust in emissions reporting[11] is only part of the challenge. Investors and other stakeholders need broader information on how companies are facing up to the challenge of climate change, and for this to be effective, both as a catalyst for change and as a driver of value, this needs to be an integral part of the reporting model, not a bolt on.

Reporting challenges

Integration: Historically, companies have typically confined their analysis of environmental data to a standalone sustainability document. Targeted at a broad spectrum of readers (such as employees, NGOs, customers, and so on), this document rarely links performance in the management of environmental indicators, including carbon, to economic outcomes. As carbon pricing becomes a fact of life for many companies, pressure is growing for the integration of these reports into the primary corporate reporting channels.

11 See "Building Trust in Emissions Reporting", PricewaterhouseCoopers 2007

Wood for the Trees: Many commentators have suggested that the increased volume of data reported today has not necessarily been matched by a commensurate increase in the quality of understanding of the performance of companies. Given this, there is a fear that a "box ticking" approach to environmental data will cloud, rather than clarify, corporate reports. Management and investors need to engage in an open debate about materiality; what data is needed, and when?

Defining the entity: A related challenge concerns the definition of the reporting entity. In a world of complex supply chains, of relationships that go beyond legal control, where should a company "draw the line" as they count the cost of their carbon footprint? On this issue it is quite possible that the views of shareholders will differ from those of other stakeholders such as NGOs, and companies are likely to need to address both.

Consistency and comparability: Corporate reporters have struggled with issues such as what conversion factors to use, whether to report all greenhouse gases or just carbon dioxide emissions, how to achieve comparability between years, how to account for different (including "green") sources of electricity and energy supply, whether to include employee commuting, and the format of reporting generally.

Data quality: As carbon data is increasingly factored into the decision-making of investment professionals, questions may be raised about the quality of the information reported. Are the systems and controls for collecting and reporting the data as reliable as financial systems? What level of management oversight has there been and how have reporting issues been resolved? Has the board treated the information as important? Has it been independently assured?

Timeliness: Decision-useful information has a limited shelf life. To be of value to investment professionals, carbon data will need to be seen as sufficiently timely.

A new reporting model

Much has been achieved in the area of climate disclosure and carbon reporting since the launch of CDP in 2000. But more is also now expected of companies and the wider business community.

The four areas of disclosure addressed by the CDP questionnaire (Risks and Opportunities, Emissions Accounting, Performance and Strategy and Governance) provide much of the information that is required by investors and other stakeholders. The time has now come for this to be embedded within the mainstream of corporate reporting.

Greenhouse gas emissions reporting must be at the heart of corporate climate change reporting, and the WRI/WBCSD "GHG Protocol" is already the de-facto standard for much of the corporate reporting in this area. But more work is required on the application of the Protocol, particularly in industry sectors where there are special reporting challenges and in the area of lifecycle carbon emissions.

Consideration also needs to be given to the arrangements for developing, promulgating and enforcing standards. Robust and credible governance arrangements are likely to be essential.

The world has now recognized the urgency of the climate challenge. The business world is rising to the challenge, through innovation and investment. It is now time for companies to step up their reporting and disclosure so that it emulates that of financial performance.

"CDP is working with other leading business and environmental organizations through the Climate Disclosure Standards Board ("CDSB") to encourage reporting of climate change risks and opportunities, carbon footprints, and carbon reduction strategies and their implications for shareholder value in companies' Annual Reports."

Lois Guthrie
Technical Director, Carbon Disclosure Project

PricewaterhouseCoopers and representatives of all the other "Big Four" accounting and professional services firms are members of the CDSB Advisory Panel.

4

Geographical Perspectives

For the purposes of CDP6, we have split the Global 500 into four geographical regions by origin of the parent company: North America, Europe, Asia and the Rest of the World[12].

Classification of the Global 500 by regions and countries

On this basis, the composition of the companies in the Global 500 breaks down as follows: North America accounts for 41% (205); Europe 34% (168); Asia 20% (101) and Rest of World 5% (26).

However, in terms of CDP6 respondents from the Global 500; North America and Europe are a slightly higher proportion of the population at 44% and 37% respectively whereas Asia is significantly under-represented at 13%. Rest of World responses are broadly representative at 6%. This difference is illustrated in the charts opposite (Figures 12 and 13).

The variation in geographical composition between the Global 500 and CDP6 respondents is due to marked differences in response rates between the geographies. 88% of Rest of World companies provided submissions, followed by Europe and North America with 83% and 82% respectively. Of the Asian companies in the Global 500, only 50% provided a response.

12 'Rest of the World' covers Africa, South America and Australasia

Global overview

Analysis of the average CDLI score by geography is shown in figure 14 and highlights the fact that the Europeans achieved the highest average score with an overall average of 69 out of a possible 100, closely followed by the Rest of World with an average CDP score of 67 out of 100. The North American CDP population scored an average of 57 and Asia 53.

Some explanatory comments can be offered here. First, the European result may reflect the relative maturity the climate change issue has achieved in recent years in the region, particularly since pan-European regulation has been in place to regulate emissions since 2005. There has also been a significant increase in consumer interest and awareness around climate change in the last 18 months in particular. Second, the high average score for the Rest of World countries could be explained by the sectoral mix of respondents with a concentration of companies within the financial services (10 out of 23) and mining (5 out of 23) sectors which, in turn, have been relatively high scoring sectors in CDP6 overall.

Third, although awareness of climate change impacts may be high in Asia, the regulatory response to date has been fairly limited. Consequently, the need for companies to take action early is likely to be lower than in Europe and North America. Finally, the result for North America may reflect the current political uncertainty and anticipation of possibly greater regulation of emissions in the coming years. Companies may be adopting a wait-and-see strategy in this regard and be unwilling to invest significant time and resources into reporting on the climate change agenda at this stage. Clearly, many North American companies are taking action – as represented by their presence within the CDLI, but across the whole North American CDP population the performance is a little more mixed.

Fig. 12: Geographical composition of Global 500 and CDP6 populations

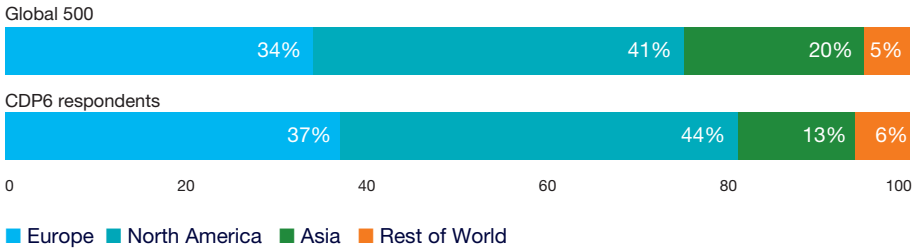


Fig. 13: Response rates by geography

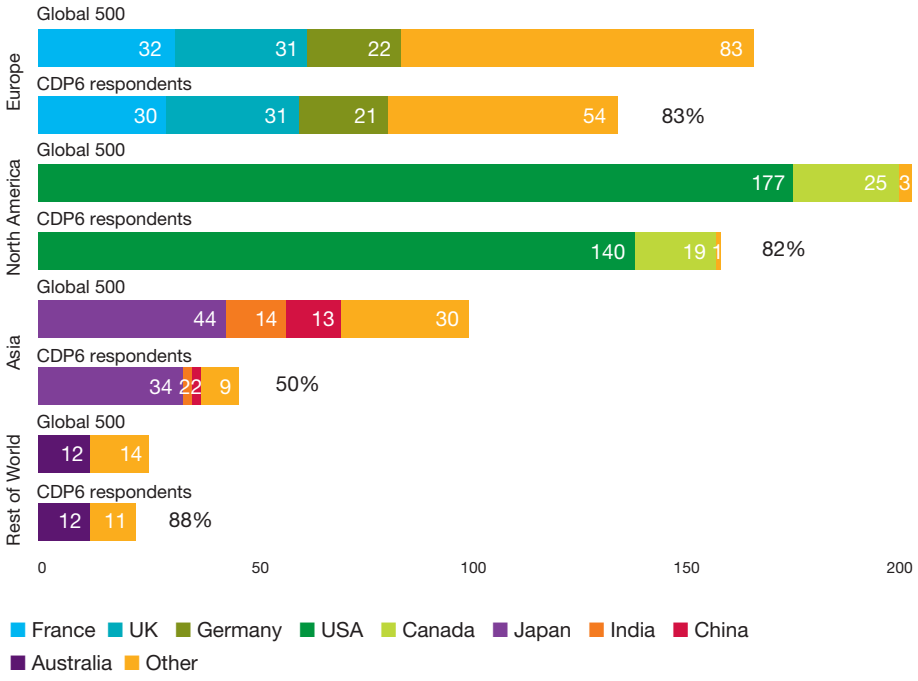
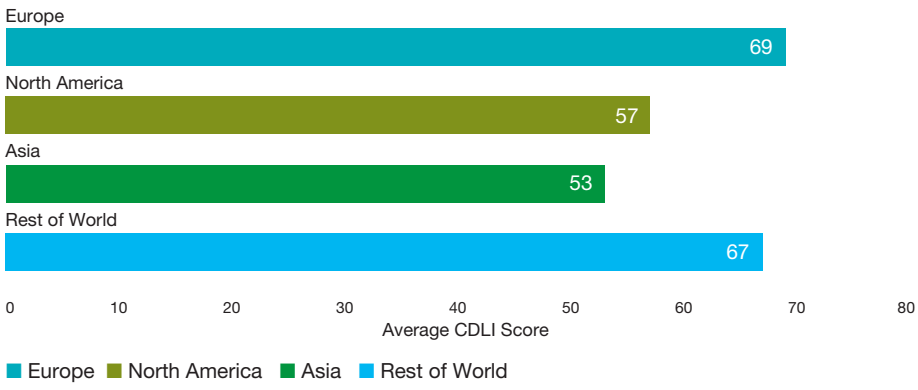


Fig. 14: Average score by geography



European and Rest of World respondents have performed above the average across all six disclosure steps.

In addition to average scores across the different geographies, it is also interesting to consider the range of scores. The chart below (figure 15) illustrates the percentage of respondents falling within a given score range. It suggests that the score profile of European responses is strong, with over 80% scoring in the top half, whereas the North American responses exhibit a broadly normal distribution, with a drop off in scores from 65 to 80. CDP6 respondents in Asia tended to cluster in the mid-range scores. It will be interesting to see whether these profiles converge over time and, if so, at what speed.

Disclosure by geographical region

The final analysis in this section is on whether any significant geographical variation exists around the pattern of disclosure activities. The working assumption here is that a logical sequence of steps, or journey, could be envisaged around carbon disclosure.

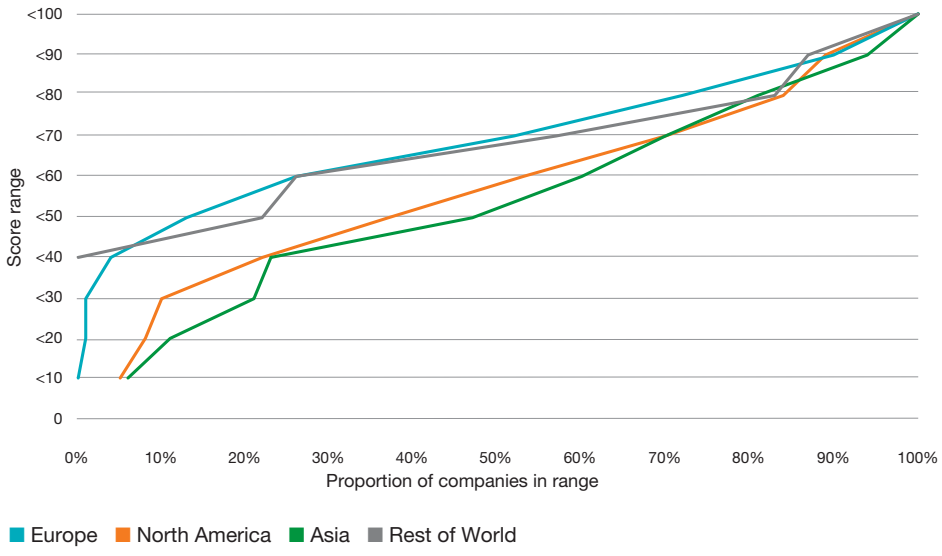
The early steps involve sending in a response to the CDP6 questionnaire, and providing basic disclosure of total carbon emissions within the business. Subsequent steps, also covered within the CDP questionnaire, refine this approach, breaking out emissions under the various Scopes as set out under the GHG Protocol and having these independently verified. The final stage involves harnessing this information to set carbon targets and forecast emissions as an input to effective business management.

The chart opposite (figure 16) shows the average disclosure performance against these six steps by geography. It contrasts the different geographies and shows the average result for the Global 500 overall. As can be seen, both European and Rest of World respondents have performed above the average across all six disclosure steps, and broadly in line with the average profile of reducing levels of disclosure against increasing levels of sophistication.

North American companies typically achieve average or above average performance in the first three steps, but perform less well in the stages of verification, target setting and forecasting. This may indicate that energy-intensive companies are comfortable in fulfilling local or federal regulatory requirements that ensure compliance – but are less clear on the strategic value that can be gained by managing and monitoring emissions more actively.

The level of disclosure for the Asian companies is significantly below the Global 500 average across almost all categories, with the exception of forecasting where the discrepancy is lower, due to the weak performance across the whole global population. As noted previously, the regulatory

Fig. 15: Cumulative score profile by geography

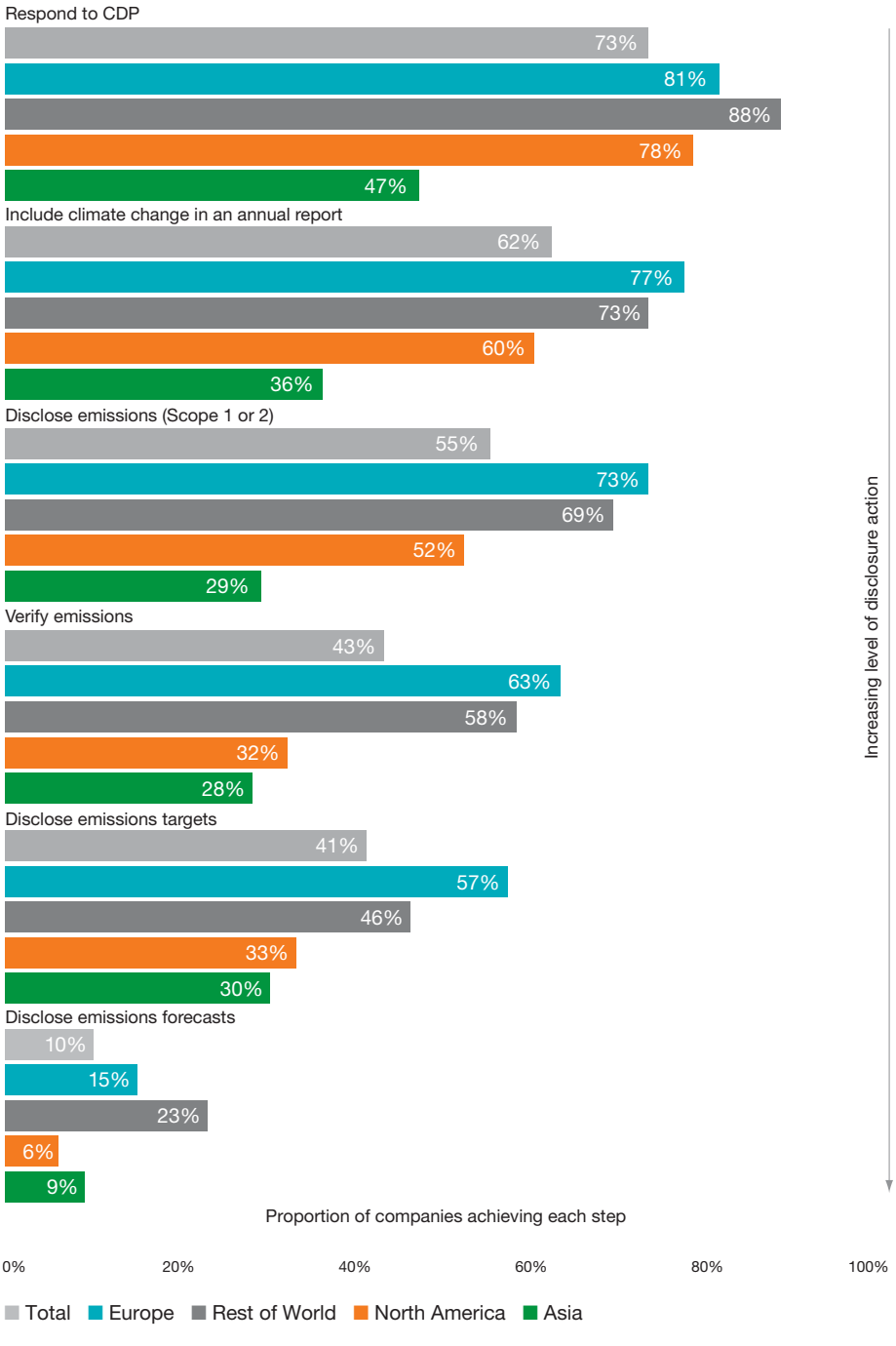


landscape across Asia is currently less developed and neither is public scrutiny around the climate change agenda so intense (compared to Europe and North America) and, when coupled with language barriers to responding, this goes a long way towards explaining the trend.

The bar chart to the right (figure 16) is the first of several 'waterfall' charts in this report showing the different stages of climate change disclosure that reporting companies should aim to undertake:

- **Respond to CDP** – Proportion completing questionnaire before the deadline;
- **Include climate change in an annual report** – Proportion that indicate to CDP that they publish information about the risks and opportunities presented to the company by climate change, details of GHG emissions and plans to reduce emissions in their Annual Report or voluntary communication such as a Corporate Responsibility Report;
- **Disclose emissions (Scope 1 or 2)** – Proportion that provide CDP with a value for their Scope 1 or Scope 2 emissions. Note that almost all companies that report one of these also report the other, so breaking them down is not useful;
- **Verify emissions** – Proportion answering to CDP that their emissions disclosures have been externally verified or audited or that they plan to have their information verified or audited;
- **Disclose emissions targets** – Proportion providing their emission reduction target and the period over which the target extends to CDP; and
- **Disclose emissions forecasts** – Proportion providing CDP with their forecasted Scope 1 or Scope 2 emissions.

Fig. 16: Levels of disclosure action across different geographies



"CDP extends its sincere thanks to all of our partners and sponsors around the world for their help in making the CDP process a global success."

Paul Dickinson
Chief Executive, Carbon Disclosure Project

Key Trends From CDP samples around the world

The sixth iteration of the Carbon Disclosure Project saw even greater coverage than in previous years, with information being requested from over 3,000 companies worldwide.

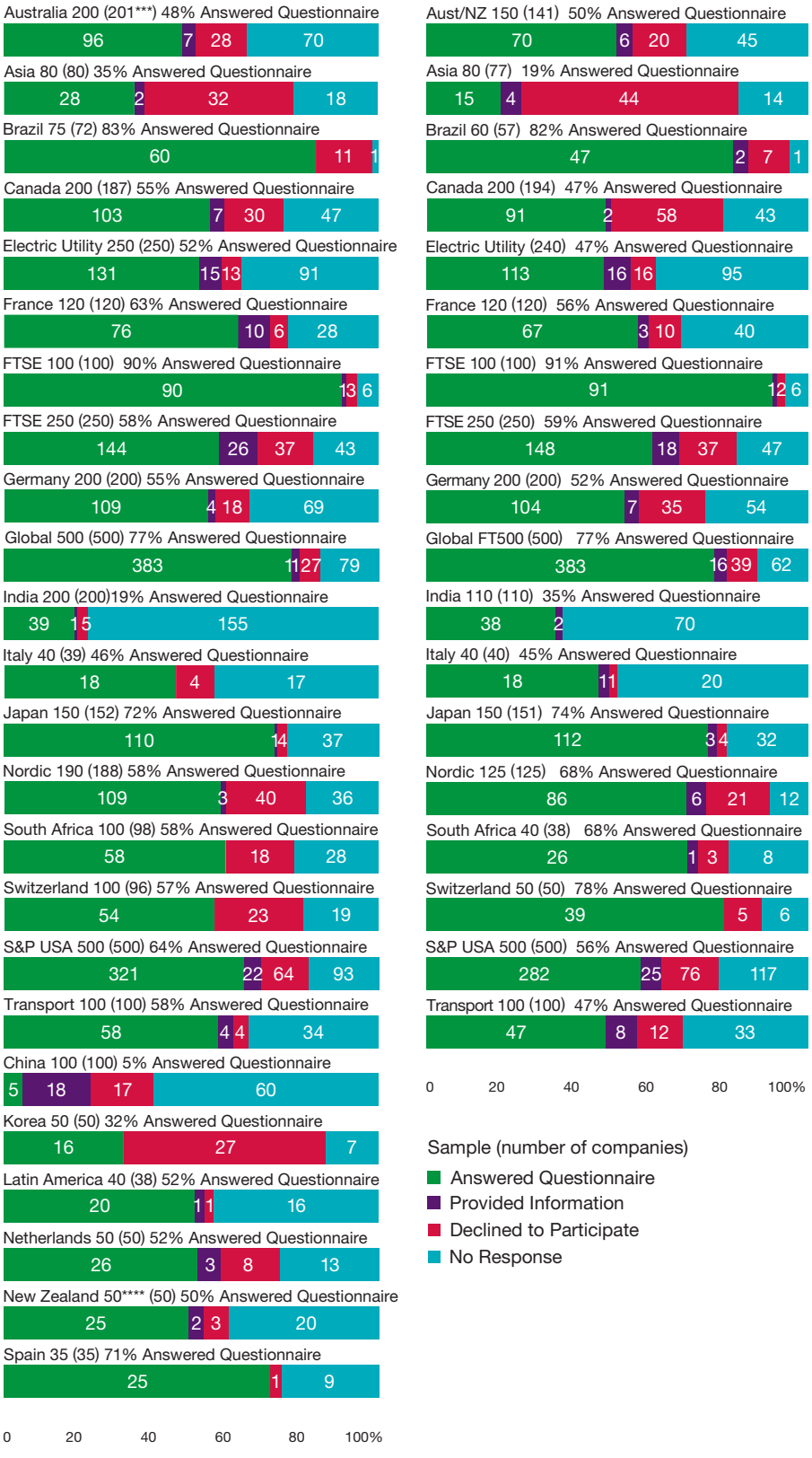
In 2008 CDP was expanded to cover 21 geographical samples (up from 16 in 2007) and 2 sector samples (Electric Utilities and Transport). New geographical expansions in 2008 include China, Korea, Latin America, the Netherlands, and Spain. The corporations' responses and reports analysing findings from these samples will be posted on the CDP website as they are launched worldwide. Please see www.cdproject.net for further details.

Response rates across the vast majority of samples are above 50% with an average rate of 55%; the highest being the FTSE 100 reporting a 90% (90 companies) response rate. The Brazil 75 came a close second with 83% (60) of companies answering the questionnaire compared to the Global 500 which saw 77% (383) of companies answer the questionnaire. Responses from S&P 500 companies improved significantly: up from 56% (282) in 2007 to 64% (321) this year. This increase sends a positive message from corporate America, signalling that companies are preparing for the inevitable carbon-constrained economy.

There has been an overall increase in response rates in ten of the samples compared to CDP5; Asia, Brazil, Canada, Electric Utility, France, Germany, Italy, New Zealand, S&P 500 and Transport. The Global 500, FTSE 100/250 and Japan 150 samples reported similar response rates to last year. India was also similar in terms of absolute responses but declined overall due to a doubling of the sample size. Four further samples reported an increase in the absolute numbers of responses but an overall percentage decrease because the sample size was expanded this year; Australia 200, Nordic 190, South Africa 100 and the Switzerland 100.

In some of the emerging economies where CDP has recently expanded such as Asia, China and India there are significant challenges caused by: lack of familiarity with CDP amongst companies new to the process, language and cultural barriers and a lack of regulation on climate change which all contribute to a lower response rates from these regions. CDP is working closely with its global partners to overcome these barriers.

Fig. 17: CDP6 Response by sample* CDP5 Response by sample**



* Response rates calculated at 31 July 2008; numbers may differ from local report that calculated response rates before or after this date.

** Response rate as published in CDP5 Report.

*** The first listing is the official sample name, the number in brackets is the actual number of companies that were included in CDP6 for that sample.

**** New Zealand is included as an individual sample for the first time, having previously been combined with Australia.

The increasing media focus on climate change and the regulatory and policy changes in many countries is increasing the pressure on corporations to consider what climate change means for their business. Compared to CDP5 there has been a sharp increase across nearly all samples in the percentage of companies addressing climate change at board level. Especially notable is the increase in board members taking responsibility for climate change. In the FTSE 100 this has risen from 53% (48) to 89% (80) of responding companies and in the FTSE 250 there has been an increase from 24% (35) to 84% (121). For meaningful corporate change to occur, it must come from the board room, and these trends imply that awareness is likely to lead to action.

While the increased focus on climate change can be attributed to a variety of factors, companies are increasingly commenting on the specific risks and opportunities driving new management plans. Both regulatory and physical risks factor heavily into corporate strategy, as can be seen in the key trends table. The Australia 200, Electric Utilities 250, FTSE 100, Japan 150 and Spain 35 expansions are particularly attuned to potential risks from climate change.

The results show a significant increase in the percentage of responding companies that have GHG emissions reductions plans. Especially notable are the Nordic 190 sample's increase: from 23% (19) to 62% (68) of responding companies who have reduction plans, and the FTSE 100's progress from 41% (37) to 81% (73) when compared to CDP5. While this increase in attention to climate change targets is a positive step, there is still a need for formal verification of emissions figures and reductions. This will become fundamental as further regulation comes into force and the price for carbon globalizes.

Given the significant increase in companies making reduction plans we anticipate that in the coming years there may be a subsequent uptake in companies verifying their emissions data.

While the China 100 sample answered questionnaire rate was lowest, it can still be interpreted positively. 2008 was the first time the China 100 was asked to respond to the CDP information request. A variety of factors, including language, cultural differences and a lack of historical requirements on Chinese companies to measure and report climate change information made the initial approach challenging. However the fact that 5% of Chinese companies answered the questionnaire and a further 18% provided information is a promising start and it is likely that the number of responses will grow in the future as CDP develops a presence in China.

CDP6 Global partner information*

Country/Expansion	Partner	Web Address
Asia ex-Japan	Association for Sustainable and Responsible Investment in Asia (ASrIA)	www.asria.org
Australia & New Zealand	Investor Group on Climate Change Australia/New Zealand (IGCC)	www.igcc.org.au
Brazil	Brazilian Association of Pension Funds (ABRAPP) & Banco Real	www.abrapp.org.br www.bancoreal.com.br
Brazil	Brazil Facilitation Team: Fabrica Ethica Brasil	www.fabricaethica.com.br
Canada	The Conference Board of Canada	www.conferenceboard.ca
China	China Facilitation Team: SynTao	www.syntao.com
France	AXA	www.axa.com
Germany	BVI Bundesverband Investment und Asset Management e.V. & WWF Germany	www.bvi.de www.wwf.de
India	WWF India	www.wwfindia.org
Korea	Korea Sustainability Investing Forum (KoSIF), Eco-Frontier & ASrIA	www.kosif.org www.ecofrontier.co.kr www.asria.org
Latin America	Brazilian Institute of Investor Relations (IBRI)	www.ibri.org.br
Latin America	Latin America Facilitation Team: Fabrica Ethica Brasil	www.fabricaethica.com.br
Netherlands	VROM (The Dutch Ministry of Housing, Spatial Planning and the Environment)	www.vrom.nl
Nordic	ATP, Folksam, KLP & Nutek (Swedish Agency for Economic and Regional Growth)	www.atp.dk www.folksam.se www.klp.no www.nutek.se
South Africa	National Business Initiative (NBI)	www.nbi.org.za
Spain	Ecodes	www.ecodes.org
Switzerland	Ethos/Pictet Asset Management	www.ethosfund.ch www.pictet.com

* All other samples are managed by CDP directly.

Key Trends

	Number of Responses Analyzed*	% of companies that see regulatory risks	% of companies that see physical risks	% of companies that see regulatory opportunities	% of companies that see physical opportunities
Asia 80	28	71	79	79	71
Australia 200	94	84	82	82	61
Brazil 75	47	49	77	83	57
Canada 200	90	70	63	78	58
China 100	3	33	33	33	33
Electric Utility 250	109	88	77	86	62
France 120	71	60	52	79	56
FTSE 100	88	81	76	80	65
FTSE 250	125	71	66	75	61
Germany 200	94	51	46	68	40
Global 500	384	74	74	80	62
India 200	27	33	70	82	52
Italy 40	17	71	77	82	65
Japan 150	104	90	82	79	64
Korea 50	15	67	93	100	60
Latin America 40	15	73	73	80	60
Netherlands 50	26	64	68	84	52
New Zealand 50	25	72	64	80	60
Nordic 190	109	72	61	81	57
S&P 500	318	60	64	70	50
South Africa 100	53	76	89	85	64
Spain 35	25	84	68	80	56
Switzerland 100	53	45	49	59	45
Transport 100	59	80	81	75	51

	% of responding companies that disclosed GHG emissions data	% of responding companies that had their GHG emissions data externally verified	% of responding companies that have a GHG emissions reduction plan	% of companies that have a Board Committee responsible for CC	% of companies engaged/considering participation in emissions trading**
Asia 80	57	36	54	68	18
Australia 200	78	39	49	73	17
Brazil 75	49	19	43	60	21
Canada 200	70	28	46	72	18
China 100	0	0	66	33	33
Electric Utility 250	70	57	60	75	46
France 120	75	56	75	69	42
FTSE 100	91	71	81	89	41
FTSE 250	65	35	50	84	14
Germany 200	51	3	50	68	33
Global 500	80	57	74	80	35
India 200	41	19	52	52	23
Italy 40	77	65	53	59	53
Japan 150	95	50	90	94	43
Korea 50	67	13	60	80	40
Latin America 40	73	33	47	73	53
Netherlands 50	84	68	64	76	36
New Zealand 50	60	40	48	56	8
Nordic 190	71	42	61	80	28
S&P 500	67	35	53	64	22
South Africa 100	79	30	45	81	21
Spain 35	96	80	76	84	40
Switzerland 100	64	34	53	68	17
Transport 100	71	46	70	85	24

* calculated on 31 July 2008, the number does not include those companies which refer to a parent or subsidiary company response

** based on their approaches to both EU ETS and other regional and optional emissions trading and offset schemes

The Road to Copenhagen

Much was made in the press of the irony of hundreds of government officials, business and NGO representatives converging on the delightful Pacific island of Bali for a major UN climate conference last December, despite the fact that the island was chosen to highlight the carbon impact of deforestation in the developing world. The objective of the meeting was to reach agreement on a new negotiating mandate for a successor treaty to the Kyoto Protocol which expires in 2012.

So what was actually achieved? In essence, the 'Bali roadmap' sets an agenda for negotiations with the aim of finalizing a new climate treaty at the 15th Meeting of the Conference of the Parties in Copenhagen in December 2009. The roadmap is a collection of initiatives and decisions around key areas such as climate change mitigation and adaptation, technology transfer and financing. Furthermore, the roadmap includes consideration of quantified targets by developed countries as well as mitigation actions by developing countries.

What's on the agenda?

Climate negotiations, like glaciers, tend to move slowly. The negotiations in the lead up to, and during the Copenhagen meeting are complicated by a twin track approach involving matters related to the UN Convention and the Kyoto Protocol . Significantly, the first group includes all developed and developing countries, while the second looks only at potential further commitments for developed countries that are signatories to the Protocol (i.e. not the U.S.). There is the assumption or hope that these two tracks will link by the time the negotiations reach Copenhagen.

The key issues being addressed can be summarized as follows:

Long-term and interim targets: a global, long-term target (such as for 2050) sets the overall level of ambition and needs to be driven by scientific consensus on expected carbon concentrations and their likely effects. Interim targets are important since they provide a path towards the overall goal and assist business in framing investment decisions. In both cases, there will be a need for agreement on the form of the target (e.g. percentage, absolute reduction) and the base year; 1990 tends to be the default but others are possible. The Bali agreement footnoted the IPCC report that states the level of reductions that are needed, which could be an indication of the targets to be agreed.

Measures for developed countries: industrialized nations will need to show leadership in taking on new, binding, carbon commitments. Under Kyoto and the EU ETS, countries have adopted individual targets which together form an aggregate level of emissions reduction (such as the 5% target under Kyoto or 8% under the EU ETS). In Bali, some developed countries proposed reductions in the range of 25-40% by 2020 (as indicated by the IPCC) as guidance for the level of ambition, but this in itself is a wide range. A crucial factor here will be the extent to which emission reductions need to be achieved "at home" as opposed to through the purchase of carbon credits from developing economies.

Measures for developing countries: effective participation of developing countries is crucial if real action on climate change is to occur. Whilst binding targets are not on the agenda, some form of agreed action plans supported by collaborative initiatives (financial and technology transfer) and access to global carbon markets are likely to emerge. There is recognition, however, that developing countries are not a homogenous group and debate is likely around the appropriate differentiation within the group – and when the transition occurs from "developing" to "developed".

Technology and finance for sustainable development: the role of technology is critical in achieving any carbon targets and there is a need for complementary policies and cooperation to support technology development and deployment. A sufficiently long horizon for the price of carbon should provide a stimulus, but the Copenhagen discussions will also consider the extent to which multilateral co-operation can be effective in transferring technology (especially in the areas of energy efficiency and cleaner power generation) to developing countries and how this should link with other areas such as foreign assistance programs and trade policy.

Sectoral approaches: to date, the international discussion around carbon targets has very much been focused on actions taken by sovereign states. Other variants are clearly possible, however, and one option that is receiving increased attention is international sector agreements, although this is considered controversial. Advocates argue that agreeing targets at a sector level would ensure comparability of effort between developed and developing countries and level the playing field for industries (such as steel, cement and others) that are exposed to high levels of global competition.

Role of forestry: the Bali roadmap included a decision to establish incentives to stop deforestation – which results in emissions roughly

13 For a fuller discussion, see http://www.iisd.ca/

equivalent to those from the global transportation sector. The exact form of this is still uncertain; for example, the role of forestry in the global carbon markets and whether avoided deforestation should be eligible for carbon credits. Alternatively, initiatives could take the form of capacity building in-country with funding programs to support reforestation and improved forest management.

Other climate initiatives

In response to the frustration of dealing with the complexity of the UN climate negotiations and the fact that all decisions have to be agreed by consensus (of over 190 countries), some countries have proposed other international initiatives on climate change. Some of these recognize the supremacy of the United Nations Framework Convention on Climate Change (UNFCC), others do not.

The Asia Pacific Partnership (APP) was formed shortly after the Bush administration outlined its concerns over the Kyoto Protocol. APP partners including Australia, Canada, China, India, Japan, Republic of Korea, and the United States have agreed to work together, and with private sector partners, to meet goals for energy security, national air pollution reduction, and climate change in ways that promote sustainable economic growth and poverty reduction.

The G8 has also taken steps to fast track the climate change negotiations by engaging directly with key developing nations. At Gleneagles in 2005 the G8 agreed a Dialogue on Climate Change, Clean Energy and Sustainable Development; more recently, at Hokkaido in July 2008, the G8 stated the ambition of halving carbon emissions by 2050. A range of specific actions are listed from improving efficiency of household appliances to reducing associated gas flaring. A wider group, known as the G20, made up of G8 countries plus some developing countries, meets periodically to discuss progress towards the Gleneagles Plan of Action.

The Copenhagen Protocol?

The Bali roadmap does not specify explicitly what the emissions targets should be or who will take them on – those discussions will probably take place in the last days of COP-15 in Copenhagen. A new protocol could include emissions targets for developed countries and specific actions by some developing countries, sector-based approaches or goals, incentives to reduce deforestation and the framework for market mechanisms to support these goals.

It is often stated at UN climate negotiations that “nothing is agreed, until everything is agreed”, i.e. it is not possible to conclude negotiations on one issue ahead of the others. Agreement on targets, technology transfer, adaptation, forests and financial mechanisms are all tied together. Given that momentum at these meetings ebbs and flows, we are unlikely to see significant progress (e.g. a negotiating text) by the end of the next climate summit at COP-14 in Poznan, Poland, in December this year. It won’t be until the closing days of the Summit in Copenhagen in 2009 where the nature and ambition of the next global climate treaty will be realized.

A new protocol could include emissions targets for developed countries and specific actions by some developing countries, sector-based approaches or goals, incentives to reduce deforestation and the framework for market mechanisms to support these goals.

5

Industry Perspectives

This section breaks down the respondent population to industry level to compare and contrast how each sector performs in the various aspects of carbon disclosure.

Classification of the Global 500 by Industry

The split between carbon-intensive and non-carbon-intensive industries in CDP6 respondents is close to that seen in the Global 500, with response rates comparable for companies irrespective of their emissions. However, there are some differences on an industry-by-industry basis. In particular, Hospitality, Leisure & Business Services and Financial Services companies show relatively poor response rates, whereas response rates for Utilities are particularly strong.

Industry sectors overview

The population has been categorized into 11 sectors depending primarily on the nature of their business.

Seven of the 11 sectors are carbon-intensive sectors:

- Oil & Gas;
- Utilities;
- Manufacturing;
- Construction & Building Products;
- Raw Materials, Mining, Paper & Packaging;
- Transport & Logistics;
- Chemicals & Pharmaceuticals.

The other four of the 11 are non-carbon-intensive sectors:

- Financial Services;
- Retail & Consumer;
- Hospitality, Leisure & Business Services;
- Technology, Media & Telecommunications.

Our analysis will be performed at three levels:

- Intensive versus non-intensive;
- The industry sectors within the intensive/non-intensive groups against the other sectors in the same group; and
- How companies vary within the same industry sector.

Disclosure performance

In absolute terms, carbon-intensive sectors performed slightly better in most aspects of disclosure than non carbon-intensive sectors (figure 19). Non-carbon-intensive sectors were slightly better at identifying risks and opportunities and at reporting Scope 3 emissions; equally good at reporting energy usage and at forecasting emissions; and worse or significantly worse at all other aspects of disclosure.

This is unsurprising. In some areas, such as emissions trading, non-carbon-intensive sectors simply do not have significant direct experience of the issue. In many others, the format of CDP's questionnaire has had an impact on responses: carbon-intensive companies were asked to answer all questions, while non-carbon-intensive companies were told that some questions were optional. However, it is likely that, in the areas of emissions reporting and performance, there is a more meaningful distinction in comparative performance.

Fig. 18: Level of response by industry

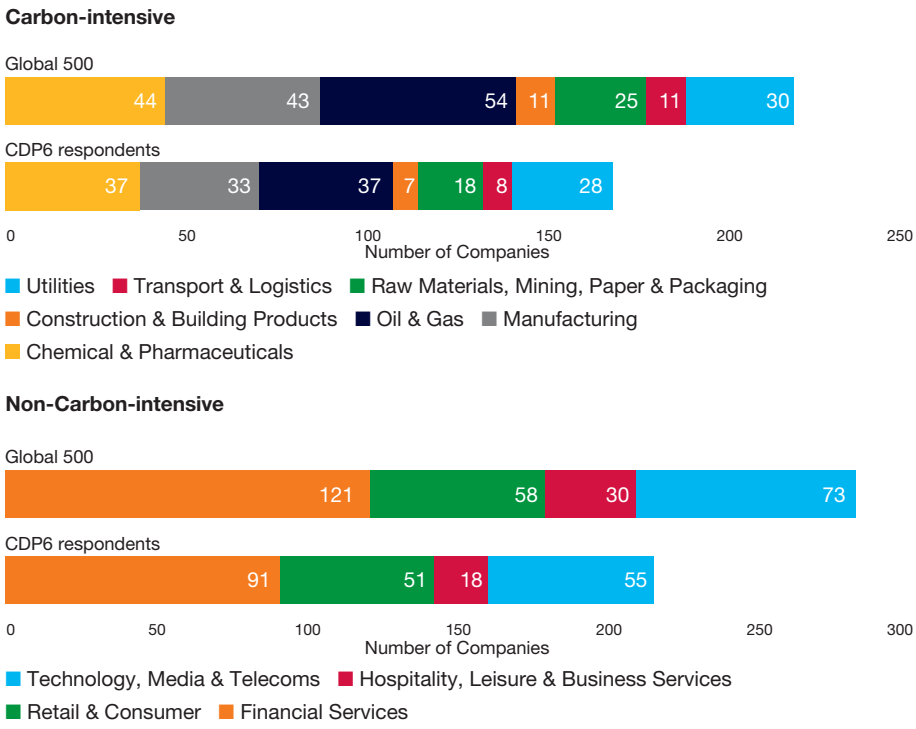
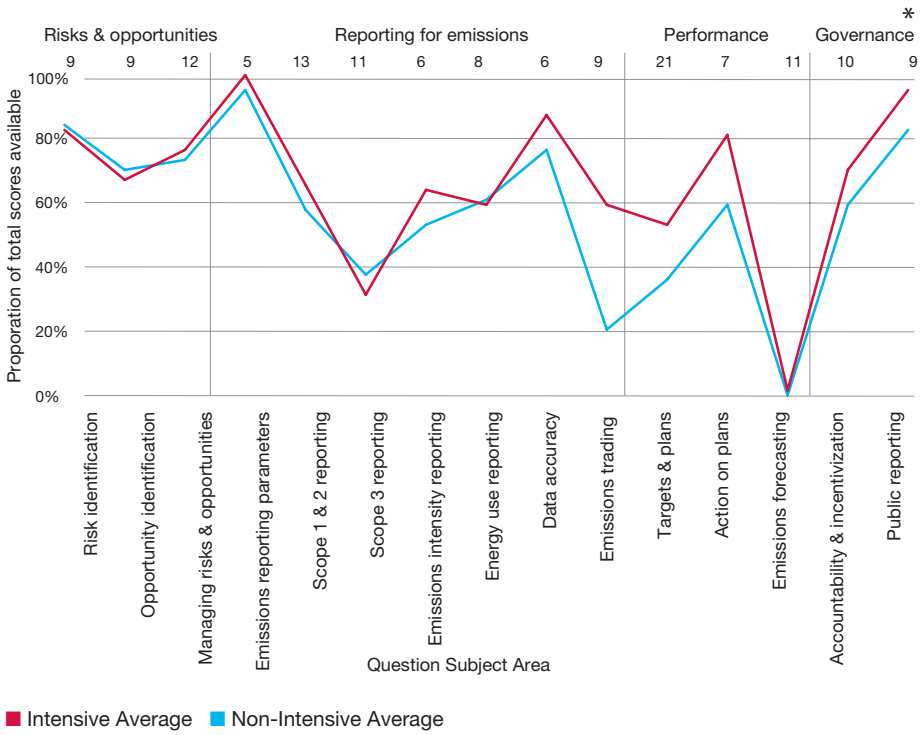


Fig. 19: Score breakdown: carbon-intensive versus non-carbon-intensive sectors



*Total unweighted score available by subject area.
This footnote applies to all graphs of this type throughout the report.

Among carbon-intensive companies...the majority of companies scored 40-70 points, with Construction companies peaking in the 50-59 range and Utilities peaking in the 60-69 range.

Because of the different approaches to the questionnaire between carbon-intensive and non-intensive companies, we have applied different scoring criteria to the two industry groups (see Appendix 2). Hence, when looking at performance scores in more depth, it makes sense to consider the two groups separately. This ensures that their levels of disclosure are being assessed on a like-for-like basis.

Score profile by industry

Among carbon-intensive companies, there was a wide range of scoring and significant variance across industries. Very few companies scored below 30 points or over 80. The majority of companies scored 40-70 points, with most Construction companies scoring in the 50-59 range and most Utilities scoring in the 60-69 range. Transport & Logistics was the poorest-performing sector.

For non-carbon-intensive companies, responses showed a far greater variance with fewer obvious peaks, although responses were skewed towards the higher end of the scale. This reflects the fact that some companies offered equally full disclosure to that provided by high-intensity companies, while others appeared to have a limited understanding of carbon disclosure requirements.

Performance by average emissions

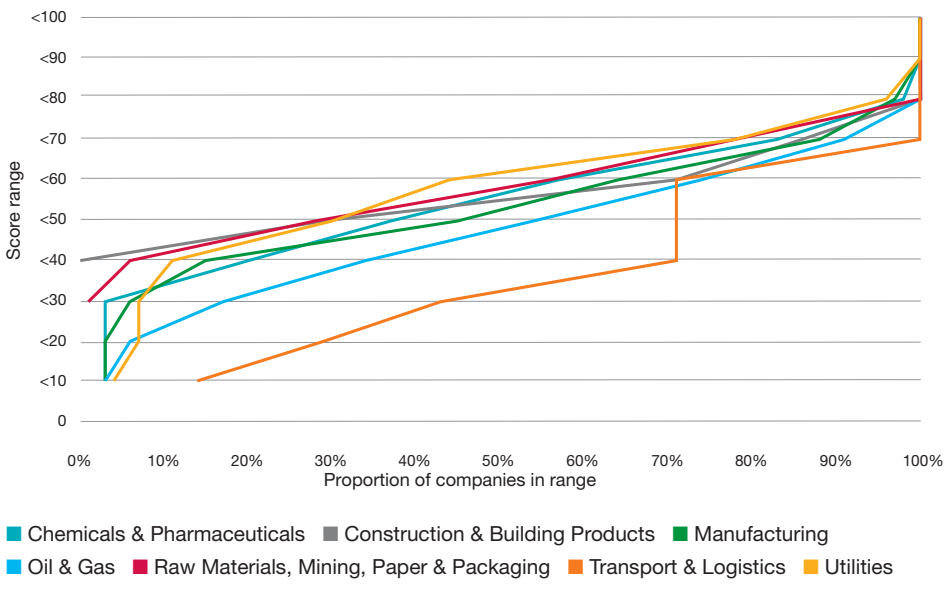
Going beyond the intensive/non-intensive split, there is surprisingly little correlation between disclosed average emissions and average score within the intensive sector (figure 22), which is a link that might be expected given the strong pressure from regulators and stakeholders for high-intensity companies to report on carbon issues.

In particular, Manufacturing performed reasonably well despite its relatively low emissions (although note that these do not include the Scope 3 emissions such as the use of manufactured products e.g. cars), while Oil and Gas performed less well despite having high absolute emissions.

The two highest-emission sectors – Utilities and Construction – did also score the highest overall scores within intensive industries, suggesting that there may be some correlation at the top end. For Utilities, this is explained primarily by high levels of regulation and consequent stakeholder engagement.

However, it is worth noting that this data covers only 61% of carbon-intensive companies in the Global 500 (the remainder either did not respond to CDP, or did not disclose emissions).

Fig. 20: Score profile by industry – carbon-intensive



Within non-intensive sectors, the correlation between disclosed emissions and average score is even less significant (although it is worth noting the relatively small difference in average scores across sectors). Retail & Consumer was the lowest scoring sector, but reported the highest average emissions. The Financial Services and Hospitality, Leisure & Business Services sectors reported strong scores despite low and moderate Scope 1 and Scope 2 emissions.

However, it is worth bearing in mind that Scope 3 emissions have not been considered due to their inconsistent reporting, and these can be expected to be higher as a proportion of total emissions for a service industry like banks or insurers than an industry that partly involves product manufacturing such as consumer products or IT hardware. It is also worth noting that this emissions data covers only 54% of non-intensive companies in the Global 500 (the remainder either did not respond to CDP, or did not report emissions).

Fig. 21: Score profile by industry – non-carbon-intensive

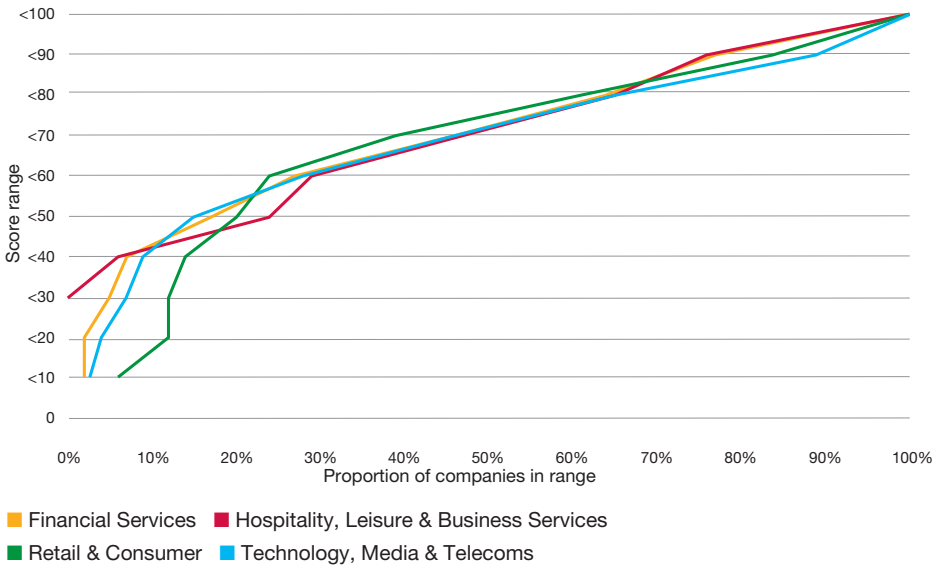


Fig. 22: Average disclosed emissions and average score by sector – carbon-intensive-sectors

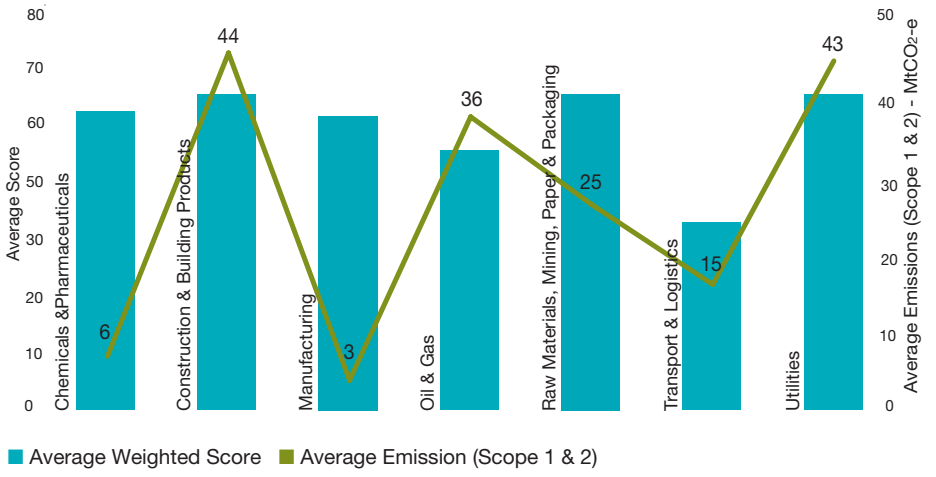
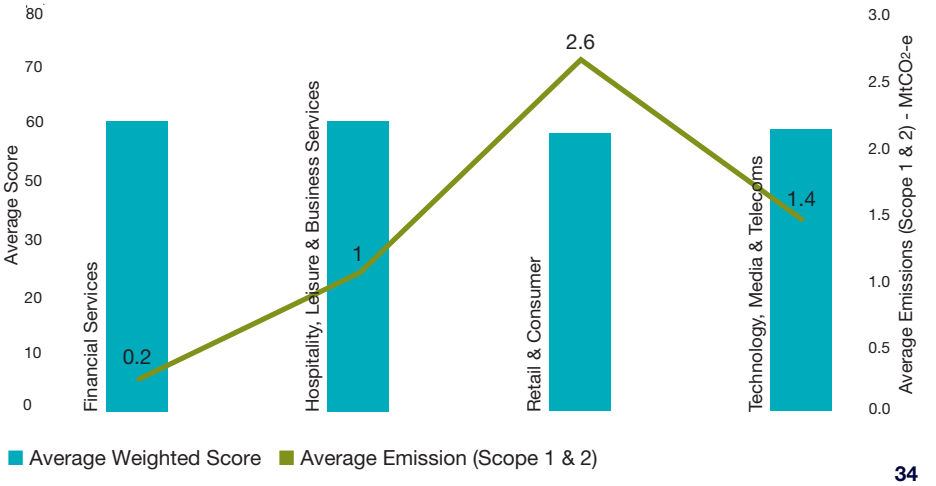


Fig. 23: Average disclosed emissions and average score by sector – non-carbon-intensive sectors



The total emissions of the Utilities (1,164 million metric tons CO_2-e) and Oil and Gas companies (762 million metric tons CO_2-e) that responded to CDP6 exceeded those of respondents from all other industries put together.

Industry emission profiles

It is reasonable to add Scope 1 and Scope 2 emissions together when looking at a particular sector, since they are generally substitutable (e.g. the use of electric or gas heating) and double-counting would only take place if adding together data for multiple sectors (e.g. Metals and Utilities).

Looking at total reported emissions by sector highlights the large contribution made by Utilities and by Oil and Gas companies to total GHG output. The total emissions of the Utilities (1,164 million metric tons CO_2-e) and Oil & Gas companies (762 million metric tons CO_2-e) that responded to CDP6 exceeded those of respondents from all other industries put together.

Although Construction is a highly energy-intensive sector, there are fewer construction companies in the Global 500 than there are oil and gas companies or utilities, hence its smaller total output (358 million metric tons CO_2-e).

In terms of ratios between Scope 1 and Scope 2, it appears from the graph (figure 25) that the more energy intensive a sector, the higher its proportion of Scope 1 emissions.

For Utilities and Transport and Logistics companies, Scope 2 emissions are negligible compared with Scope 1, whereas for all four non-intensive sectors, Scope 2 makes up the majority of emissions.

This suggests that a rise in the proportion of renewable electricity supplied to the grid would serve to improve the Scope 2 and hence total emissions of low-intensity companies significantly, even in the absence of efficiency programs implemented by the companies themselves.

Due to the way emissions are reported and the wide variation in methodologies used by companies to identify Scope 3 accounting, no meaningful trends can be identified from the emissions disclosed – it is not possible on a macro level to differentiate between industries with higher-than-average levels of Scope 3 emissions and industries with higher-than-average levels of Scope 3 reporting.

Fig. 24: Disclosed Scope 1 & 2 emissions by sector

Fig. 25: Proportion of disclosed Scope 1 & 2 emissions share by sector

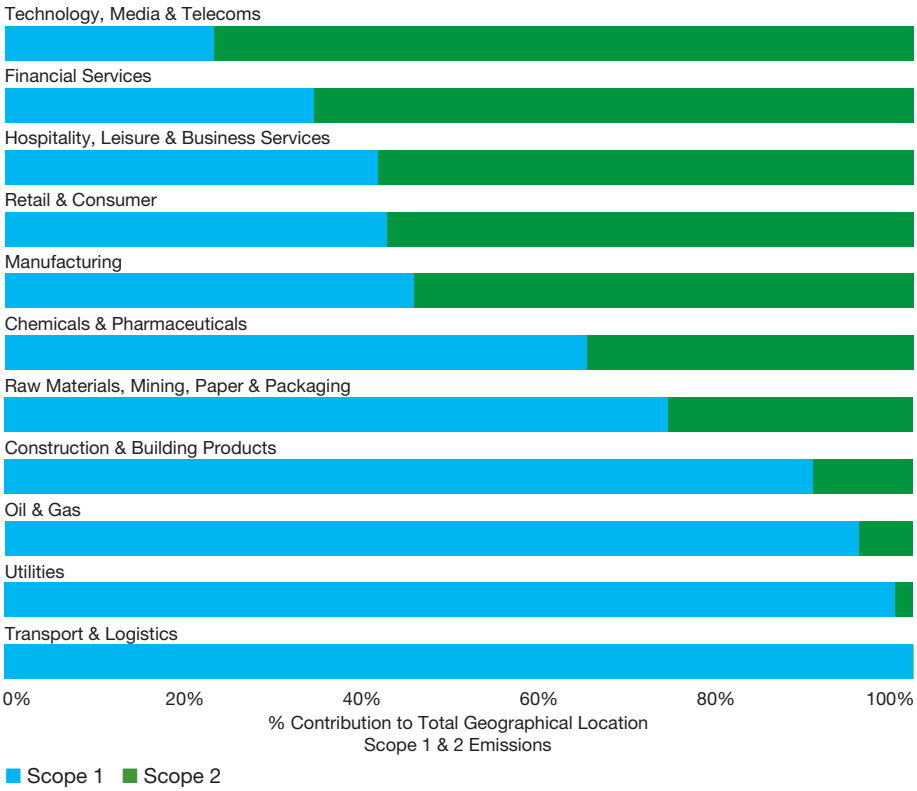
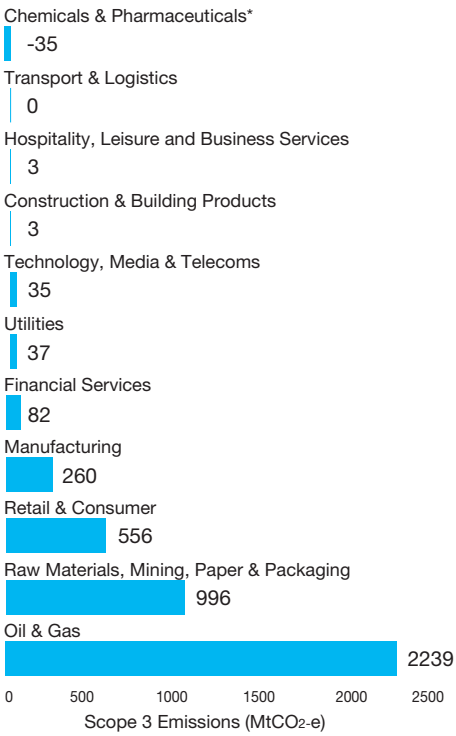


Fig. 26: Disclosed Scope 3 emissions by sector



Footnote

* Below zero as Bayer reported negative emissions from product usage – see Bayer reponse for more details

When viewed on a basis of emissions per US$ of revenue (figure 27 – based on emissions and revenue figures disclosed to CDP only), the picture changes slightly. Utilities and Construction have by far the highest emissions intensity on average for this metric, highlighting the direct impact that these companies' business models have on emission levels.

Companies in other sectors with high emissions, such as Oil and Gas and Metals and Mining, have significantly lower emissions per US$ of revenue than Utilities. The materiality of Scope 1 and Scope 2 CO_2 emissions in the business, therefore, varies significantly.

For low-carbon industries (figure 28), the picture does not change significantly when looking at emissions as a proportion of revenue rather than on a per-company basis.

Fig. 27: Average disclosed emissions intensity by industry – carbon-intensive

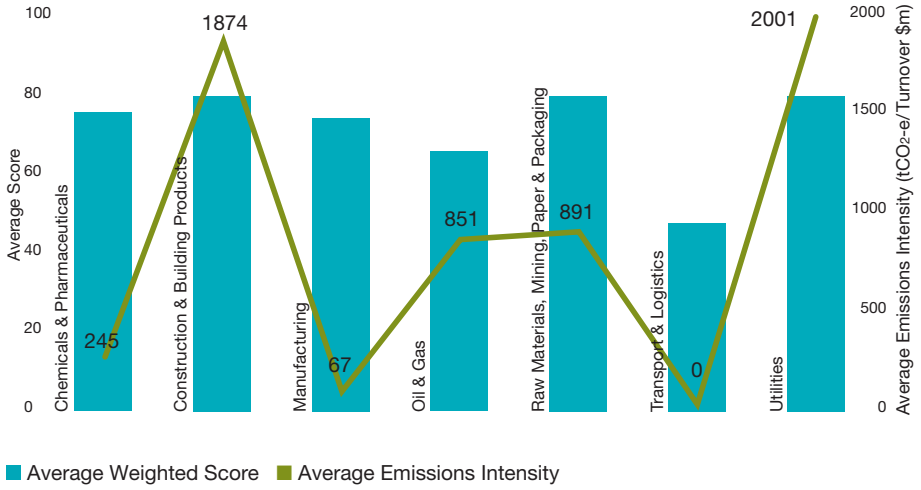
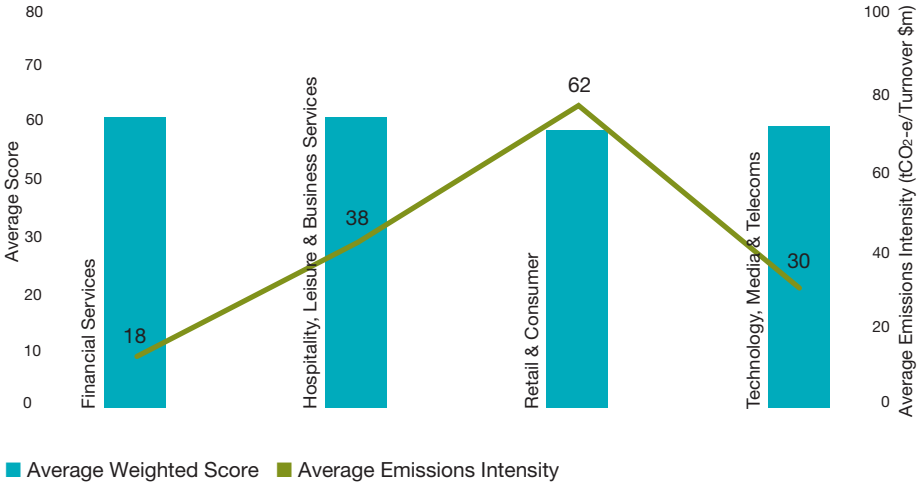


Fig. 28: Average disclosed emissions intensity by industry – non-carbon-intensive



Renewable Energy and Energy Efficiency

Support for the development of renewable energy continued over the past 12 months. This is reflected in changes in the policy regime in both Europe and North America and the activities on the ground being undertaken by CDP6 respondents. Renewable energy is still very much underpinned by Government support programs and it is expected that commitments will continue over the medium term. Within Europe, greater diversification into renewable energy is seen as an important component of energy policy and wider security of supply strategy.

Energy efficiency, often overlooked for more glamorous initiatives, has also received considerable attention over the last year. Efficiency measures have been primarily driven by rising commodity prices; and, whilst the huge surge in oil prices has perhaps been the most visible, prices for a whole range of commodities have strengthened since CDP5. However, for some companies, short term impacts do not seem to be the primary driver since they have (or are planning) significant campaigns to look at the energy and carbon content of products.

"Dow exceeded its aggressive 2005 goals to reduce overall energy intensity by 22 percent from 1995 to 2005. Over a 12-year period, Dow saved more than $7 billion and conserved over 1,400 trillion BTUs and mitigated approximately 70 million metric tons of CO_2 equivalent greenhouse gas."
Dow Chemical

There has also been more research and analysis to confirm what many had suspected all along, namely that energy efficiency is one of the most cost-effective abatement options to meet long term emission reduction commitments, with notably lower risks than many of the advanced technologies currently under discussion.

Trends in renewable energy and energy efficiency among Global 500 respondents

As might be expected, companies within the Utilities sector, many of whom are heavy emitters, have an incentive to both purchase and produce renewable energy. This is the case particularly in Europe, where the European Commission released proposals in 2007 that would bind the EU to a 20% contribution of renewable electricity by 2020 and utilities in many Member States already have a mandatory requirement to procure a certain percentage of their energy supply from renewable sources.[14]

"Our fleet of gas fired power stations and renewable assets means that the electricity we supply to our UK customers has the lowest carbon intensity of all major suppliers."
Centrica

"RWE has changed its investment policy and has allocated an annual budget of at least €1,000 million for renewable energy."
RWE

"Our new strategic plan 2008-2010 is focused on the increase of renewable energy through €8,600 m of investment."
Iberdrola

Looking at other respondents, out of those who disclosed their percentage of renewable electricity purchased, the average proportion was 8% of total consumption for intensive companies and 12% for non-intensive companies, although there was significant variation between industries.

Within non-carbon-intensive industries, Financial Services were the sector that highlighted the most significant interest in renewables; indeed, it was the only non-carbon-intensive industry where renewables consumption was above average, with 20% of respondents' energy consumption accounted for by renewables.

"From 1 October 2007 all contracted electricity for our properties in the UK and Ireland has come from renewable sources"
Royal Bank of Scotland Group

In addition to purchasing renewable energy for their own operations many financial services companies demonstrated considerable interest and serious investment in renewable energy.

"RBS has a specialist renewables team, who are actively engaged with governments and other key stakeholders to ensure that this sector makes the necessary contribution to the long-term transition to sustainable energy sources. Renewables make up a sizeable proportion of our energy portfolio. RBS funds a wide number of projects, from large European windfarms to micro-hydro renewable schemes. In 2007 alone, RBS arranged c. US$1.5 billion worth of renewable energy transactions."
Royal Bank of Scotland Group

"The F&C Global Climate Opportunities Fund…invests in companies providing climate change solutions along nine investment themes. The fund seeks out companies that have the technologies and strategies to reduce greenhouse gas emissions (mitigation), and to help society deal with the impacts of changing climate (adaptation). The themes include Alternative Energy, Energy Efficiency, Sustainable Mobility, Waste, Advanced Materials, Adaptation, Water, and Supporting Services."
F&C Asset Management

14 See EU Renewable Energy Roadmap, available at: http://europa.eu/scadplus/leg/en/lvb/l27065.htm

Chemicals & Pharmaceuticals and Construction were the only sectors with more than 10% of renewable electricity purchased; in the latter case this may reflect the relatively low importance of electricity to total energy use (and hence a lower cost impact from shifting to renewable electricity sources). Perhaps surprisingly, given their strong response rates and relatively high disclosure scores overall, Retail and Consumer companies showed low figures for the purchase of renewable energy, averaging 6% of electricity consumption.

Across all industries, when comparing the proportion of renewables against total reported electricity consumption, there was almost no correlation observable.

Trends in renewable energy policy and markets

Global installed renewable energy generation capacity grew strongly in 2007 with wind reaching 94GW in 2007 an increase of 26.5% on the previous year; solar photovoltaic (PV) grew 36% year-on-year and stood at 5.69GW[15]. Despite these impressive growth rates, overall production of electricity from solar, geothermal and wind still accounts for less than 2% of total electricity production for OECD countries[16]. In general, forecasts of future growth in these technologies predict a lower rate of increase over the next five years reflecting market maturity and supply chain constraints (as discussed below).

Figure 29 illustrates the geographical penetration of the main technologies and shows Europe dominating in wind energy but other regions growing quickly, albeit from a low base. The PV market is split more equally across the regions of the world, reflecting the fact that Germany, Japan and the US continue to develop expertise in various parts of the value chain. Geothermal electricity production grew more slowly at only 1.5% from 2006-07.

The policy environment for renewable energy remains positive. In the US, a further four states established Renewable Portfolio Standards (RPS) in 2007, meaning that over 25 states now have a mandatory RPS[17]. The levels of ambition set out in the RPS vary significantly by state; a 20% contribution of electricity generation by 2015 to 2020 is typical, but there is wide variation between states, for example Maryland has committed to 9.5% by 2022, whereas Maine plans 40% by 2017.

The EU confirmed its long term targets for renewable energy production, committing to 20% production of renewable energy by 2020, with these targets being adapted for different member states. It is hoped that some form of tradable quota system for these renewable energy obligations will also emerge, so as to bring forward the strongest projects at the lowest economic cost.

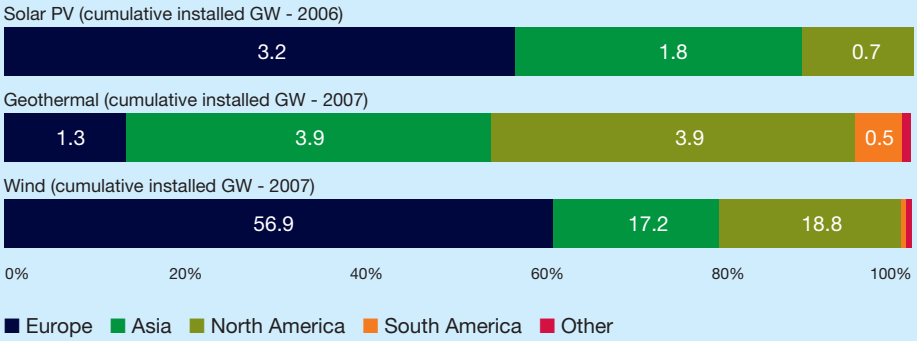
Whilst the demand framework is relatively firm, the supply side for renewable energy is more challenging, at least in the near term. The commodities boom has impacted on supply chain costs for most of the key technologies and there is insufficient production capacity in a number of areas. For example, in wind energy, availability of key components in the supply chain, most notably forged parts, bearings and gearboxes is becoming problematic. As a result most turbine manufacturers have full order books and delivery dates for new machines of 2011 are not untypical.

Solar photovoltaic technology has also been restrained by global limitations in silicon production. PV cells remain an option primarily for micro-scale production of electricity. Concentrated solar power has received significant investment in the last 12 months, with new plants announced in the US and Spain. This technology offers the potential to store power overnight, and does not face the silicon constraints of photovoltaic technology.

Developments in energy efficiency

The primary driver for increased energy efficiency over the last year has been the increases in primary fuel and electricity costs. But rising energy costs have not been the only drivers of interest in this area. Studies that analyze the net economic cost of emission abatement options have shown the net positive economic impact of energy efficiency measures.

Fig. 29: Installed capacity for selected renewable technologies by region



15 BP Statistical Review of World Energy (2008).

16 IEA Monthly Electricity Statistics (April 2008). Available from http://www.iea.org/Textbase/publications/index.asp

17 See Wiser, R., and Barbose, G (2008). Renewable Portfolio Standards in the United States: A Status Report with Data Through 2007. Lawrence Berkeley National Laboratory.

At the recent G8 summit in Hokkaido, the International Energy Agency (IEA) presented a range of findings around alternative scenarios and strategies for a "clean, clever, competitive energy future." Policy recommendations for promoting energy efficiency were identified that could reduce global CO_2 emissions by 8.2 gigatonnes – or 20% – per year by 2030[18].

The CDP responses demonstrate that an increasing number of companies are quantifying (financially or physically) the savings from energy management plans or energy efficiency initiatives. Others indicated that there was a clear intent to look at this issue – both due to the desire to cut carbon emissions cost-effectively and to directly improve cost performance in an era of high energy prices. Examples include:

"Wal-Mart has taken steps to reduce energy use and is committed to continue making significant progress. Specifically: Wal-Mart uses one of the most efficient lighting systems in the world for its U.S. stores; and Wal-Mart is making significant progress toward our fleet efficiency goal…by constantly improving everything from tires to trailer aerodynamic."
Wal-Mart Stores

"We have seen the key performance metric of MWh energy used per $million sales value generated fall from 133 to 81 from 2001 to 2007. At today's energy prices, this equates to revenue savings of $97 million in 2007 alone."
AstraZeneca

"Our key aim is to reduce BHP Billiton's own energy use…This has the dual result of reducing our exposure to energy price risks as well as our emissions trading cost exposures."
BHP Billiton

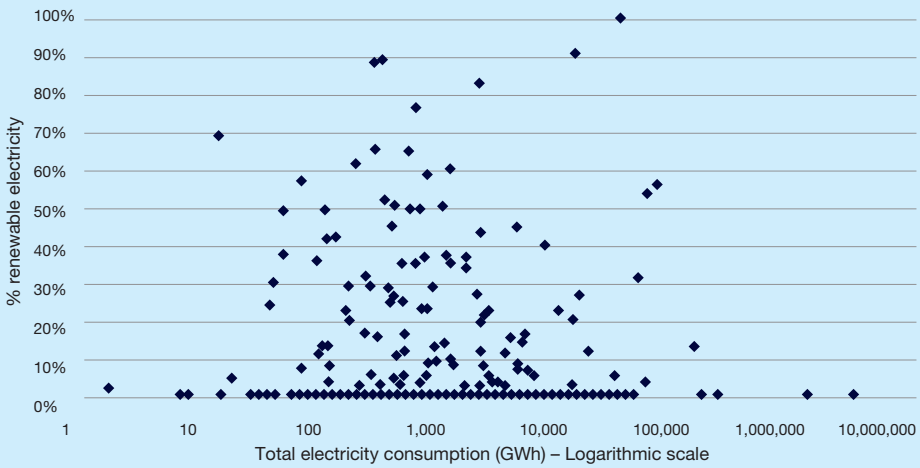
In the UK, the CBI produced a report showing substantial contributions to emission reductions could be made from the introduction of higher building and vehicle efficiency measures, many of which could be implemented with a net economic benefit[19]. However, the report also made clear that further substantial improvement in energy efficiency would be required to meet the 2030 targets. Examples include reducing electrical product power consumption by 30% and average car emissions by 40%.

Concern about climate change and energy security has prompted policy reviews with respect to energy efficiency standards in buildings, transport, and electrical products in Europe, North America and some emerging markets. For example, in late 2007, the US government agreed the first change in Corporate Average Fuel Economy (CAFE) standards in 30 years, requiring average fleet efficiency to reach 35 miles-per-gallon by 2020. In Europe, Member States completed the introduction of the Energy Performance of Buildings Directive, requiring those selling or renting buildings to include certificates on the energy performance of the building.

During the past year there have been governmental efforts to improve lighting energy efficiency through the phasing out of incandescent lamps and introducing efficient lighting technologies such as compact fluorescents and Light Emitting Diodes (LEDs). Incandescent light bulbs will be phased out in Australia, Canada and the Philippines by 2010 and in the United States by 2014.

Traditionally energy efficiency is improving at a rate of 1 percent per year. There have been strong improvements in industrial energy efficiency while energy efficiency efforts in buildings, appliances and transport still need significant improvement in order to decouple energy use from GDP[20].

Fig. 30: Renewable electricity consumption as a proportion of total electricity consumption of CDP respondents



18 See: http://www.iea.org/g8/2008/G8_IEAwork_2008.pdf

19 See: http://www.cbi.org.uk/pdf/climatereport2007full.pdf

20 REEEP Global Status Report on Energy Efficiency 2008 copyright REEEP.

Levels of understanding and disclosure vary between companies

Nearly all CDP6 respondents demonstrated a basic level of understanding around climate change risks and opportunities and the main issues around disclosure. However, it is clear that the degree of sophistication and pro-activity varies, with some companies considering short-term, direct risks to their business, whereas others have considered much wider implications over the longer term and are beginning to factor indirect impacts (product value chains) into their decision-making.

	Response indicating an understanding of climate change issues
Hospitality, Leisure & Business Services	*"[Physical Risk] is not measured. Increases in severe weather can disrupt staffing for call service operations for customer call centers."* **UnitedHealth Group Inc**
Financial services	*"Wells Fargo has not to date engaged with policymakers on climate change legislation. As a matter of corporate policy, Wells Fargo only engages with policymakers as it relates to matters that have a direct impact on our business"* **Wells Fargo**
Manufacturing	*"We do not have processes which cause scope 3 emissions. There are marginal emissions of NOx emitted by our trucks…they are not caused by the production process but by product usage and must be attributed to our customers."* **MAN AG**
Oil & Gas	*"Reducing emissions are closely linked to overall process design and development and we do not do separate accounting for CO_2 emission reduction activities."* **StatoilHydro**
Materials, Metals, Paper & Packaging	*"We have not evaluated the potential opportunities that may arise from current or anticipated physical changes resulting from climate change…"* **Freeport-McMoran**
Retail & Consumer	*"We do not consider our company to be exposed to general risks from climate change because...we think that there would be no direct significant risk"* **Nintendo**
Technology, Media & Telecoms	*"We do not consider our company to be exposed to general risks from climate change because…this is not an issue for Telecom operators in general"* **KPN**
Transport & Logistics	*"To date, any opportunities that may have arisen as a result of regulatory requirements related to climate change have not affected materially Norfolk Southern's…position. Nor has Norfolk Southern quantified any effect that may arise as a result of such opportunities."* **Norfolk Southern Corporation**
Utilities	*"Based on the uncertainty of the available science on the actual impact of climate change, we are not in a position to make an accurate assessment of physical risk pertaining to our company."* **Devon Energy Corporation**

	Response indicating a strong understanding of climate change issues
Hospitality, Leisure & Business Services	*"Companies that do not comply with [stakeholder] expectations could be penalised over time, through changes in decisions by consumers about where they shop, by retailers about where they lease space, and by investors about the set of measures by which they judge investment performance"* **Westfield Group**
Financial services	*"Allianz is participating in the quest to find solutions to mitigate climate change also on a policy level. Allianz visibly voiced support for EU and German and Australian ambitious climate targets."* **Allianz**
Manufacturing	*"CO_2 emissions of cars produced by Renault are identified at the stage of car conception and measured and homologated by an external authority for every car model."* **Renault**
Oil & Gas	*"In 1992, we began tracking the efficiency of our energy use across all of our operations. Since that time, we have increased our energy efficiency per unit of output by 27 percent…We continue to set yearly targets for improvement."* **Chevron Corporation**
Materials, Metals, Paper & Packaging	*"Opportunities arise from better understanding possible future climate change. Examples include: In regions where rainfall may increase (for example in the tropics) there will be improved hydro energy security."* **Freeport-McMoran**
Retail & Consumer	*"It is important to boost our brand image by developing energy-conserving products, [and] expanding a market, promoting consumers to buy environmentally-friendly products…"* **Matsushita Electric**
Technology, Media & Telecoms	*"Increased energy costs and supply constraints are expected to spur customers and data center operators to seek greater efficiency from enterprise servers and data centers. This in turn will require IT equipment providers to offer energy efficient hardware systems, software, and services, wherein exist both adaptation risks and business opportunities."* **EMC**
Transport & Logistics	*"We are investing in customer research to determine how we can meet their needs as they address climate change across their supply chains."* **United Parcel Services**
Utilities	*"Together with other industry peers we are working with the UK Meteorological Office to understand how climate change scenarios will affect the value, location and future operation of our assets."* **National Grid**

There is a great deal of variance within the sectors, with Construction, Raw Materials and Utilities performing well, and with Transport, Manufacturing, and Oil & Gas performing less well.

Emissions reduction is the area with the widest divergences in score between sectors.

Carbon-Intensive Sectors

Introduction & overview

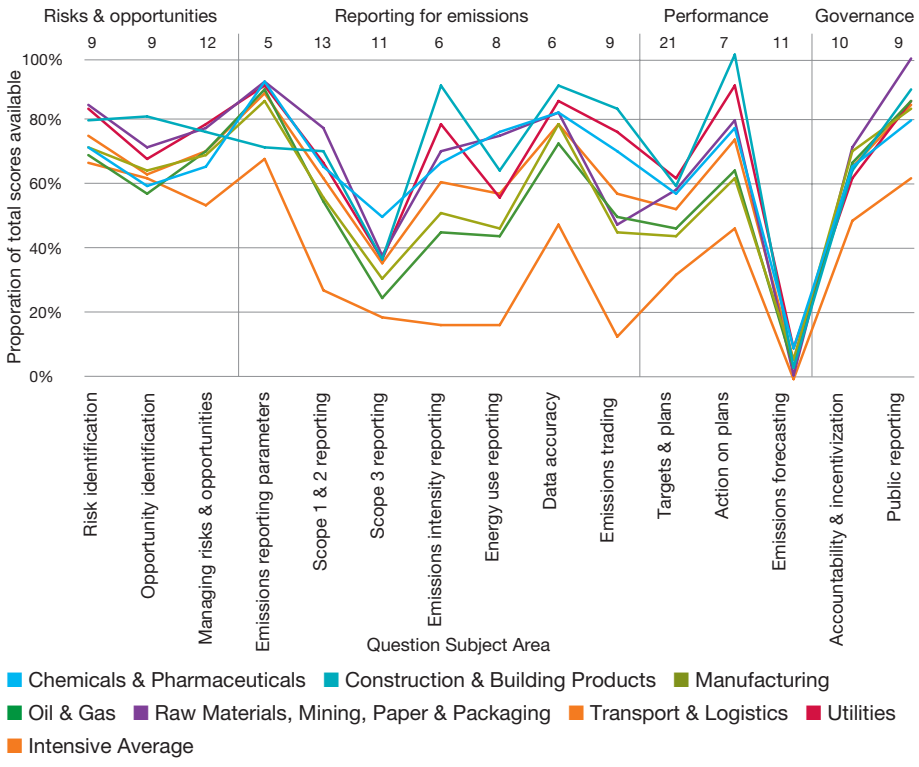
Carbon-intensive sectors have historically been the focus of initiatives to monitor climate change mitigation activities whether from regulators, shareholders or NGOs. This simply reflects the greater direct impact that these industries have on the climate – though CDP includes companies in all sectors, because in many cases non-carbon-intensive companies also have a significant carbon influence. In some cases such as power utilities, this intensity is based primarily on Scope 1 emissions; in others such as auto manufacturers, it is primarily based on Scope 3 emissions of the products in use.

Partly as a result of this pressure, partly because of the effects of regulation, partly because GHG emissions often correlate closely with energy costs and therefore are a key part of these companies' commercial success, and partly because of the way that CDP has asked for disclosure this year, carbon-intensive sectors have tended to perform slightly better on average in terms of unweighted CDLI score than non-intensive sectors. This is offset when calculating absolute scores by the impact of the sector weighting.

However, there is a great deal of variance within the sectors, with Construction, Raw Materials and Utilities performing well, and with Transport, Manufacturing, and Oil & Gas performing less well. This partly reflects emissions intensity, and also the traditional focus of disclosure (transport companies are not currently subject to the EU ETS, for example, and therefore tend to have a lesser focus on the financial cost of carbon than sectors covered by the scheme).

The chart below (figure 31) looks at CDP score by question area for carbon-intensive companies, plotting a sector's average response as a proportion of the total number of points available for that question area. Note that this is based on the unweighted CDP questionnaire as reproduced in Appendix 2 rather than the weighted CDLI 2008 score, and therefore total points available do not total 100.

Fig. 31: Score profile by industry: carbon-intensive sectors



While there is a tendency for sectors with strong responses to lead across all subject areas, there is still some noticeable variation in performance. Responses are much closer between sectors for risks and governance questions compared with disclosure and performance, where the highest scoring sectors have achieved double the score of the lower-scoring sectors. It is worth noting, however, that the highest and lowest-scoring sectors of Construction & Building Products and Transport & Logistics have a limited number of respondents (seven in each case) and so results may not be wholly representative.

Risks & opportunities

Most sectors follow a similar pattern of being strong on risk identification and management and slightly weaker on opportunity identification, with the exception of construction which is strongest at identifying opportunities, and transport which is weaker generally but especially at managing risk.

Reporting for carbon

In terms of reporting, most industries again follow a similar pattern to each other, performing strongly at carbon accounting basics, less well at Scope 1 and Scope 2 disclosure and energy reporting, and lowest at Scope 3 analysis. This reflects the relative difficulty of disclosing different emission types as well as the way in which the pressure to disclose has been applied historically, and so is in line with expectations. There are a few outliers here, but Chemicals & Pharmaceuticals are comparatively strong at Scope 3 disclosure, reflecting the importance of product use (for example asthma inhalers) to pharmaceuticals companies.

Most sectors have good systems in place to ensure data accuracy and validation. Emissions trading is an area where performance converges between sectors – not least because regulatory requirements take precedence over commercial decisions in this area, and therefore there is less scope for variation.

Performance

On performance, companies on average show better performance on taking action on emission reduction plans than they do at setting detailed targets and plans in the first place.

Emissions reduction is also the area with the widest divergences in score between sectors. This appears to correlate closely with energy intensity – utilities and construction, the most energy-intensive sectors, perform best here, reflecting the importance of carbon (and the cost of energy) to these companies.

All sectors perform poorly at disclosing their future emissions forecasts, in part because of commercial sensitivity (with forecasts potentially revealing future business plans to competitors).

Governance

Disclosure on governance issues is similar across all sectors, with companies scoring typically half of the available points in terms of having formalized procedures at board and senior management level to address carbon emissions and wider climate change issues. On reporting (to the public, shareholders and wider stakeholders) performance is slightly more variable, with Utilities performing particularly well and Transport companies performing relatively badly, partly reflecting the relative regulatory pressures on the two sectors.

Chemicals and Pharmaceuticals are comparatively strong at Scope 3 disclosure, reflecting the importance of product use (for example asthma inhalers) to pharmaceuticals companies.

Company highlights*

- Top disclosers by CDLI score: **BASF, Baxter International, Bayer, Johnson & Johnson, Praxair**
- Largest non-respondents by market capitalization: **Celgene, Formosa PetroChemical, Mosaic Company, Takeda Pharmaceutical, Teva Pharmaceutical Industries**

Key sector metrics

- Number of companies in the Global 500 in sector: **44**
- Number of companies responding in sector#: **37** (84%, ranked 3rd overall and 2nd out of carbon-intensive)
- Number of companies disclosing publicly: **29** (78% of respondents)
- Sector average CDLI score: **54** (ranked 4th out of carbon-intensive)
- Range of scores: **2** lowest – **82** highest
- Percentage of respondents disclosing emissions: Scope 1: **91%**, Scope 2: **89%**, Scope 3: **49%**
- Most common metric used for measuring emissions intensity – **per $ revenue (pharmaceuticals), per metric ton of sales product (chemicals).**

* Companies listed include non-public responses. Names are listed alphabetically within categories.

\# The information in this box is based on the final number of respondents to CDP as of 31 July 2008. However, for time reasons the cut-off date for the responses received in the data and charts in the rest of the section was July 1 2008, and hence these may differ slightly from this figure.

21 Regulation on Registration, Evaluation, Authorisation and Restriction of Chemicals.

Chemicals & Pharmaceuticals

For the purposes of the analysis in this report the Chemicals & Pharmaceuticals sector comprises of the following sub-sectors: pharmaceuticals; specialty chemicals; biotechnology; commodity chemicals; and diversified chemicals.

Chemicals & Pharmaceuticals make up 9% of the Global 500 companies, with two new U.S. entrants to the Global 500 this year. The sector has a higher than average response rate at 10%.

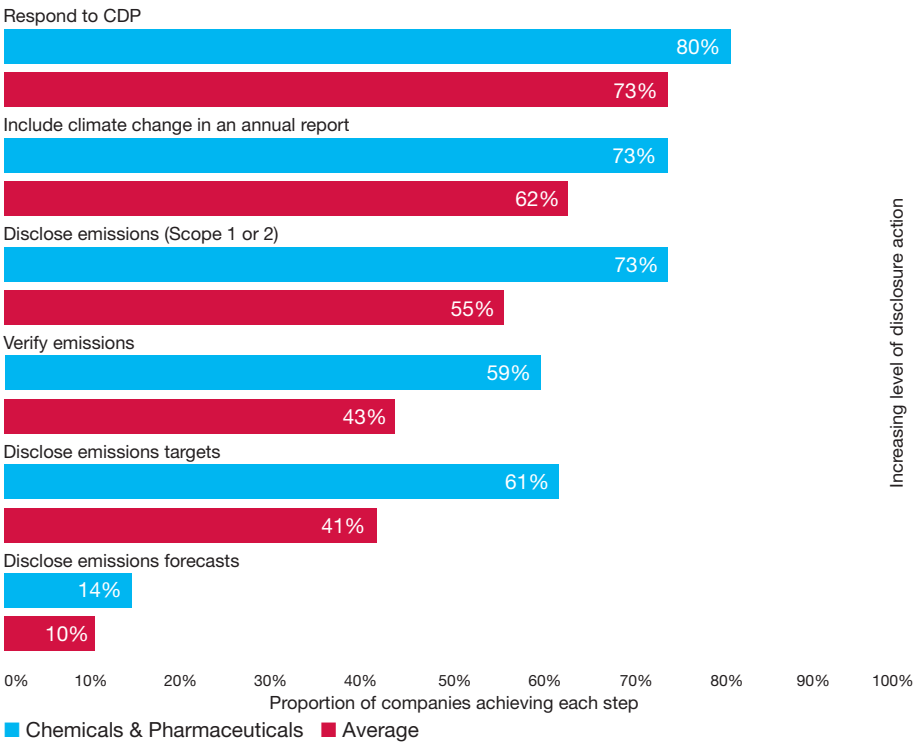
The sector has the 3rd highest response rate at 84% (figure 32) and outperforms the Global 500 average on the key aspects of disclosure levels as illustrated in the graph below. Its most notable area of performance is on the disclosure of emissions targets – performing around 50% above the Global 500 average. This demonstrates that the companies in this sector are able to clearly define their targets and the period over which they extend.

Figure 33 illustrates the scoring performance of the Chemicals & Pharmaceuticals sector on different aspects of the CDP questionnaire. To highlight how this performance compares to its carbon-intensive peer group an average score line for the intensive sector is also displayed.

The disclosures from the chemicals and pharmaceuticals sector are above the intensive industries average across the broad areas of emissions accounting and performance. Disclosures were more detailed (relative to the rest of the intensive population) in the areas of energy reporting, Scope 3 analysis and emissions trading. This is particularly positive in conjunction with the high disclosure rate discussed above.

However, in line with the general trend across the whole respondent population, forecasting performance and Scope 3 analysis was generally weak in absolute terms. In relation to the identification of risks and opportunities, and the governance reporting parts of the questionnaire,

Fig. 32: Disclosure waterfall – Chemicals & Pharmaceuticals



the sector underperformed. These should be key focus areas for the sector going forward.

Whilst the chemicals industry is energy-intensive, it is not heavily carbon-intensive and therefore not subject to the same level of scrutiny as heavier industries primarily reliant on fossil fuels. As a result, the development of transparent reporting procedures in both Chemicals & Pharmaceuticals sectors is not being driven forwards by the high levels of public pressure that are applied to other sectors. However the chemicals sector has shown energy efficiency enhancements over the past decade; the EU-based industry demonstrating 14 per cent improvement over 2000-2006.

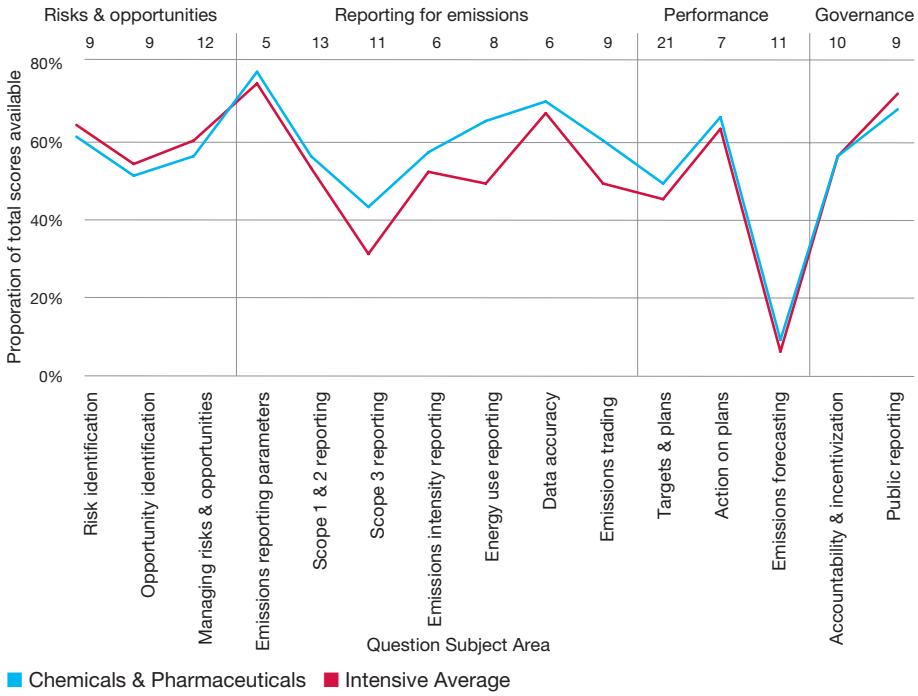
Since CDP5 there has been minimal impact from climate change on the sector directly through physical events, or indirectly through regulation. However, as the EU ETS matures into Phase II as anticipated regulatory constraints are applied elsewhere, companies may face additional financial risks. The escalating energy prices are also impacting the cost bases of, in particularly, the Chemicals industry.

The response to climate change of both Chemicals & Pharmaceuticals companies has been focused on energy efficiency initiatives and product development. A major focus for the Pharmaceuticals sector is transport efficiency as production is increasingly being outsourced to cheaper cost base countries (e.g. China, India). Whilst the labor and production cost savings more than offset the additional transport costs to move the product to its destination market, there is an associated emissions cost. In the chemicals sector one of the principal drivers of change will be the REACH[21] Regulation, requiring registration and authorization of an estimated 30,000 chemicals and substances that are either manufactured or imported into the EU in quantities of more than one metric ton. This is the most extensive piece of chemicals legislation for many years and is expected to prompt significant changes to supply chains and manufacturing locations.

The sector's most notable area of performance is on the disclosure of emissions targets – performing around 50% above the Global 500 average.

The response to climate change of both Chemicals and Pharmaceuticals companies has been focused on energy efficiency initiatives and product development.

Fig. 33: Sector disclosure – Chemicals & Pharmaceuticals



75%

of companies that disclosed EU ETS emissions data were operating within their allocated trading caps.

66%

of respondents considered themselves to be exposed to physical risks from climate change.

74%

of the Chemicals & Pharmaceuticals sector now have their emissions data independently verified.

Risks & opportunities

In relation to the identification of regulatory risks, companies with diverse global footprints reported being subject to a wide range of local regulations with associated compliance costs. However the primary legislative risk identified was the EU ETS and Kyoto Protocol. We note that 75% of companies that disclosed EU ETS emissions data were operating within their allocated trading caps.

Several companies cited risks related to prospective regulation, for example the restriction of broader uses of chlorofluorocarbons (CFCs) and hydrochlorofluorocarbons (HCFCs), which are used in pharmaceutical chilling equipment; the cost of replacement with alternative technology would be significant. A further area of concern could be volatile organic compounds (VOCs), which are used as solvents in primary operations, research and development (R&D) and for cleaning sterile equipment.

Rising energy prices as a result of regulatory changes were also identified as a source of risk.

Whilst in the pharmaceuticals sector energy is a relatively small part of the operating cost base (1-2% of sales on average), the chemical companies operate in an energy-intensive industry. On average, about 9% of total production costs are due to energy use. For some chemicals, this ratio can rise up to 60%, and as such the chemical industry is heavily susceptible to the volatility of energy prices.

"Energy prices have been increasing significantly in recent years, and...may increase in the future."
Novartis

However, despite the recognition of rising energy prices, the disclosure rate regarding the utilization of renewable energy sources was poor for the chemicals sector (25%), compared to 41% for the total respondents in the Global 500.

In contrast, 46% of pharmaceuticals reported that they utilize renewable energy sources; many install on-site renewable technologies such as wind turbines and photovoltaic panels.

"The market for renewable electricity remains volatile as the growth in demand far outstrips increases in supply capacity."
AstraZeneca

Within the sector, 66% of respondents considered themselves to be exposed to physical risks from climate change; this risk to operations was particularly noted amongst the companies with significant operations in areas sensitive to extreme weather events. Chemical companies dependent on organic raw materials or water treatment plants identified physical risks driven by increased temperatures and flooding respectively. Equally, water scarcity is an issue for pharmaceuticals that are dependent on water for cooling purposes in production.

"Sea level rise and more frequent intense weather events will potentially expose our facilities and supply chain to physical risks such as flooding and business interruption."
Pfizer

Risks specific to the pharmaceuticals industry included the relationship between climate change and health and the increasing need for innovative pipeline drugs to meet the shift in disease focus and geographical presence of disease through changing climate patterns.

Global warming could have a major effect on the world's health. It is currently impossible to predict the impact of a change in global weather patterns, but many scientists believe that global warming could bring diseases such as malaria, cholera, diphtheria and dengue fever to more temperate regions. Other medical problems could also emerge because of small rises in temperatures accelerating the proliferation of many common bacteria.

These changes are creating issues for the pharmaceutical industry as the demand for innovative medicines will increase. The level of research and development required and management of the timeframe to bring these new medicines to market is a major challenge for the sector.

94% of respondents had taken or planned action to manage the risks identified including thorough monitoring of legislative changes, devising business continuity plans, implementing the use of energy efficient and alternative energy sources and maintaining a diverse product portfolio through R&D and acquisition. In particular, response to climate change has been heavily focused on product development.

"The company is also developing water efficient traits in crops that will help to maintain yields even when water availability is low"
Monsanto

Opportunities identified were *"largely represented by the potential to reduce operating costs and environmental impacts, and enhance… reputation among stakeholders."*
AstraZeneca

Chemical companies recognized a commercial upside in the supply of low energy consumption chemicals, emission reducing products, and alternative fuel sources. EU-based industry, in particular, is emphasizing its role as an enabler of climate change solutions in the transport and housing sectors via the provision of, for example, high performance insulation materials which can cut fuel oil consumption in premises by two-thirds, with further reductions anticipated.

The chemicals sector response to climate change is largely focused on its role in improved processes and new technology, with links stressed to research and innovation. Parts of the sector are positioning energy efficiency as the greatest single readily available source of energy reduction, using technologies available today. An example is **BASF** which, early in 2008, published its first independently reviewed carbon balance. Its findings state that the company's products can save three times more greenhouse gas emissions than the amount generated by the production and disposal of all its products.

For pharmaceuticals, the sale of carbon credits and the development of medicines in response to the changing profile of disease were seen as commercial opportunities. Of the companies that responded 73% stated that they invest in, or have plans to invest in products and services that are designed to minimize or adapt to the effects of climate change.

"GSK's existing product portfolio of asthma and other respiratory disease products, antibacterials, anti-depressants, anti-malarials and vaccines including one that targets rotavirus… will help governments to address some of the projected impact of climate change on disease burden."
GlaxoSmithKline

Reporting for emissions

Most pharmaceutical and chemical companies disclosed basic emissions accounting information. The GHG Protocol methodology was used by 76% of respondents who calculated their emissions. Other guidance used in the sector included AA1000 (a general standard of ethical compliance) and the California Climate Action Registry General Certification Protocol in the U.S., the latter of which is based on the same scope splits as the GHG protocol.

Less than half of the sector (43%) stated that their reported emissions have varied significantly from last year. Of those who reported variation in their emissions year-on-year, approximately two thirds stated that there had been increases in absolute emissions (rather than intensity), primarily driven by acquisitive growth or an increase in the scope of emissions reported. For those reporting significant reductions the main cause was from a reduction in the emissions intensity driven by energy conservation or efficiency programs.

Sources of Scope 3 emissions are an area in which business in general is continuing to increase its level of understanding and monitoring. For the pharmaceuticals industry this is of particular relevance due to the increasing levels of outsourced production driving higher Scope 3 emissions. Less than half of the sector was able to disclose Scope 3 emissions. The most frequently disclosed primary Scope 3 source was employee business travel (and distribution networks were also deemed significant for some chemicals companies) however the prevalence of this response may be partly due to the comparative ease of obtaining such data compared with taking a more holistic, life-cycle approach. The disclosure below from GSK gives an example of a company giving broader consideration to Scope 3 emissions:

"The most significant Scope 3 source is use of our inhaler products by patients. Inhalers are used for asthma and chronic obstructive pulmonary disease. When the patient inhales the active ingredient the propellant is released to the atmosphere. The propellant in the inhalers is primarily HFA 134a; we are well along in the phase-out of inhalers with CFC propellants – CO_2-e from patient use of inhalers was 3,588,797 metric tons in 2007."
GlaxoSmithKline

External assurance sends a signal to stakeholders regarding the importance placed on environmental risks and opportunities. 74% of the Chemicals & Pharmaceuticals sector now have their emissions data independently verified with 83% having a system in place to assess the accuracy of the data themselves. However, it is apparent

Increasingly there are calls from companies...for more standardized regulation across the world.

76%

of the sector stated that they have emissions reduction targets in place.

from the disclosures that these systems vary in their robustness and value, from basic comparisons against historic data to more thorough systems with a combination of assurance features (audits, internal controls, sense checks and peer reviews).

Approximately half of the sector reported having facilities covered by EU ETS. Almost all reported that they were operating within their trading caps, with a minimal direct impact to their business. However, the indirect impact of the EU ETS has been felt by the sector through extra costs being passed on by the utilities companies.

"With the advent of EU ETS, electricity prices have increased and now reflect the price of carbon in the kWh price."
E.I. du Pont de Nemours & Company

Furthermore, some respondents commented that whilst Phase II allowances are not anticipated to cause significant extra costs, a competitive disadvantage exists for companies with facilities under the EU ETS compared to those exempt from it. Increasingly there are calls from companies (especially those with significant exposure to the EU ETS) for more standardized regulation across the world.

"The indirect impact of higher energy costs in Europe could potentially place European producers and manufacturers at a global competitive disadvantage, and could limit their growth."
Praxair

Performance

Just over 76% of the sector stated that they have emissions reduction targets in place, with 68% stating a defined time period for their target.

Both absolute and intensity targets were commonly spread over five year periods ending in 2012, tying in with the end of the current Kyoto Protocol period. The level of ambition of the disclosed targets showed significant variation; however the level of direct comparability is low primarily due to the variance in 'starting positions' of the companies who responded.

"Our 2006 – 2010 climate change target aims to ensure that our absolute emissions in 2010 will be no greater than they were at the start of the decade and 55% less than they were in 1990."
AstraZeneca

"From 1990 to 2007, while our worldwide sales increased by over 400 percent, Johnson & Johnson companies cut CO_2 emissions by 12.7 percent on an absolute basis."
Johnson & Johnson

Similarly, the level of investment in energy and GHG reduction plans was diverse. 20% of companies did not disclose what level of investment had been spent/planned, whereas **Johnson & Johnson** stated that they had ring-fenced $40m per year for this purpose, with **GSK** and **Bayer** anticipating expenditure of $600m and $1bn to achieve their targets. Over half of respondents factor the cost of emissions into capital expenditure planning:

"All new projects are now being required to conduct a CO_2 impact analysis in the economic evaluation process. The cost of mitigating the GHG emissions are considered an essential part of the full cost analysis and the capex requirement of the project."
Dow Chemical

Significant cost savings have been generated through investments in energy efficiency, with 77% of respondents disclosing such savings. **BASF** reported that "the energy related cost savings through our Verbund system in Ludwigshafen amount[s] to approximately €200 million per year".

Whilst 58% of respondents stated that emissions and energy use were forecasted, mostly these efforts were directed at energy costs, with only 6% disclosing quantitative details of these forecasts. This is clearly an area for development.

Governance

The majority (80%) of the sector has an executive body with overall responsibility for climate change. In most instances, climate change falls under the remit of a particular committee (corporate responsibility, compliance, environmental or public policy) rather than the Board of Directors. Within the sector there were extremely few committees specifically established to take responsibility for climate change. Boards receive, in most cases, reports on climate change issues at least annually but often at quarterly or half-yearly intervals. Half of the companies in the sector (50%) have implemented incentive mechanisms for individual management of climate change issues, mostly linked to remuneration.

Within the chemicals and pharmaceuticals sector, the percentage of respondents reporting through statutory filings, formal communications with shareholders, and voluntary communications relating to climate change was 48%, 34% and 74% respectively, reflecting the predominance of specific corporate social responsibility (CSR) and sustainability reports along with platforms like the CDP as the preferred medium. Beyond sustainability reporting, other voluntary communications included press releases, website information sustainability newsletters, and engagement with policymakers:

"We seek to ensure…practical, technically sound, and cost-effective legislation and regulation are enacted."
Air Products & Chemicals

The primary method of participation for engaging with policymakers is through trade associations, government bodies, environmental think-tanks as well as local groups:

"We are a leading member of United States Climate Action Partnership (U.S.CAP), an alliance of major businesses and leading climate and environmental groups that have come together to call on the U.S. federal government to enact legislation requiring significant reductions of greenhouse gas emissions."
Dow Chemical Company

Conclusions

The key areas for improvement for the sector are in the identification of opportunities, and overall depth of response, as although the disclosure rate was high, the scoring was comparatively weak (against the intensive population as well as the total population).

Responses in relation to Scope 3 emissions and forecasting were also weak (in absolute terms). However, this was true across the entire population of responses rather than being a sector specific issue.

Whilst the overall average score for Chemicals & Pharmaceuticals companies was ranked 4th across the intensive sectors, it was encouraging to see that the response rate within this sector was above average across the whole CDP 2008 population. This was particularly true in relation to the disclosure of Scope 1 and Scope 2 emissions.

The high levels of disclosure is likely an indicator of heightened sector awareness of the need to address the issue of climate change as well as an implicit environmental management focus, and as such we view this as a precursor to improvements in scoring in subsequent CDP questionnaires.

50%

have implemented incentive mechanisms for individual management of climate change issues.

Key areas for improvement for the sector are in the identification of opportunities, and overall depth of response.

Company highlights*

- Top disclosers by CDLI score: **Cemex, CRH, Holcim, Lafarge, Vinci**
- Largest non-respondents by market capitalization: **ACS Actividades de Construccion y Servicios, China Communications Construction, Country Garden Holdings, Larsen & Toubro**

Key sector metrics

- Number of companies in the Global 500 in sector: **11**
- Number of companies responding in sector#: **7** (64%, ranked 10th overall and 7th out of carbon-intensive)
- Number of companies disclosing publicly: **4** (57% of respondents)
- Sector average CDLI score: **57** (ranked =1st out of carbon-intensive)
- Range of scores: **44** lowest – **75** highest
- Percentage of respondents disclosing emissions: Scope 1: **100%**, Scope 2: **86%**, Scope 3: **43%**
- Most common metric used for measuring emissions intensity – **per metric ton output**

* Companies listed include non-public responses. Names are listed alphabetically within categories.

\# The information in this box is based on the final number of respondents to CDP as of 31 July 2008. However, for time reasons the cut-off date for the responses received in the data and charts in the rest of the section was July 1 2008, and hence these may differ slightly from this figure.

Construction & Building Products

The Construction & Building Products (C&BP) sector is represented in the Global 500 group by just 11 companies, of which seven have responded to CDP6. It covers three key sub-sectors of construction materials, building products and construction and engineering (5:1:1). All of the companies responding in this sector are European. Given the energy intensive nature of the industry just under a half of constituents are covered by the EU Emissions Trading Scheme (ETS).

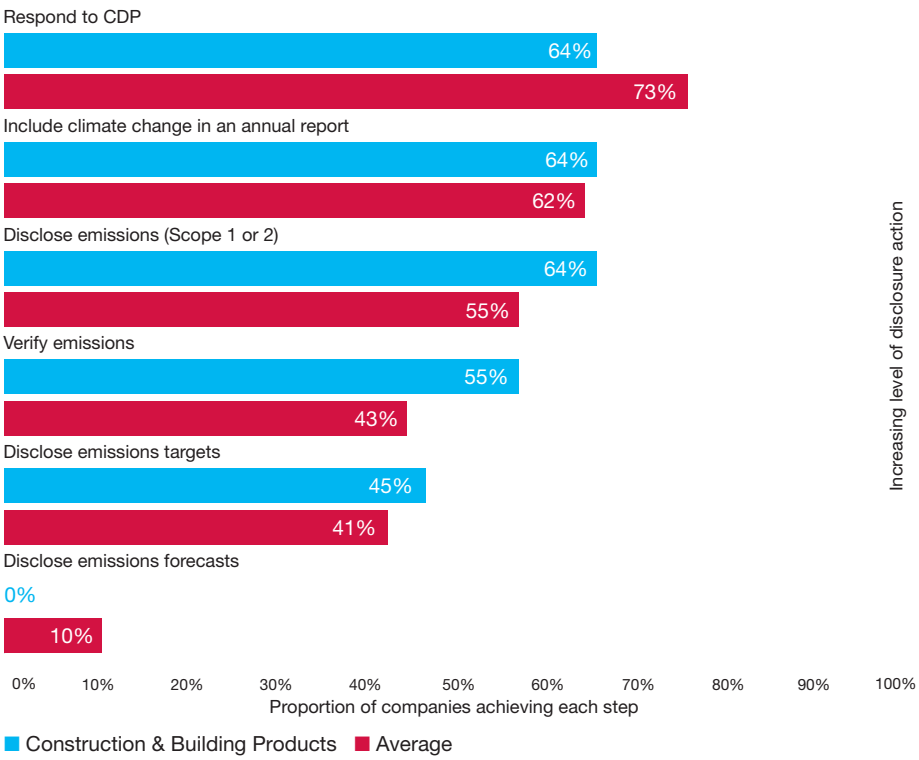
The C&BP sector had a response rate of 64%, which is the 10th highest out of the 11 sectors. Just four of those responding have allowed their submissions to be made public – **Lafarge**, **Holcim**, **Saint Gobain** and **Vinci** – which is the lowest of all the 11 industry sectors. However, where companies have responded, publicly or not, the standard of the disclosure is generally high. The sector is the joint highest ranking carbon-intensive sector after raw materials, mining, paper and packaging.

There have been several developments in the industry in the year leading up to CDP6 which may provide some context to the responses, including:

- Strong lobbying in Brussels with regard to the next phase of EU ETS;
- An end to the rise in property asset prices plus high inflation in construction leading to problems;
- Market and regulatory pressures (EU Energy Performance of Buildings Directive; US LEED); and
- Continued work to deliver flagship developments e.g. Masdar, Dongtan, EcoTowns.

The C&BP sector is relatively localized as are its initiatives and guidance with regard to carbon reduction. There is a wide variety of current and proposed standards (including the new ISO sustainability in construction standard) around benchmarking energy performance and life cycle assessments. This creates challenges for company comparisons, taking and proving a leadership position and driving forward industry-wide action. There is also currently a range of opinion as to whether the energy performance and level of embedded carbon within a building affects its attractiveness for investment and rental value.

Fig. 34: Disclosure waterfall – Construction & Building Products



The sector outperforms the Global 500 average on all key aspects of disclosure except for the overall response rate to CDP and the forecasting of emissions (figure 34). None of the companies in the sector have disclosed any forecasted emissions, although this was suggested to be due to the commercial sensitivity of such information rather than a lack of forecasts. Where companies disclose to the CDP they also annually report on climate change issues (in annual or voluntary reports) and disclose their emissions.

It is also useful to investigate the performance of the construction and building products sector on the different aspects of disclosure included in the CDP questionnaire (figure 35). The key messages highlighted by the chart are:

- The disclosures from the C&BP sector perform above or equal to the carbon-intensive industries average in all areas of disclosure with the exception of accounting fundamentals. This area of disclosure includes organizational parameters and accounting year but it was on specifying the methodology used to calculate emissions that the sector particularly under performed. This supports the earlier comments with regard to the absence of a common standard for reporting in carbon emissions across the sector. Displaying a clear methodology should be in place for how the emissions figures and other parameters have been determined as a key facet of disclosure.
- The sector, however, performs significantly higher than the average in disclosing information on emissions trading, emissions intensity and the action they have taken on their emissions reduction plans. The high level of disclosure of action gives a clear indication that the sector is taking steps to mitigate the contributions to climate change of its business.

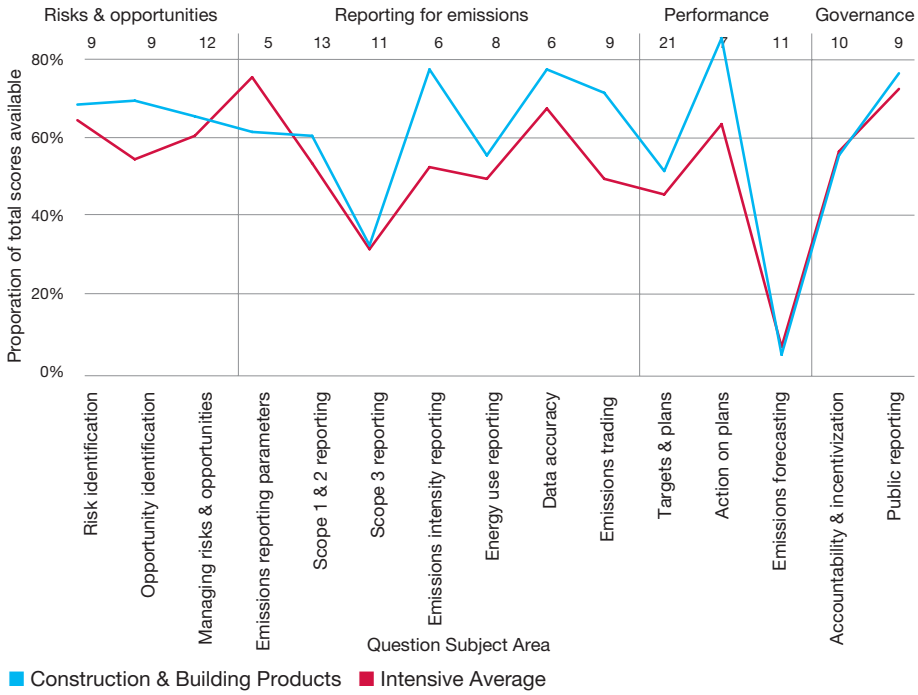
Risks & opportunities

It is apparent from the sector responses that the largest risks in the sector will come from increased regulation. This could be regulation affecting energy efficiency standards or from fuel and energy prices but the largest impact will be through

The sector performs significantly higher than the average in disclosing information on emissions trading, emissions intensity and the action they have taken on their emissions reduction plans.

It is apparent from the sector responses that the largest risks in the sector will come from increased regulation.

Fig. 35: Sector disclosure – Construction & Building Products



The sector has identified supply chain risks and the reduced availability of the by-products of fossil fuel combustion which are used by the industry.

Scope 3 is a key area for the sector to investigate and monitor to truly understand its carbon footprint.

emissions trading schemes. Key risks impacting the sector as a result of trading schemes were identified in the responses as being:

- Uncertainty in future regulation;
- Differences in the regulations and targets between geographies and the burden of managing this;
- Delays in the setting of National Allocation Plans under the EU ETS; and
- Cost of carbon affecting international competitiveness and the possibility that production of certain goods might need to be re-located.

This last point is captured in the response from **Holcim**:

"Given the significant emission reduction obligations for industry, often beyond their technical and economic potential, and the proposed limited use of CDM credits, it is probable that the EU trading system will provide insufficient allowances to cover the manufacture of goods required by the European consumer. Demand that cannot be satisfied by EU-based production facilities will be imported and thus lead to carbon leakage."
Holcim

The sector has also identified supply chain risks and the reduced availability of the by-products of fossil fuel combustion which are used by the industry. There is very little mention of reputational risk which is likely to be a result of the low level of interface between the sector and the public/general consumers. However, the purchasers of the sector's products are likely to increasingly dissociate themselves from suppliers with poor performance on climate change issues.

There are common opportunities resulting from climate change that have been identified across the sector. In terms of opportunities from regulation there are two key areas:

- Carbon credits via CDM & JI allow the sector to improve its carbon emissions and other aspects of its operations at minimal expense; and
- Regulations promoting energy efficiency and greener buildings increasing demand for new building products. **Saint Gobain** have illustrated that they are already benefiting financially from this opportunity:

"A large part of our products represent a solution for climate change. Around 30% of Saint-Gobain's net sales and 40% of its operating profit derive from energy-saving solutions."
Saint-Gobain

Two other opportunities identified by the sector were that physical changes from climate change may:

- Improve conditions for construction; and
- Increase demand for constructing buildings and infrastructure to adapt to climate changes.

Reporting emissions

Five of the seven companies employed the GHG Protocol as their emissions accounting methodology; the other two used ISO 14064 and the guidance from the EC. The entire sector disclosed Scope 1 emissions, all but one respondent disclosed Scope 2 emissions, and three disclosed Scope 3 emissions from at least one source. The key sources of Scope 3 emissions for the sector are the supply chain (e.g. raw material extraction and processing) and product distribution.

Scope 3 is a key area for the sector to investigate and monitor to truly understand its carbon footprint and know where to concentrate its effort within day to day operations to have maximum impact on its footprint. In particular there are many issues to be understood around the full lifecycle of construction projects. Construction

projects lock embodied carbon into the final output, which will then be disposed of either during use or demolition depending on the customer's actions.

In over half the disclosures, companies reported that their emissions had varied significantly since the previous accounting year. There was no sector trend in the direction and cause of this variation. A combination of tools is employed throughout the sector to assess data accuracy such as ISO 14001 certified management systems, bespoke reporting tools and internal audits.

Performance

There is a common target horizon across the sector of 2010 (relative to a 1990 baseline), with two companies looking further to 2015. In most cases the targets appear in the 10-20% range. There are several factors individual to each company such as historic and planned growth which determine the level of ambition in these targets. To achieve its emission reduction targets the sector has taken action in a range of areas. These include: operational efficiencies, purchasing of renewable energy, the use of alternative raw materials, using more fuel efficient fleets and using waste gases to generate power. The response below from **Holcim** highlights the proactive steps that can be taken by the sector:

"We are actively investigating the possibilities for reducing emissions from own power generation including the use of biomass fuels. CDM possibilities have spurred on these investigations and our Ropar plant in India has been issued 18 000 CERs (Certified Emission Reductions) for such a biomass power generation project."
Holcim

Governance

Nearly all companies in the sector have a board committee or other executive body that has overall responsibility for climate change. This highlights the level of visibility that the most senior people in a company must have over carbon and climate change related business decisions. Across the sector there is an apparent structure of carbon accounting governance and responsibility integrated throughout the business units or geographies (often via incentive mechanisms) which are often overseen by a sustainability committee which includes a member of the executive group.

All the companies in the sector report on climate change issues via a voluntary report such as a corporate responsibility report. The sector also engages with policymakers on related issues via such mediums as position papers (which are often published for public viewing), participation in industry representative bodies and support and commitment to cross-industry initiatives.

Conclusions

Of the companies from the C&BP sector that have disclosed to the CDP a few trends are evident. There is a relatively poor level of response, and a very poor level of public disclosure, However, those companies in the sector that have responded appear to perform generally well in terms of scoring.

Looking forward to CDP 2009 we hope to see a greater level of response from the C&BP sector with a concerted industry wide effort to improve transparency in reporting climate change and carbon issues. Key areas to look out for in the C&BP responses of 2009 are how Phase II of the EU ETS is affecting profitability and what steps the sector is taking to maximize the potential upside that climate change presents.

Nearly all companies in the sector have a board committee or other executive body that has overall responsibility for climate change.

Key areas to look out for in the C&BP responses of 2009 are how Phase II of the EU ETS is affecting profitability and what steps the sector is taking to maximize the potential upside that climate change presents.

Company highlights*

- Top disclosers by CDLI score: **ABB, Nissan, Renault, Schneider Electric, Siemens**
- Largest non-respondents by market capitalization: **General Dynamics, Hutchison Whampoa, Lockheed Martin, Reliance Industries, Tenaris**

Key sector metrics

- Number of companies in the Global 500 in sector: **43**
- Number of companies responding in sector#: **33** (77% – ranked 4th overall, 3rd out of carbon-intensive)
- Number of companies disclosing publicly: **23** (70% of respondents)
- Sector average CDLI score: **53** (ranked 5th out of carbon-intensive)
- Range of scores: **9** lowest – **86** highest
- Percentage of respondents disclosing emissions: Scope 1: **70%**, Scope 2: **67%**, Scope 3: **21%**
- Most common metric used for measuring emissions intensity – **per metric ton output**

* Companies listed include non-public responses. Names are listed alphabetically within categories.

\# The information in this box is based on the final number of respondents to CDP as of 31 July 2008. However, for time reasons the cut-off date for the responses received in the data and charts in the rest of the section was July 1 2008, and hence these may differ slightly from this figure.

Manufacturing

The Manufacturing sector covers a wide range of operations and products. The respondents are a fairly even spread of companies across automobiles, aerospace and defense, electricals and the manufacturing of large machinery and other industrial products.

On disclosure, the automotive segment within manufacturing outperforms non-automotive segments by approximately 20% in score terms, and many of the CDLI constituents are from within this sector. As a result, many of the best-practice responses considered in this report section are taken from automotive companies.

Just under half (15/33) of the constituent companies are covered by the EU Emissions Trading Scheme. The sector respondents are dominated by the developed world with 14 from Europe (half of which are from Germany), 13 from the USA and six from Japan.

The Manufacturing sector has a response rate of 77%. In comparison to the other carbon-intensive sectors this is 3rd highest of the seven.

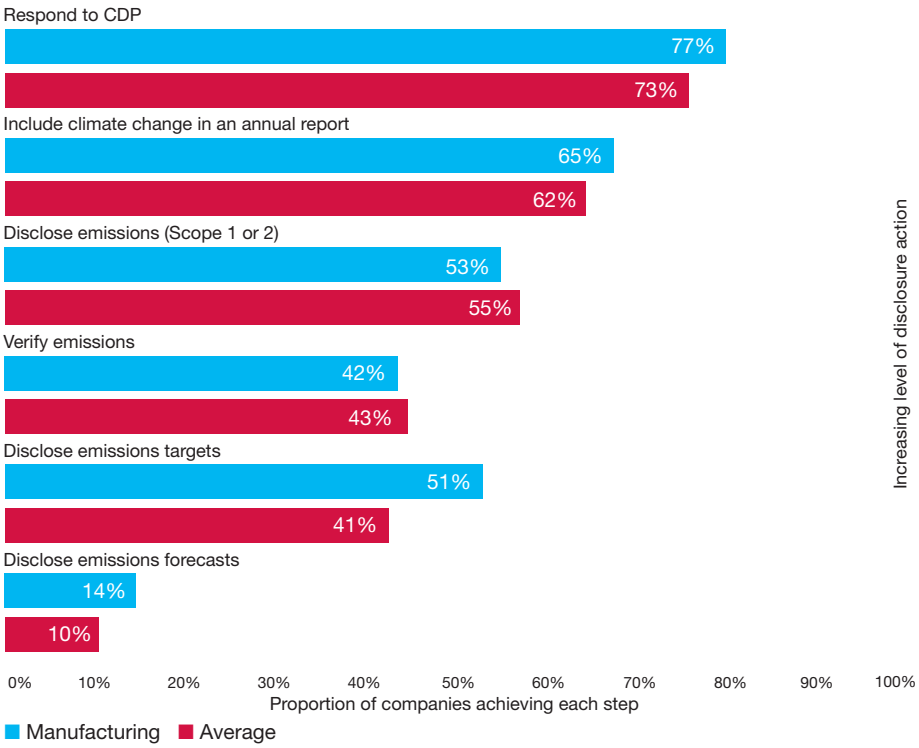
Despite the potential competitive sensitivities of disclosing climate change risks and opportunities, energy use, costs and targets, two thirds of the industry have allowed their responses to be made public. The sector ranks 5th out of all the 7 carbon-intensive sectors on score.

The sector performs close to the Global 500 average on most key aspects of disclosure (figure 36). The two key areas to note are the performance of companies in disclosing targets and emissions forecasts to CDP, where it performs well above the average. This perhaps is a result of the degree to which management systems and target-setting generally are already a feature of the manufacturing process.

Figure 37 illustrates the performance of the Manufacturing sector across the different aspects of disclosure included in the CDP questionnaire. While responses in the sector are generally good, response scores have come in below the intensive industries average in three areas:

- Energy use – this may be commercially sensitive, though is useful in providing context to the Scope 2 emissions;

Fig. 36: Disclosure waterfall – Manufacturing



- Emissions intensity – the use of standardized metrics across the sector may improve the disclosure of this parameter (see section on emissions accounting below); and
- Targets, plans and action – the lack of disclosure in this section of the report suggests a limited level of proactivity and forward thinking on these responses, even though companies are more keen than the global average to share absolute targets with CDP.

The sector also scores slightly below average on emissions trading, though this is likely to be a result of the patchy EU ETS coverage within the sector.

Since CDP5 (2007) there have been a number of macroeconomic trends acting on the sector. First, there is the continued rise in commodity prices which has increased the cost base but perhaps also has served to promote effective resource use within the sector. A second and related issue is the oil price hike of the last 12 months and its impact on this energy-intensive sector. Both trends would tend to promote resource and energy conservation, with a consequent downward pressure on carbon emissions.

Consumer and customer behavior is also highly variable across the sector. Market research data regarding consumer preferences suggest increasing levels of interest in 'sustainable' versions of products. Where manufacturing products have a direct interface with the consumer market, for instance in automotive, this factor is likely to be increasingly important.

Risks & opportunities

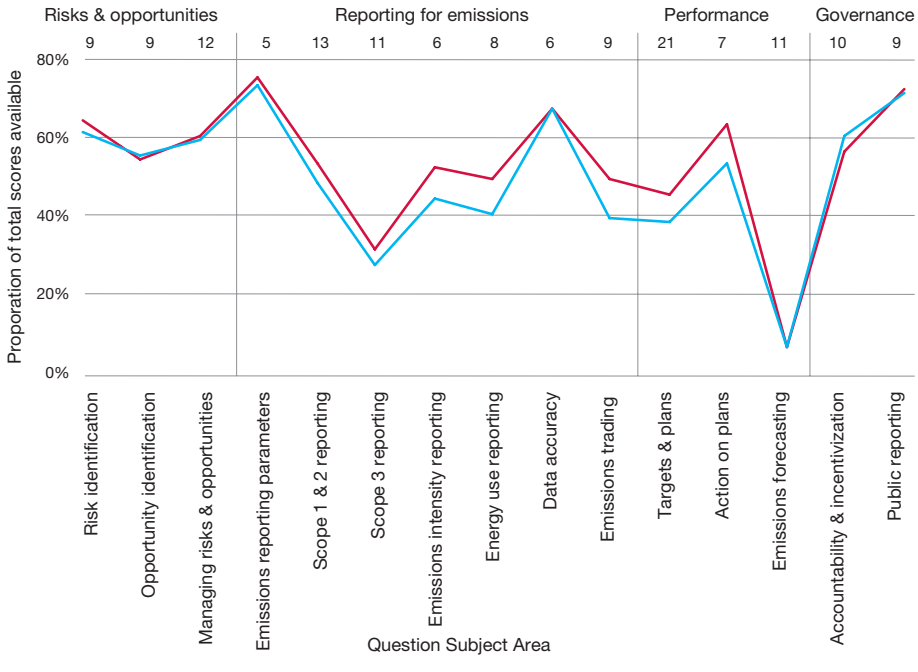
The manufacturing industry is subject to a wide range of regulation with regard to carbon emissions and there is likely to be more to come. For example, the automotive industry needs to keep abreast of changes in the regulatory landscape in areas such as fuel efficiency standards, environmental taxes and biofuels targets. Multi-jurisdictional operators who operate extensive global supply chains face a considerable challenge to stay informed of (and respond effectively to) changes in local conditions.

The responses from a few manufacturers indicate the breadth of physical risks resulting from climate change that have the potential to impact the operations of the industry as a whole. Physical risks identified

Multi-jurisdictional operators who operate extensive global supply chains face a considerable challenge to stay informed of (and respond effectively to) changes in local conditions.

Physical risks identified within the disclosures include temperature changes, flooding, increases in storm intensity and frequency, water shortages, spread of disease.

Fig. 37: Sector disclosure – Manufacturing



The automotive sub-sector appears to be the most exposed to reputational risk.

"The most significant Scope 3 source for a car manufacturer is the usage of its products. Cars emit greenhouse gas. If we count the total GHG emission of the whole Renault car fleet that is still in the marketplace, based on standard hypothesis of usage, the amount is quite important."

Renault

within the disclosures include temperature changes, flooding, increases in storm intensity and frequency, water shortages, spread of disease and changes in local weather patterns. In conjunction with the identification of these risks there has been an acknowledgement of their potential business impact:

"Especially in the South of the U.S. Siemens owns facilities which might be subject to physical risks."
Siemens

The identification of physical risks from climate change and their potential impacts on the continuity of business operations must increasingly be integrated into a firm's investment and operational decisions. This applies both to a company's own operations and those of key suppliers.

Within the industry the automotive sub-sector appears to be the most exposed to reputational risk. Given the general consensus that cars in their current form directly contribute to the atmospheric concentration of carbon dioxide automotive manufacturers need to be seen to be taking action and providing solutions to address this. Consumers will then provide the company with an effective 'license to operate' as identified by **Toyota**:

"We are convinced that only those automakers that successfully solve these social problems (environmental issues, congestion, and accidents) will be allowed to continue existing in society."
Toyota

The responses also identified that reputational risk has the potential to negatively impact a company's own recruitment and retention. This is an important factor in an evolving marketplace: if manufacturers are to develop the technologies and products required to compete in a low-carbon world, then they must continue to be able to recruit and retain the necessary talent. A proportion of the sector already offers a range of environmental products which help consumers reduce their carbon footprint.

The other major risk identified by the industry is the rising prices of raw materials and energy. This is highlighted in a response from MAN:

"To a certain extent we are exposed to such risks arising for example from resource scarcity and rising resource prices. Rising steel prices noticeably influence our production cost and soaring oil prices may influence the behavior of our customers."
MAN

With the dependence of the industry on energy supply, rising prices have the potential to impact a company's bottom line. There is therefore a further incentive to reduce this level of uncertainty and potential impact through reduced energy usage.

As the sector landscape changes, with respect to legislation and customer behaviors, there will be both risk and opportunity. New products and more 'sustainable' versions of existing products may command a premium or prompt an increase in market share. The companies which exploit these opportunities, particularly those around renewable energy and resource use minimization, are likely to generate new sources of revenue and enhance their brands.

Reporting for emissions

Within the sector there exists a large variation in the choice of metric used to report emissions intensity. These include per employee, per metric ton output or per vehicle (for the automotive industry). It is likely that companies within the sector choose the most favorable metric. The most common is per US$ million revenue.

Approximately a quarter of the sector was able to disclose a figure for Scope 3 emissions. Business travel and distribution and logistics were stated as being significant sources of Scope 3 emissions. However, by a significant margin the largest Scope 3 emissions source is the use and disposal of the manufactured product itself. This is evident from the **Renault** response.

Challenges for the sector in monitoring Scope 3 sources are both quantification and accountability. To have a complete calculation of Scope 3 emissions of the product throughout its life the manufacturer must understand how it is typically used and for how long. Accountability for usage cannot simply rest with the user – standards for assessing and measuring the manufacturers' responsibilities are needed, for example based on average lifetime product usage.

40% of the sector stated that their reported emissions had varied significantly since those disclosed in CDP5. In most instances this was a significant increase as a result of M&A, increased production, increases in the reporting scope and improvements in accounting accuracy.

Significant M&A activity in the sector over the past few years has provided challenges for emissions accounting in integrating the data and methodology across from one company to the other and in communicating the combined impact to stakeholders. This also ties back to the high performance of the industry on setting targets and forecasting emissions. To evaluate and communicate where any change in footprint has arisen the business must be analyzed in specific segments – e.g. growth increased production and own emissions reduction initiatives such as process improvements. These can then be compared against the original forecast and targets to evaluate the effectiveness of emission reduction measures.

Performance

Where information on the investment made to achieve carbon reduction targets has been disclosed a considerable financial commitment to energy conservation and research and development in low carbon products and operations is apparent. Given the energy-intensive nature of the industry and the energy conservation initiatives and investment being undertaken there are clearly financial savings to be gained as a result of reduced energy costs. This can be seen in the response of **Raytheon**:

"Raytheon has reduced its greenhouse gas emissions 28% per billion dollars of sales between 2002 and the end of 2007. Millions of dollars in energy costs have been saved."
Raytheon

Sixty per cent of companies in the sector have stated that they have emissions reduction targets in place. These vary in timescale (from 2 year periods to almost 50 years) and in their magnitude (from 1% by 2012 to 30% over the same period). The **Boeing** response, with a stark difference between absolute and intensity targets, highlights the integration of carbon targets with growth projections:

"[Our emissions target is a] 25 percent revenue normalized reduction in CO_2 emissions intensity (which equates to a 1 percent absolute reduction) by 2012 from 2007 baseline"
Boeing

A wide array of carbon reduction schemes has been disclosed by the sector in its responses. Generally, the schemes engaged by a company are tailored to its specific product and operation type so that the initiative will have greatest carbon reduction as well as potentially also benefitting the company through cost savings, improved yields or shorter production times.

Governance

Only a single company in the sector stated that it does not have a board committee or other executive body with overall responsibility for climate change though in this one case the executive group does oversee the relevant working group. This high proportion of senior governance on climate change demonstrated the extent to which the risks and opportunities to businesses are taken seriously.

However, there appears to be less attention to how the agenda is embedded at middle management level. For example, only half of the sector state that they have implemented incentive mechanisms for individual management of climate change issues and less than half of these are linked to remuneration. Two examples of how this can be implemented in a business are shown below:

"Bonus payments of the relevant senior managers are linked to implementation of CDM projects."
ThyssenKrupp

"Denso eco-point system is introduced to encourage environmentally friendly activities by employees, providing points to such employee. Awarded eco-points can be used for environmental donation (plant seeding) or exchanged for gifts."
Denso Corporation

Conclusions

The manufacturing sector has a history of innovation; continually evolving to produce new products that meet changing consumer and regulatory demand and to incorporate latest technologies. Manufacturers can therefore position themselves as providers of climate change solutions rather than as contributors to the problem.

This position on change and the associated innovation has been seen in the sector disclosures. Companies are not only developing 'solution' products which align with their current business range but are also being innovative in the ways in which they are reducing their own emissions from operations.

The automotive segment in particular appears to have realized what it needs to change to continue to prosper in the transition to a low-carbon world.

Given the increasing global population and the world's growing wealth and development the demand for manufactured products will continue to grow at a substantial rate. This has environmental implications beyond climate change. How the manufacturing sector continues to meet demand whilst reducing emissions in absolute terms will be a key challenge for the industry in the years to come.

Company highlights*

- Top disclosers by CDLI score: **BG Group, Chevron, Repsol YPF, Royal Dutch Shell, Suncor Energy**
- Largest non-respondents by market capitalization: **Gazprom, Lukoil, PetroChina, Rosneft Oil, Surgutneftegas**

Key sector metrics

- Number of companies in the Global 500 in sector: **54**
- Number of companies responding in sector#: **37** (69% – ranked 9th overall, 6th out of carbon-intensive)
- Number of companies disclosing publicly: **32** (86% of respondents)
- Sector average CDLI score: **47** (ranked 6th out of carbon-intensive)
- Range of scores: **3** lowest – **75** highest
- Percentage of respondents disclosing emissions: Scope 1: **71%**, Scope 2: **60%**, Scope 3: **26%**
- Most common metric used for measuring emissions intensity – **per metric ton output**

* Companies listed include non-public responses. Names are listed alphabetically within categories.

\# The information in this box is based on the final number of respondents to CDP as of 31 July 2008. However, for time reasons the cut-off date for the responses received in the data and charts in the rest of the section was July 1 2008, and hence these may differ slightly from this figure.

Oil & Gas

For the purposes of the analysis in this report the Oil & Gas sector comprises of the following sub-sectors: Integrated Oil & Gas, Oil & Gas Exploration & Production, and Energy Equipment & Services. Hence, it is important to recognize the heterogeneity of business models captured which include pure hydrocarbon exploration and recovery, refining and distribution of petroleum products and oilfield services.

With 54 companies in the Global 500, the Oil & Gas sector is the fifth largest sector overall; with 37 of these companies disclosing during CDP6. In terms of geographical representation, over half (19) of the respondents are from North America, 9 are from Europe, 4 from Asia and 3 from the Rest of the World (S. Africa, Australia and Brazil each with one).

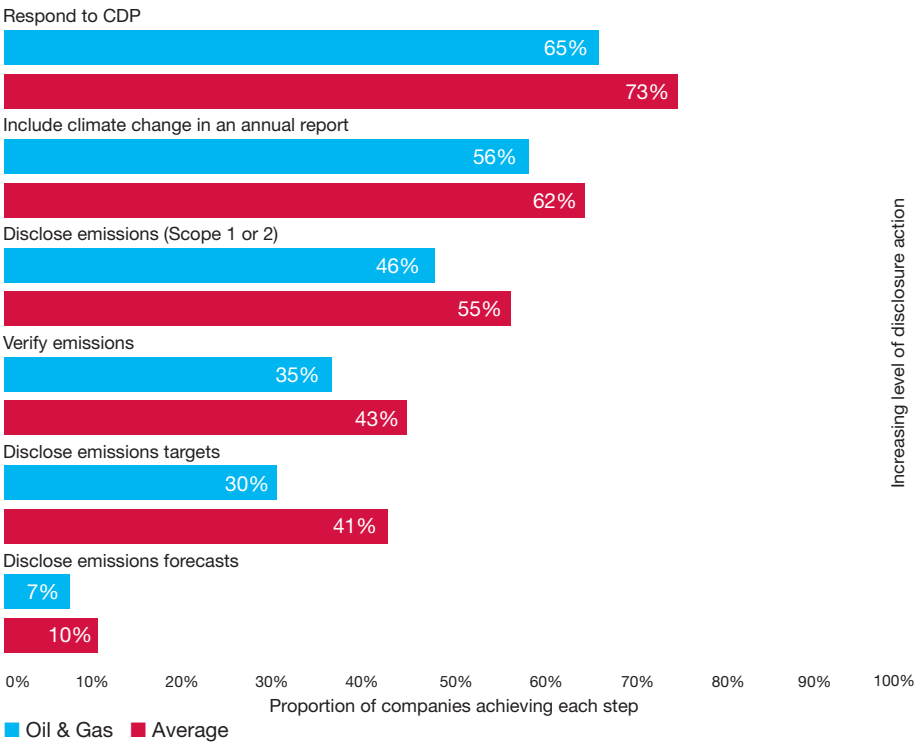
Furthermore, it is the sector with the highest level of public disclosure, with 86% of respondents willing to publish their submissions. Disappointingly, of the 12 companies from the BRIC economies in the Global 500, only three responded to CDP6 (Brazil – 1/1, Russia – 0/4, India – 1/3 and China – 1/4).

Given the high materiality and visibility of the carbon issue within the business and the highly regulated environment within which this sector operates, it is perhaps a little surprising that, on the basis of average overall CDLI scores, it fared relatively poorly with a ranking of sixth out of the seven carbon intensive sectors. This may be partly explained by geography with a relatively low representation of European companies within the sample group – see Section 4 for more geographical insight.

Overall levels of disclosure from the sector are reasonable but are below the average for the Global 500 under the six categories of action represented by the disclosure waterfall (figure 38). Target setting, in particular, appears rather weak at 11 percentage points below the corresponding average Global 500 score.

Figure 39 presents an overview of sector performance on the basis of average scores by CDP6 question relative to the average scores for the carbon-intensive sectors overall. Oil & Gas respondents outperform in two areas (Emissions reporting parameters and Public reporting) and

Fig. 38: Disclosure waterfall – Oil & Gas



score about average in the area of Accountability and incentivization; in other areas, performance is below average by around 1 to 12 percentage points depending upon the question area.

Risks & opportunities

Despite the apparent risks facing the Oil & Gas industry, including physical, market, regulatory and reputational risks, the sector scores below the Global 500 average on all aspects of risk disclosure (risk identification, management and business impact assessment).

Oil & Gas companies have identified a range of downside regulatory risks in relation to climate change. Some of these are likely to directly affect production of hydrocarbons, whereas others may have greater impact in downstream markets. Examples cited include:

- Uncertainty over whether future carbon regulation will be aimed at the oil/gas producer or the end user of hydrocarbons;
- Increasing costs of compliance and possible restrictions on growth which is likely to impact upon profitability; and
- Potential delays in obtaining environmental regulatory permits or other approvals slowing down upgrading of existing facilities or construction of new facilities.

Several companies have considered changes to investment strategy, consumer demand and wider risks to the industry. This is reflected in the selection of comments below:

"The climate issue represents both a challenge and an opportunity. Its challenge is to reduce greenhouse gas emissions. Its opportunity is the commercialization of more environment friendly solutions and products…In coming years, our competitiveness will be influenced by our industrial response to the climate challenge. Our response involves both making our core business cleaner and more energy efficient, and strengthening our involvement with new energy. This is why we are committed to enhancing energy efficiency and developing environmental technology. This is why we are developing new technology for carbon capture and storage at Mongstad."
StatoilHydro

"While conventional fossil fuels are expected to continue to be a primary source of energy for decades, changing market dynamics, environmental policy and higher energy prices are accelerating the pace and scale at which renewable energy is becoming a part of mainstream energy supplies."
Chevron Corporation

"The risks of restrictive regulations which could impede Petro-Canada's ability to compete in the international market due to the high cost of compliance or to the restriction on the use of fuels made from carbon intensive sources are now anticipated to be greater than contemplated in our previous CDP response."
Petro Canada

Physical asset risks around climate change were also recognized. Hurricanes Katrina and Rita had a major effect on oil production in the Gulf of Mexico in 2005, with total economic losses estimated at over $100bn. **BP**, for example, incurred costs of around $900m from these two hurricanes in the form of foregone production volumes as well as direct response and repair costs. This has required oil and gas companies to re-appraise their

Fig. 39: Sector disclosure – Oil & Gas

Most respondents in CDP6 consider extreme weather events (whether offshore in the form of hurricanes and tsunamis or onshore in the form of tornadoes and flooding) as their greatest physical threat.

Only a small number of respondents identified renewable energy as an opportunity.

evaluation of risks and make adjustments to both strategic and operational plans.

Most respondents in CDP6 consider extreme weather events (whether offshore in the form of hurricanes and tsunamis or onshore in the form of tornadoes and flooding) as their greatest physical threat – whether through disruption to operations or loss of physical property and the associated costs. However, these issues are challenging from a cost-benefit perspective as noted below.

"Like other petroleum companies BP invests heavily in engineering structures that could be vulnerable to modest changes in local climate. The size of our exposure and the changing risk to both our future operational integrity and our current facilities is not yet well understood. In adapting to a world in which extreme weather might be more common there is also a risk of over-engineering solutions and consequently increasing our construction and abandonment costs"
BP

Identifying opportunities around climate change was noted by many respondents. Interestingly, the comments reveal varying motivations and scale of ambition. Examples cited include:

- New revenue streams from emission reduction projects that generate carbon credits under the frameworks of the Clean Development Mechanism (CDM) and Joint Implementation (JI);
- New business ventures in renewable energy either as sources for cleaner power generation or as new transportation fuels (e.g. biofuels);
- Competitive advantage in new areas such as carbon sequestration;
- Facility upgrades that reduce emissions and save energy such as the elimination of gas flaring in production activities; and
- Physical climate impacts affecting demand for products and services.

The following statements capture some of this sentiment:

"Physical changes predicted by the International Panel on Climate Change (IPCC) Fourth Assessment report include an increase in temperature, which could positively affect parts of North America in terms of growing season for crops. We recognize that addressing climate change may require a long-term shift in the global energy mix, and Petro-Canada plans to respond and facilitate the changes required to meet global energy demands."
Petro-Canada

"We are a leader in carbon capture and storage (CCS) technology… many of our peers lack this experience. Additionally, our unique positioning as a major provider of domestic natural gas creates an opportunity for us to fill a growing demand in a carbon-constrained environment to which our competitors may be less adaptable."
Anadarko Petroleum Corporation

Only one company confronted the issue of Arctic ice melt and how this might create new possibilities for hydrocarbon exploration.

"Regarding Canada, and recently publicized in the news, the melting of the Arctic ice cap will actually create a business opportunity with the large hydrocarbon reserves in that area accessible to drilling and production."
Schlumberger Limited

It is interesting to note that only a small number of respondents also identified renewable energy as an opportunity. This may reflect the fact that such ventures would represent a considerable departure from core business activities; alternatively, this domain could be viewed as a key focus for the utilities sector.

Reporting for emissions

Approximately half of the oil and gas sector follow the GHG Protocol to report their emissions. In cases where the GHG Protocol is not used, guidance from national governments or those stipulated by other national policy measures are used which are strongly aligned to the spirit of the GHG Protocol. Scope 1 emissions were disclosed by 71% of the CDP6 sample, Scope 2 by 60% and Scope

3 by less than a third of the respondents. As would be expected, by far the largest contributor to Scope 3 emissions is the end-use of fuels in the transport sector.

Performance

Out of 37 respondents, 26 (70%) stated that they had an emissions reduction plan in place – although only 15 (41%) disclosed a baseline year. Flaring of associated gas from offshore operations was a key focus of emission reductions plans, but companies also mentioned downstream improvements, including plant efficiency improvements, the use of waste heat for heating/CHP programs, shift from fuel oil to natural gas in running refineries, and investment in CCS technology.

Nearly half the respondents noted a significant variation in reported emissions relative to those reported under CDP5. While the majority of these are increases due to economic growth and acquisitions, it is encouraging to note that there have been some reductions. In most cases, this is due to a reduction in flaring:

"Over the longer term we have reduced our GHG emissions by nearly 25% compared with 1990 base line. Our total upstream flaring has dropped nearly 60% since 2001"
Royal Dutch Shell

Governance

Most companies in the sector have established an executive body with overall responsibility for climate change, with only two companies categorically stating that they have not done so, although they did not disclose the reasons for this. While this is an indication of the growing emphasis these companies are placing on the risks (and opportunities) of climate change, it is noted that only half of these companies provide incentives mechanisms for individual management of the carbon issue. Encouragingly, the majority of these companies have also linked such incentives to management's remuneration, and typically at the Board level.

The majority of the respondents publish information about the risks and opportunities presented by climate change, typically as part of the Annual Report as well as within Corporate Responsibility Reports and 10-K forms (in the case of around 50% of U.S. respondents). This is in line with the growing investor awareness of the subject matter.

Conclusions

On the basis of the responses from CDP6, oil and gas companies appear to be falling slightly behind other energy intensive sectors. This is partly due to geographical mix effects with a higher than average number of Asian and Russian respondents, who have generally shown low levels of CDP6 responses, in the sector.

There is significant scope for the sector to improve overall awareness levels, understanding of risks and opportunities and their overall levels of disclosure. This is perhaps a little curious since many oil and gas companies undertook considerable early positioning on environmental issues in the mid to late 1990s and have maintained leadership positions as the debate has broadened into wider matters of sustainable development and corporate social responsibility.

It is evident that in order to achieve long-term stabilization of CO_2, significant steps will have to be taken to move towards a low-carbon economy. Oil and gas companies have a crucial role to play here, in both shaping the debate and providing the technical expertise and global reach. Carbon capture and storage technology and hydrogen separation together offer a huge opportunity to de-carbonize the existing fossil fuels which are likely to remain the dominant energy source for decades to come, notwithstanding the increasing penetration of renewable technologies. Although these technologies are clearly expensive today, the Oil and Gas sector has an important role to play in helping to make these more commercially viable in the future.

Flaring of associated gas from offshore operations was a key focus of emission reductions plans.

"As far as Russia is concerned (which accounts for 35% of the 2007 increase in GHG emissions from flaring), complete recovery of the gas originally burned in flares was already achieved in the first few months of 2008"

ENI

There is significant scope for companies to improve awareness levels, understanding of risks and opportunities and their overall levels of disclosure.

Will Peak Oil have an Impact on Carbon?

Oil broke the $100 per barrel figure on February 20th, 2008. By July 3rd, 2008 the West Texas Intermediate (WTI) spot price for a barrel of oil was just over $145; double that of the previous year. "According to normal economic theory, and the history of oil, rising prices have two major effects," said Fatih Birol, chief economist at the International Energy Agency in Paris. "They reduce demand and they induce oil supplies. Not this time."[22]

Limits to oil supply becomes mainstream thinking

Bill Gammell, Chief Executive of United Kingdom oil explorer **Cairn Energy** told the Reuters Global Energy Summit in June that this push to record prices may have been influenced by a growing feeling that oil supplies might be peaking. "The move from $100 to $130 was actually a period when people started to look at and wonder more a bit about the peak oil theory," Gammell said.[23]

'Peak Oil' is the term used to describe the peaking of global oil supplies, after which the long term trend is a decline in the total availability of all liquid fuels, hence prices establish higher, longer term, levels. Discussion of peak oil fully entered the mainstream in 2008, and although it is still a divisive topic, views from many prominent figures in the energy and financial sectors are lending strength to the view that global oil supplies will peak in the short to medium term – just as the need for oil in newly industrializing countries puts pressure on the demand side.

Christophe de Margerie and Jim Mulva, heads of **Total** and **ConocoPhillips** respectively, have both said they believe world oil production faces a limit of 100 million barrels per day or less. "We're fast approaching an historic inflection point in our global energy balance," Tom Petrie, vice chairman of **Merrill Lynch** told A&D professionals at NAPE Expo 2008. "Whatever the ultimate timing, practical peak oil is becoming broadly recognized as a real issue."[24] By 'practical peak oil' Petrie is referring to above-ground factors such as geopolitics and nationalistic policies playing a more important role than geology in the supply of oil.

A key implication of these so-called above ground factors mean that resource holding countries are as concerned as others about energy security. To this end there has been a drive to repatriate natural resources from the International Oil Companies (IOCs) to the respective National Oil Companies (NOCs). This has, in turn, made access to reserves much more difficult for the IOCs and this may have implications for self-imposed production limits and for reduced opportunities for investment by the IOCs. On the other hand, today's oil price supports the NOCs undertaking their own exploration and production investment activity, even though they may not be as efficient in doing so because the advanced technology and expert knowledge sits with the IOC. This notional delay incurred due to the difference in technological know-how itself has an impact on how quickly production responds to high energy prices. In short, in spite of the high oil price there is a time lag between turning investment into production.

One company taking peak oil seriously is auto-manufacturer **Volvo** which states on its website, "Global oil production will probably peak within a decade and the time of cheap and abundant oil will be over." **General Motors** is another motor company that sees high oil prices as here to stay. "These higher gasoline prices are changing consumer behavior and rapidly," said GM Chairman. "We don't think this is a temporary spike or shift. We think it is permanent." The global hedge fund manager, George Soros, is also of the view that high prices are here to stay and that producers will not be persuaded to increase output. "Rather than expecting energy prices to go down somehow, we should accept that it must go further up first for us to be able to solve the problem in the long term".[25]

The challenge of increasing oil supplies

Over the past year there has been a series of stories that have made such fears legitimate. Global oil production fell in 2007 for the first time in five years while reserves also declined according to the **BP** Statistical Review of World Energy.[26] Leonid Fedun, Vice President of Russia's second-largest oil producer Lukoil, said that Russian oil production may never return to 2007 levels.[27] Indonesia, once a major exporter, quit OPEC when it stopped being an exporter.[28]

The U.S. Energy Information Administration (US-EIA) said that crude oil production from non-OPEC countries (such as Norway with production down 25 percent since 2001, United Kingdom down 43 percent in eight years, Prudhoe Bay, Alaska down by 65 percent since its peak two decades ago) will be unable to meet growing demand, forcing oil importing nations to rely more on OPEC.[29] In addition there are political tensions affecting oil exporting countries such as Nigeria, Iran and Iraq.

The International Energy Agency (IEA) is giving these factors considerable thought. It believes current investments will not be able to replace declining oil production and that a crisis before 2015 involving "an abrupt run-up in prices" could not be ruled out unless sufficient investment was made.[30]

22 http://www.nytimes.com/2008/04/29/business/worldbusiness/29oil.html?_r=1&oref=slogin&pagewanted=all

23 http://uk.reuters.com/article/businessNews/idUKL0653324220080606

24 Oil & Gas Investor, 1 March 2008.

25 http://www.reuters.com/article/managerMoves/idU.S.NOA83727720080618

It plans to release in November its findings of a comprehensive assessment of the world's top 400 oil fields but it is said that the findings point to future oil supplies possibly being far tighter than had been thought. Previously the IEA surveyed demand and expected supply to match it, but the new approach is to survey supply and it reflects growing unease that oil exporters will have difficulty in meeting future needs.

US-EIA is also conducting a supply study and preliminary findings suggest it will take a significant increase in supply from unconventional fuels to push global oil supplies over 100 million barrels a day by 2030. "We are optimistic in terms of resource availability, but wary about whether the investments get made in the right places and at a pace that will bring on supply to meet demand," says Guy Caruso, the U.S. agency's administrator.[31]

Impact of peak oil for GHG emissions

With the rise in environmental awareness, the 'green' agenda has taken its place at the head table. "Green" credentials for many companies are seen as critical to their brand and more fundamentally to their long term sustainability as high oil prices shift resources away from the IOC. On this basis, a number of oil and gas companies are placing bets on, and investing in, renewable technologies.

In order to further diversify their portfolios and reduce security of supply risks around conventional oil supplies, a number of oil and gas companies have also begun to invest in new technologies to develop oil-derived products. Extraction of oil from tar sands and the production of synthetic fuels from coal are two areas that have received increased interest although they are viewed by some as controversial, since, in some cases the energy used in production and the life-cycle emissions are considerably higher than conventional extraction and refining.

With growing demand for transportation fuels and energy, this portfolio approach is driven by the need to sustain the oil and gas business in question in an environment where access to resources is proving more and more difficult.

The interaction between high oil prices and global emissions is, therefore, a complex one. As oil prices rise, non-oil substitutions are sought by end-users but marginal oil fields also become more economically attractive to exploration and production companies. Furthermore, through the use of CO_2 injection and other forms of enhanced oil recovery, oil previously uneconomical to extract becomes available. Clearly, if this additional supply is realized and utilized, it will ultimately lead to further increases in CO_2 emissions unless technology innovation keeps pace to improve power generation efficiency, automotive efficiency and to make carbon sequestration a reality.

Biofuels (bioethanol and biodiesel) have also enjoyed strong growth in recent years, in a market driven strongly by government subsidies and investor interest in clean technology. Recently, however, attention has focused on the diversion of land for biofuel crops as opposed to food production and whether this has exacerbated the global rise in agricultural commodity prices. It remains to be seen what impact the next generation of biofuels using cellulosic technology will have on the dependence on traditional mineral/petroleum fuels.

The 1973 oil crisis offers many examples of how high oil prices can result in innovation and reduced reliance on a hydrocarbon economy. In Japan, the crisis was a major factor in moving away from oil intensive industries and resulted large investment in high value-add industries such as electronics. Furthermore, consumers in Europe and the U.S. were drawn to smaller cars. The crisis set Denmark on a long-term path to large scale renewable energy development, with renewables now a significant part of their energy mix. In Brazil, the crisis created a national ethanol program, and now ethanol accounts for 40% of Brazil's transportation fuel. With continued developments and refinements of renewable energy and energy efficiency, there is even more hope for greater diversification of our energy needs.

26 http://www.bloomberg.com/apps/news?pid=20601207&sid=aiSucgXE2muM&refer=energy

27 http://news.bbc.co.uk/1/hi/business/7348463.stm

28 http://news.bbc.co.uk/1/hi/business/7423008.stm

29 http://www.reuters.com/article/GCA-Oil/idUSN2543467620080625

30 http://www.nytimes.com/2008/04/29/business/worldbusiness/29oil.html?_r=1&oref=slogin&pagewanted=all

31 http://online.wsj.com/article/SB121139527250011387.html?mod=hpp_us_whats_news

Company highlights*

- Top disclosers by CDLI score: **Alcoa, BHP Billiton, Rio Tinto, Sumitomo Metal Industries, Xstrata**
- Largest non-respondents by market capitalization: **GMK Norilsk Nickel, Precision Castparts, Severstal JSC, Southern Copper, Steel Authority of India**

Key sector metrics

- Number of companies in the Global 500 in sector: **25**
- Number of companies responding in sector#: **18** (72% – ranked 8th overall, 5th out of carbon-intensive)
- Number of companies disclosing publicly: **15** (83% of respondents)
- Sector average CDLI score: **57** (ranked =1st out of carbon-intensive)
- Range of scores: **38** lowest – **77** highest
- Percentage of respondents disclosing emissions: Scope 1: **89%**, Scope 2: **83%**, Scope 3: **33%**
- Most common metric used for measuring emissions intensity – **per metric ton output**

* Companies listed include non-public responses. Names are listed alphabetically within categories.

\# The information in this box is based on the final number of respondents to CDP as of 31 July 2008. However, for time reasons the cut-off date for the responses received in the data and charts in the rest of the section was July 1 2008, and hence these may differ slightly from this figure.

Raw Materials, Mining, Paper & Packaging

For the purposes of the analysis in this report the Raw Materials, Mining, Paper & Packaging sector comprises of the Metals, Mining and Steel sub-sectors, as there is currently no representation by Raw Materials, or Paper & Packaging companies in the Global 500.

This sector makes up 5% of the Global 500 companies, of which three companies are new to the 500 this year. Similarly, the sector comprises 5% of the respondent population and was ranked 5th in terms of response rates at 72% which was below the total population average (figure 40).

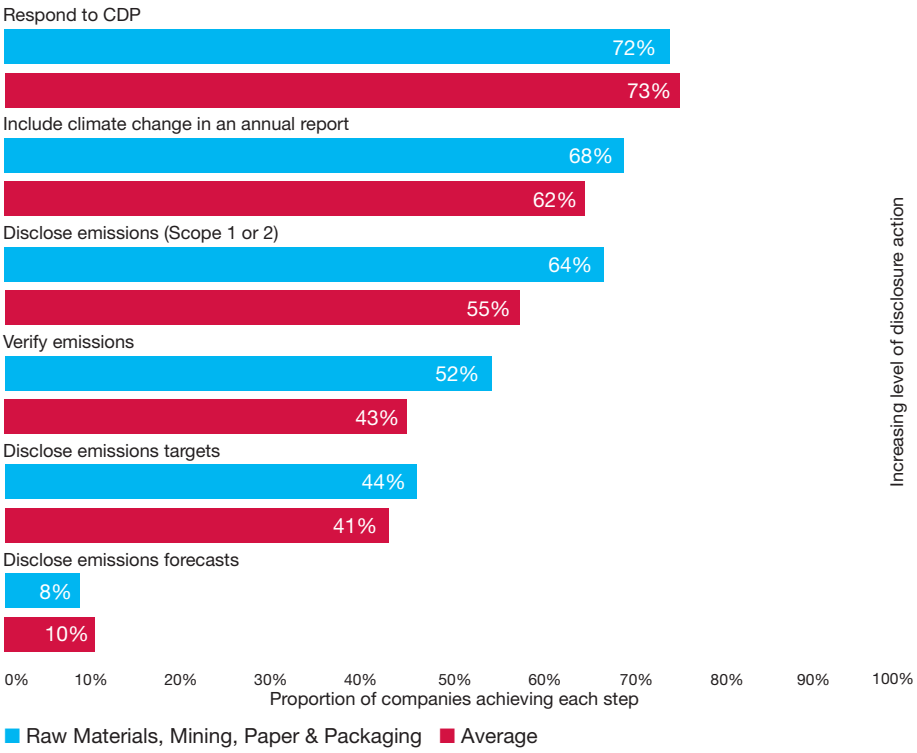
Although overall response rates were disappointing, those companies that did respond provided above average disclosures: the Metals & Mining sector was the highest scoring of the intensive sectors. Figure 41 illustrates the industries performance on the different aspects of disclosure and reporting included in the CDP questionnaire. To highlight how this performance compares to its energy-intensive peer group an average score line for the intensive sector is also displayed.

The disclosures from the Metals & Mining sector perform above the intensive industry average across almost all areas of the questionnaire. The scoring variation is particularly apparent in relation to Scopes 1 & 2, and energy reporting, as well as governance related reporting where the sector has received high scores.

In line with the general trend across the whole respondent population, forecasting performance and Scope 3 analysis were considerably weaker than other elements of the disclosures. More specifically to Metals & Mining were areas such as data accuracy and emissions trading, where the sector underperformed against the intensive average.

Since CDP5 (2007) there has been minimal impact of climate change on the sector itself directly through physical events. However, metals and mining companies are particularly vulnerable to issues of water scarcity in relation to global temperature rises going forward, while power shortages in South Africa in early 2008 resulted in the temporary closure of several mines.

Fig. 40: Disclosure waterfall – Raw Materials, Mining, Paper & Packaging



The regulatory environment is still evolving, and as such keeping abreast of new regulations and compliance requirements is particularly important for intensive sectors (the contribution of steel to global emissions is around 5%) who consequently bear a comparatively high compliance cost. At the same time, as with other sectors, rising energy costs are of concern to respondents.

Risks & opportunities

Regulatory risk is highly relevant for Raw Materials, Mining, Paper & Packaging companies, as the financial implications of carbon taxes/ purchasing credits can be material. Key regulations identified include EU ETS, CDM (China/Brazil, India), National Greenhouse and Energy Reporting Act 2007 (Australia) and the Clean Air and Climate Change Act (Canada).

Reference was made to the current disparity in regulations between different countries that provides a competitive advantage to those in less highly regulated areas. Additionally, respondents identified a risk associated with forthcoming or anticipated legislation or unforeseen environmental remediation costs.

"There is a significant risk in the lack of predictability of climate change regulation."
Arcelor Mittal

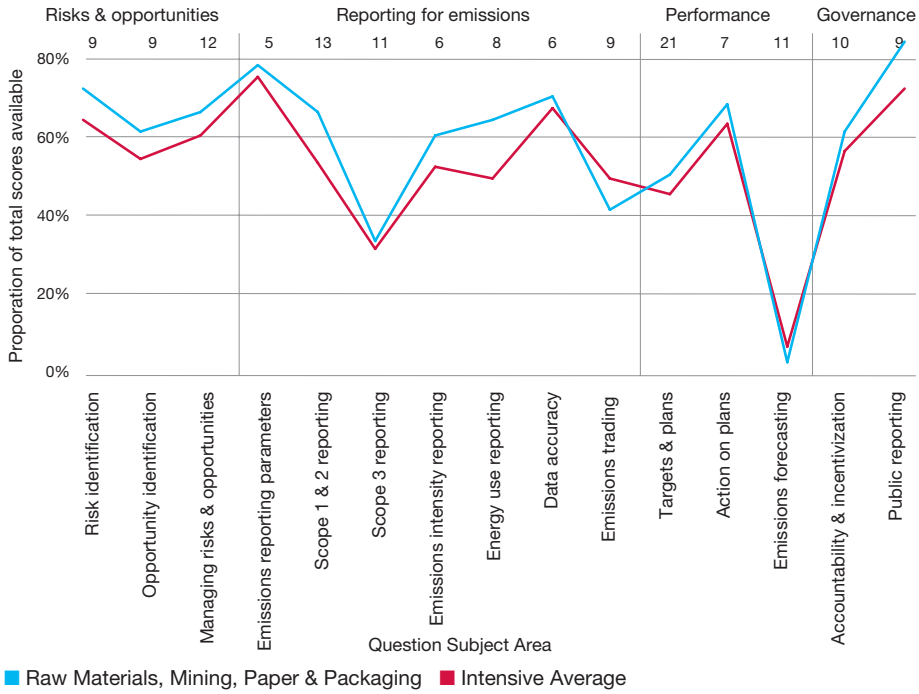
Given that these companies are already operating in a highly regulated environment, there are significant additional costs associated with compliance. Non-compliance or any uncertainty and delays with legislative direction can threaten the obtainment/renewal of operating licenses and mining rights permissioning which are directed by local/national regulations.

This uncertainty over regulation is creating a barrier for some organizations as it is preventing key strategic decisions on research and development, and emissions mitigation from being taken; companies want more certainty around what national regulations are going to be so that they can plan for whichever developments take place.

All respondents considered themselves to be exposed to physical risks from climate change, due to the vulnerability of operations to water scarcity particularly in "Southern

Uncertainty over regulation is creating a barrier for some organizations as it is preventing key strategic decisions on research and development, and emissions mitigation from being taken.

Fig. 41: Sector disclosure – Raw Materials, Mining, Paper & Packaging



General risks that were reported included disruption to the distribution network and supply chain, reputational issues with investors, and scarcity of resources.

Africa, South Australia, Central America and Southern Europe and the Mediterranean" (**BHP Billiton**).

Due to the critical nature of water supply to mining operations this was the main focus for physical risks, however other resource shortages were considered, and those with sea-level operations noted a flooding risk.

"We consider our company to be exposed to physical risks due to climate change because our mines are highly dependent on a reliable supply of water and electricity amongst other things. A reduction in rainfall amount or variability, or an increase in evaporation (due to higher temperatures) would further strain the already limited amount of water resources."
Anglo Platinum

General risks that were reported included disruption to the distribution network and supply chain, reputational issues with investors, and scarcity of resources. Factors specific to the Mining & Metals industry included downstream market activity impacts on commodity sales, and escalating scrap prices.

All respondents reported that they had taken or planned action to manage the risks identified including through monitoring legislative changes, business continuity plans, significant investment in emissions reductions and energy efficiency, the use of recycled metals, using fixed power contracts, as well as emissions trading.

"In addition to working to reduce our greenhouse emissions…our Energy Marketing Group focuses on managing BHP Billiton's emissions trading exposure. Their activities centre on building knowledge in global carbon trading and its linkages with energy markets, as well as creating value by actively trading in the Kyoto Protocol's Clean Development Mechanism (CDM) and Joint Implementation (JI) credits."
BHP Billiton

"From a medium-to long-term viewpoint, we are promoting the development of groundbreaking technology for CO_2 capture and storage, recyclable energy, [and] hydrogen supply."
Nippon Steel

Primarily companies in the sector identified commercial opportunities driven by the increased global focus on climate. Due to the diversity in metals in terms of weight and durability, respondents were able to consider a wide variety of new uses. This was reflected in the high levels of investment in research and development disclosed. Some examples of opportunities identified are detailed below:

- Increased utilization of aluminum for lighter, more energy efficient metals for transportation products;
- Uplifted demand for platinum as fuel cell technology develops;
- A rise in sea temperatures will increase the shipping period for ports that become ice-bound during the winter; and
- New product offerings such as coal bundled with carbon credits (Certified Emission Reductions realised from CDM projects) to assist customers in meeting their own EU ETS targets.

Reporting for emissions

All companies that responded in the Metals & Mining sector disclosed basic emissions accounting information such as the accounting period. The GHG protocol methodology was used by 77% of respondents to calculate their emissions, however bespoke methodologies developed in-house were also reported. Other guidance used in the sector include AA 1000, and Global Reporting Initiative's (GRI) G3 sustainability reporting guidelines.

Half of the sector stated that their reported emissions have varied significantly from last year. Of those that reported variation in their emissions year-on-year, 77% stated that there had been increases in emissions, primarily driven by acquisitive growth or product mix. For those reporting significant reductions the main cause was from a fall in the emissions intensity through more energy efficient processes and divestments.

Sources of Scope 3 emissions are an area in which business in general is continuing to increase its level of understanding and monitoring. The response rate for disclosing Scope 3 emissions was 50% and the most disclosed source was product distribution/transportation, and downstream consumption (particularly for coal mining companies). The respondents were typically more able to measure business travel and transportation through miles travelled, however increasingly a life-cycle approach to emissions with inclusion of end usage is being developed.

External assurance sends a signal to the market concerning the importance placed on environmental matters by the company. As with annual financial reports emissions accounting should be independently verified to give assurance to stakeholders that the data is robust. 72% of the sector now have their emissions data independently verified with all companies having a system in place to assess the accuracy of the data themselves. This probably reflects the level of evolution of Metals & Mining companies for whom greater reporting transparency has been required due to emissions levels. However, verification of data was still a relatively weak area for the sector compared to the higher scores obtained elsewhere in the questionnaire.

Nearly a third of the sector reported having facilities covered by EU ETS, and almost all reported that the initial effects of the scheme were negligible. Whilst respondents reported that they were operating within their trading caps with a minimal resulting direct impact on the businesses, the response below indicates some concerns going forward into Phase II:

"In Phase 2 of the scheme Rio Tinto is concerned over indirect effects of the EU ETS. This is due to pass through, into energy prices, of carbon charges, general inflationary effects of the ETS and the move toward permit auctioning."
Rio Tinto

In general however, the awareness of and disclosures relating to trading schemes were a weaker area for the Metals & Mining sector with below average scores, and should be a point of focus for future reporting.

Performance

Just over 77% of the sector stated that they have emissions reduction targets in place and 61% disclosed the time period and reduction target. Targets were set from an average baseline year of 2003 with reductions of an average of c.10% to 2012 (in line with the end of the current Kyoto Protocol period). The reduction targets appear more conservative than in other sectors, probably reflecting the maturing of emissions reductions efforts in this sector.

"In 2007, Alcoa further reduced its emissions from 27% below 1990 in 2006 to 33% below 1990 in 2007 despite significant growth."
Alcoa

Almost 90% of companies disclosed details of the activities they were undertaking to reduce emissions which were primarily focused on recycling, improving energy efficiency throughout operations, installation of renewable energy facilities such as solar cell power generators and biomass and the development of new energy sources (such as hydrogen).

The level of investment into energy and GHG reduction plans was comparatively diverse; whilst most companies did make some disclosure, few quantified these investments. Significant cost savings have been reported through investments into energy efficiency, in both absolute and intensity terms.

72%

of the sector now have their emissions data independently verified.

77%

of the sector stated that they have emissions reduction targets in place.

88%

of the sector has an executive body with overall responsibility for climate change.

Whilst all companies responded that they utilize emissions intensity figures, there is relatively little consistency across the sector due to the diverse nature of the products. Metric tons of CO_2 per metric ton of production/ sales is the most common measure.

The rates of disclosure for forecast emissions were low; however this was a consistent trend across all sectors.

More positively, carbon pricing was factored into capital expenditure planning in 44% of responses, indicating a higher level of carbon-related planning than in other sectors.

"For all major capital projects, Rio Tinto's investment committee requires explicit consideration and discussion of carbon emissions and potential effects on project economics."
Rio Tinto

Governance

The majority (88%) of the sector has an executive body with overall responsibility for climate change. In most instances, climate change falls under the remit of a particular committee (corporate responsibility, compliance, environmental or public policy) rather than the Board of Directors.

Within the sector there were extremely few committees specifically established to take responsibility for climate change. The board is in most cases reported to on climate change issues at least annually but often only at quarterly or half-yearly intervals. More than half of the sector (61%) have implemented incentive mechanisms for individual management of climate change issues and targets. These are mostly linked to remuneration; however some more innovative approaches were taken:

"This year BHP Billiton launches its inaugural CEO's Energy Excellence Award. The purpose of this award is to recognize outstanding achievements in creating an energy aware culture to drive energy efficiency and reduce greenhouse gas emissions."
BHP Billiton

Within the Metals & Mining sector, the disclosed levels of statutory filings, formal communications with shareholders, and voluntary communications relating to climate change were 94%, 61% and 91% respectively, reflecting the predominance of annual statutory and CSR reporting as the preferred medium for communication.

Engaging with policymakers was undertaken by 61% of respondents, for example through trade associations, participation in government committees, provision of submissions to discussion papers, and engaging with provincial, state and national governments. Some of the larger respondents also have significant presence in industry bodies across the world.

Conclusions

Overall the responses of the sector were encouraging and among the highest scoring of all the intensive industries. Particular strengths included the identification, management, and reporting of the business impact of risks and opportunities, as well as accounting fundamentals, and reporting.

Key points for improvement for CDP 2009 include increased consideration of Scope 3 emissions and forecasting; however we note that the scoring trough around these areas was apparent across the entire population of responses rather than being a sector specific issue. Data accuracy and emissions trading scores were specific weaknesses of the sector; however given the maturity of carbon performance in the industry, it is not anticipated that these areas will require significant additional effort.

Transport & Logistics

For the purposes of the analysis in this report the transport sector comprises of two sub-sectors: air freight & logistics and surface transport.

Since CDP5 there has been little impact of climate change on the industry itself, whether directly through physical events or indirectly through new regulation. However, the escalating energy prices and changing public awareness of carbon emission are starting to impact business decisions of the respondents in this sector.

Overall response rates are low in the sector, which has also driven down disclosure rates at each subsequent stage in the waterfall (figure 42). Disclosure of Scope 1 and 2 emissions is well below average, but this is likely to reflect the fact that Scope 3 emissions tend to be more relevant in this sector. Verification of emissions is also well below average, perhaps reflecting the low level of materiality of energy costs in overall costs (although transport companies are heavy energy users, depreciation or rental of equipment and the large number of people employed represent a greater proportion of their cost bases).

In terms of quality of responses received (figure 43, overleaf), the transport sector continues to score below intensive sector average results across all areas. Areas with the most noticeable differences from the average are found in emissions trading, energy reporting, data accuracy and Scope 1 and 2 reporting. These findings support the view that the transport sector attributes less attention to Scope 1 and 2 reporting and verification procedures possibly also due to the lower materiality of Scope 1 & 2 and energy costs in this industry. The industry is not heavily regulated at present and the majority of respondents indicated zero involvement in emissions trading.

The sector is slightly below average results on risk and opportunity identification, forecasting and governance. The gap on Scope 3 reporting is significantly smaller than that on Scope 1 and Scope 2, reinforcing the previous suggestion of greater significance of Scope 3 in this sector.

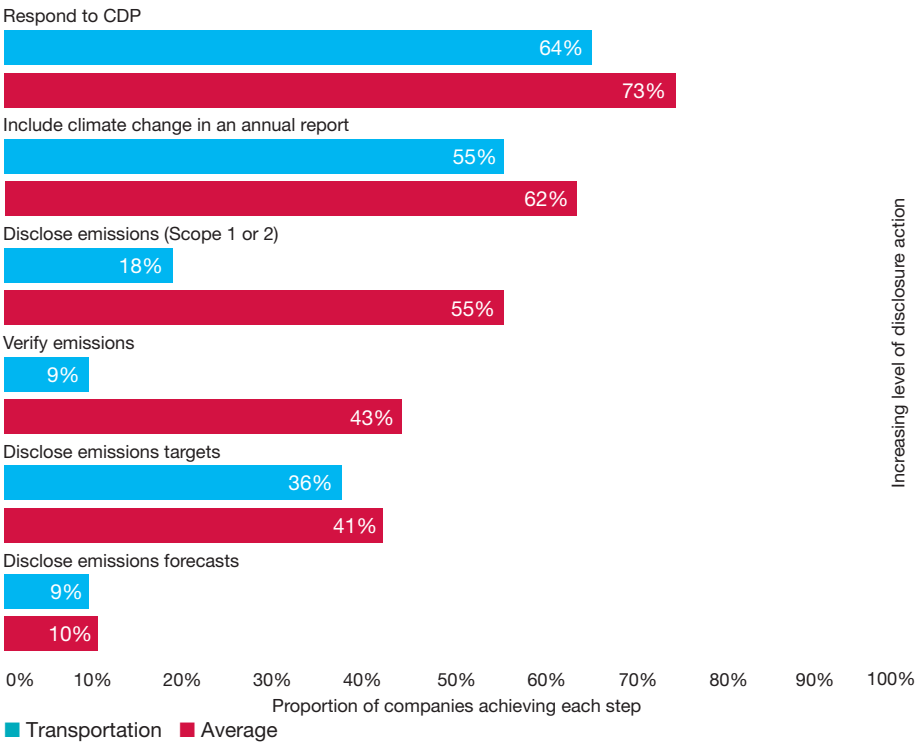
Company highlights*

- Top disclosers by CDLI score: **Burlington Northern Santa Fe, Canadian National Railways, Deutsche Post, FedEx, United Parcel Services**
- Largest non-respondents by market capitalization: **A.P. Moller – Maersk, Atlantia, Central Japan Railway**

Key sector metrics

- Number of companies in the Global 500 in sector: **11**
- Number of companies responding in sector**#: **8** (73% – ranked 7th overall, 4th out of carbon-intensive)
- Number of companies disclosing publicly: **6** (75% of respondents)
- Sector average CDLI score: **34** (ranked 7th out of carbon-intensive)
- Range of scores: **16** lowest – **66** highest
- Percentage of respondents disclosing emissions: Scope 1: **50%**, Scope 2: **50%**, Scope 3: **13%**
- Most common metric used for measuring emissions intensity – **No consistent metric emerging**

Fig. 42: Disclosure waterfall – Transport & Logistics



* Companies listed include non-public responses. Names are listed alphabetically within categories.

\# The information in this box is based on the final number of respondents to CDP as of 31 July 2008. However, for time reasons the cut-off date for the responses received in the data and charts in the rest of the section was July 1 2008, and hence these may differ slightly from this figure.

** One additional company submitted a response but this was received after the deadline for inclusion into the analysis.

"BNSF operations are adversely affected by abnormally deep snowfalls, extreme weather events with very high winds, and by extremely hot weather that affects rails in ways that reduce the maximum safe speed for trains. Operations may also be affected by flooding in some locations, as has been seen during the recent flooding along the Mississippi and its tributaries in the upper Midwest. BNSF operates in a few coastal areas but has only a small percentage of its track and key facilities at elevations near sea level."

Burlington Northern Santa Fe Corporation

Risks & opportunities

The companies within this sample are essentially service businesses involved in the transport of goods and people. Capital lifetimes in the industry tend to be long and many elements of the value chain are likely to be outsourced; this, in turn is likely to impact on the overall materiality of the climate change issue. In terms of the exposure to the physical risks of climate change, respondents tended to focus on the incidence of extreme weather events that would impact transport distribution networks, for example:

Five out of seven companies in the sector consider future regulation around carbon to be a significant risk to the industry. General risks outlined by respondents include increasing customer awareness of climate change issues and products impacts and an anticipated step-up in costs of raw materials, predominantly as a result of escalating energy prices.

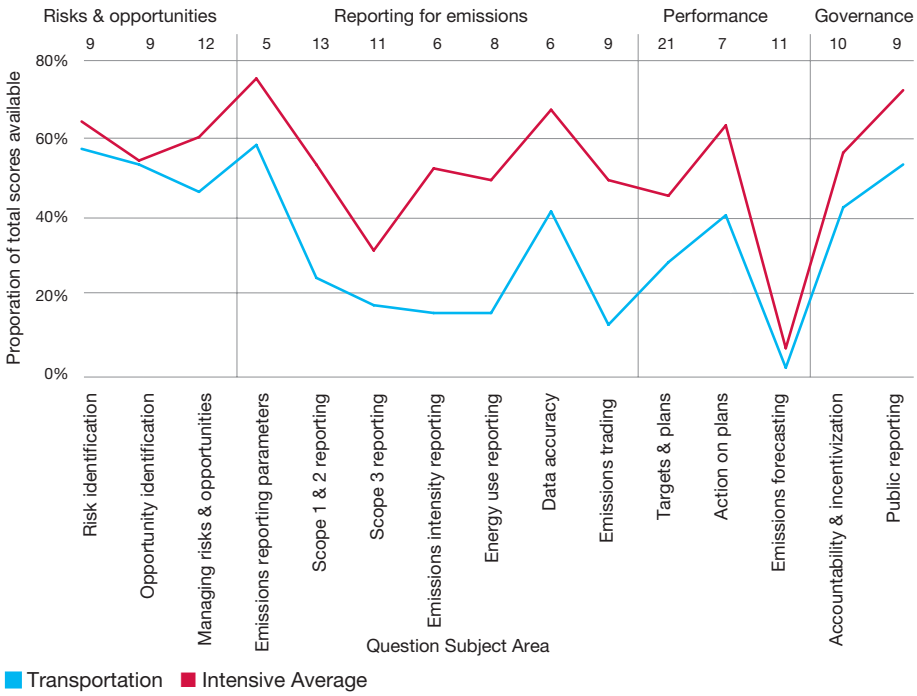
Within the logistics sector for example, **Deutsche Post** launched GOGREEN products and services for their clients in 2006. This involves calculating the total carbon emissions of the transport-cycle, either for every parcel individually in the case of Express shipments or using mean values. These emissions are compensated either by internal emission-reductions (for example alternative engines and fuels) or by acquisition of emission-credits from external projects. The scope of GOGREEN is being extended gradually including more and more services of **Deutsche Post**.

Reporting for emissions

Disclosure levels within this sector tend to be lower than average with many companies not currently undertaking monitoring and reporting of carbon emissions data. Indeed, the use of the GHG Protocol as a reporting tool is low (28%). Respondents from our sample gave no consistent reason as to why this was the case, but reporting appears to be relatively underdeveloped. Indeed, one of the respondents indicated that total emissions have varied significantly from last year as a result of improvements in the accuracy of emissions monitoring.

Only 13% of the sector discloses Scope 3 emissions with the main type of Scope 3 emissions being from employee business travel, subcontracted transportation and use/disposal of a company's products and services. In the case

Fig. 43: Sector disclosure – Transport & Logistics



of logistics, Scope 3 emissions will typically comprise outsourced distribution networks (road/rail).

Around 14% of the sector have their emissions data independently verified with a lower proportion (15%) having a system in place to assess data accuracy. The nature of the system varies significantly, with Scope 1 and Scope 2 emissions generally relatively easy to quantify based on the cost of energy, whereas Scope 3 is far more reliant on estimation techniques.

"There is no set system in place to assess the accuracy of the GHG emissions inventory calculation methods. However, the fuel volumes used to calculate the GHG emissions are taken from the annual regulatory reports to Transport Canada and to the U.S. Surface Transportation Board and the emissions factors used are from the annual reporting to the Railway Association of Canada. All information to the regulatory agencies is regularly verified."
Canadian National Railways

Performance

Around 57% of respondents from the sector indicated that they have emissions reduction targets in place and 43% were able to provide the time period and reduction target. The respondents disclosed a mix of absolute and relative emission reduction targets. Companies with reduction targets in place typically express their reduction plans over a five year period ending in 2012 which coincides with the end of the current Kyoto Protocol period. A number, however, were working with targets that extended to 2020.

The level of ambition and form of emissions targets varies significantly with some companies aiming for 10-18% reduction in GHG emissions by 2012 and others 30% emission reduction in scopes 1-3 by 2020.

"The Memorandum of Association with the Railway Association of Canada extends over a 5-year period (2006 to 2010). The rail industry in Canada is targeting 16.98 kg CO_2 emissions per 1000 rail metric ton kilometers by 2010, from 18.22 kg CO_2/1000 rail metric ton kilometers in 2006. The SmartWay Program currently in place has established targets to 2012. Through this voluntary partnership, the Environmental Protection Agency and its partners expect to eliminate 33 to 36 million tons of CO_2 emissions and up to 200,000 tons of NOx emissions per year by 2012."
Canadian National Railways

Given the nature of its business the sector is focusing on reducing emissions through investments in new technology, changing travel patterns, energy efficiency initiatives and continuous education of workforces to implement best energy saving practices. Some of the key actions taken by the sector are listed below:

- Energy use: identification of technical modifications to vehicles to improve energy efficiency, identification and installation of on-board metering/telemetry systems to measure actual consumption and monitor driver performance and low idle technology;
- Travel patterns: exploring the application of regenerative braking systems in the rail sector;
- New technology: automatic stop/start devices in locomotives to conserve fuel and reduce emissions by automatically shutting down locomotives; and
- Workforce education: energy-efficient driver training modules for staff working in the logistics distribution business.

Governance

The majority (71%) of the sector has an executive body with overall responsibility for climate change. Climate change comes under the remit of a corporate responsibility, environmental policy council, steering, or audit committee usually chaired by a board member or CEO.

"The Environment, Safety and Security committee meets a minimum of four times per year. The senior management responsible for the Environment provides regular updates to the Board Committee."
Canadian National Railways

Only 29% of companies provide incentive mechanisms for individual management of climate change issues including attainment of GHG targets. 43% of companies publish information about the risks and opportunities presented to the company by climate change, details of their GHG emissions and plans to reduce emissions through either the company's Annual Report or any other statutory filings. 57% of companies engage with policymakers on possible responses to climate change including taxation, regulation and carbon trading.

"We have an active full-time public affairs group in major capitals around the world, and at many local/ provincial centers. The team's role is to monitor emerging regulation/ legislation; to share relevant information with elected public officials and government officers, and to provide UPS's point of view on the impact of planned or considered regulations and legislation."
United Parcel Services

Conclusions

As a result of the sector's characteristics, disclosures in areas of Scope 1 and Scope 2, energy reporting, verification and emission trading are significantly below average results. There is a larger focus by the sector on Scope 3 emissions, opportunity identification, forecasting and governance.

With the expected introduction of carbon regulation in the transportation industry and the expansion of carbon trading schemes the sector will need to invest significantly more time and effort in areas of reporting identified above.

Company highlights*

- Top disclosers by CDLI score: **Centrica, Exelon, Fortum, FPL Group, Iberdrola, Scottish & Southern Energy**
- Largest non-respondents by market capitalization: **Unified Energy System, National Thermal Power (NTPC)**

Key sector metrics

- Number of companies in the Global 500 in sector: **30**
- Number of companies responding in sector**#: **28** (93% – ranked 1st overall, 1st out of carbon-intensive)
- Number of companies disclosing publicly: **26** (93% of respondents)
- Sector average CDLI score: **57** (ranked =1st out of carbon-intensive)
- Range of scores: **15** lowest – **82** highest
- Percentage of respondents disclosing emissions: Scope 1: **89%**, Scope 2: **67%**, Scope 3: **41%**
- Most common metric used for measuring emissions intensity – **per MWh**

* Companies listed include non-public responses. Names are listed alphabetically within categories.

** One additional company submitted a response but this was received after the deadline for inclusion into the analysis.

The information in this box is based on the final number of respondents to CDP as of 31 July 2008. However, for time reasons the cut-off date for the responses received in the data and charts in the rest of the section was July 1 2008, and hence these may differ slightly from this figure.

Utilities

For the purposes of analysis in this report, the utilities sector comprises electricity and gas businesses which, depending on prevailing regulatory structures, may include various activities along the supply chain such as energy generation, energy distribution and wholesale/retail sales and trading of energy. Utilities account for 7% of respondents to the questionnaire, compared to 6% of total G500 companies.

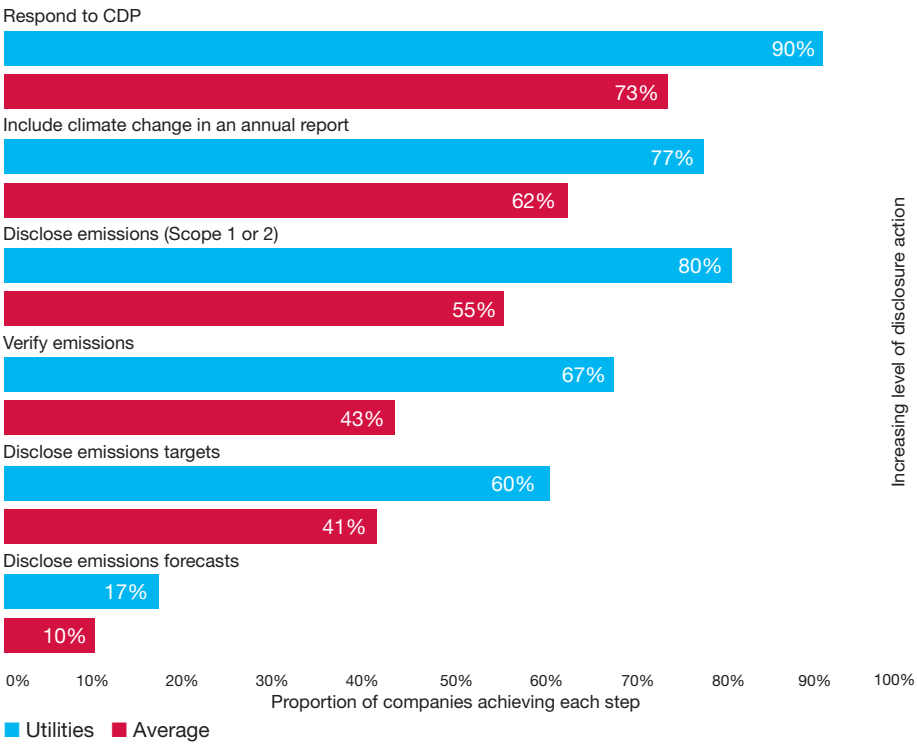
The geographical composition of the CDP6 respondents in this sector is strongly weighted towards Europe (59%) hence *a priori* we would expect issues around the EU Emissions Trading Scheme (EU ETS) to feature strongly. Of the remainder, 30% of the respondents are based in North America and 11% in Asia, where proposals to implement carbon trading or other forms of regulation are under active discussion.

Utilities are among the most energy-intensive sectors. The electricity production business is comparatively high in Scope 1 emissions, which, in turn, translate to the Scope 2 emissions of companies in other industries. As a consequence, utilities' respondents in CDP6 are among the most active companies in disclosing emissions, analyzing climate change risks, and engaging with stakeholders on GHG issues.

Given this context, overall levels of disclosure from the sector are unsurprisingly high and exceed the average for carbon-intensive industries under the six categories of action represented by the disclosure waterfall (figure 44). The most impressive performance is seen in the areas of independent verification of emissions and the setting of company-level emissions targets.

Given the high materiality of carbon within the business (either directly as a cost or opportunity cost under the EU ETS or indirectly through product use) and the highly regulated environment within which this sector operates, it could be expected that the utilities sector might outperform other carbon intensive industries. Figure 45 indicates sector performance on the basis of average scores by CDP6 question relative to the average scores for the carbon-intensive sectors overall.

Fig. 44: Disclosure waterfall – Utilities



Utilities respondents outperform the Global 500 average by between 1-16 percentage points in almost all areas. Particular strengths are identified as participation in emissions intensity reporting, emissions trading and agreeing and implementing carbon action plans.

Risks & opportunities

All respondents who answered the question (93% of total) stated that their company was exposed to regulatory risk, with the vast majority also suggesting they were exposed to physical and general risks around climate change. There was a clear expectation among CDP6 respondents that more stringent requirements for GHG reduction would be imposed in the short to medium term. U.S. utilities mentioned the impact of various state-level schemes that are under development such as the Regional Greenhouse Gas Initiative (RGGI) covering North-eastern and Mid-Atlantic States, and the Western Climate Initiative (WCI) which includes many of the coal States. In Europe, the extension of the EU ETS horizon (to 2020) was cited with an expectation of tighter carbon caps, as reflected in current forward prices.

"Looking forward, it is difficult to state the precise impact of proposed future legislation given the current reviews of Post Kyoto period. However, all future energy scenarios have a strong emphasis on climate control, given the Government's reduction on CO_2 to set Spain and United Kingdom on a pathway to achieve the EU objective."
Iberdrola

Many companies also believed that physical risks from climate change would create significant challenges, both in terms of operational issues and ensuring demand was met. Energy infrastructure systems may suffer increased stress if demand for heating and cooling becomes more unpredictable. Water availability for hydro generation was also mentioned; indeed, this issue was seen in 2005, when the lack of rain in the Iberian Peninsula was cited as a factor for driving carbon prices higher under the EU ETS.

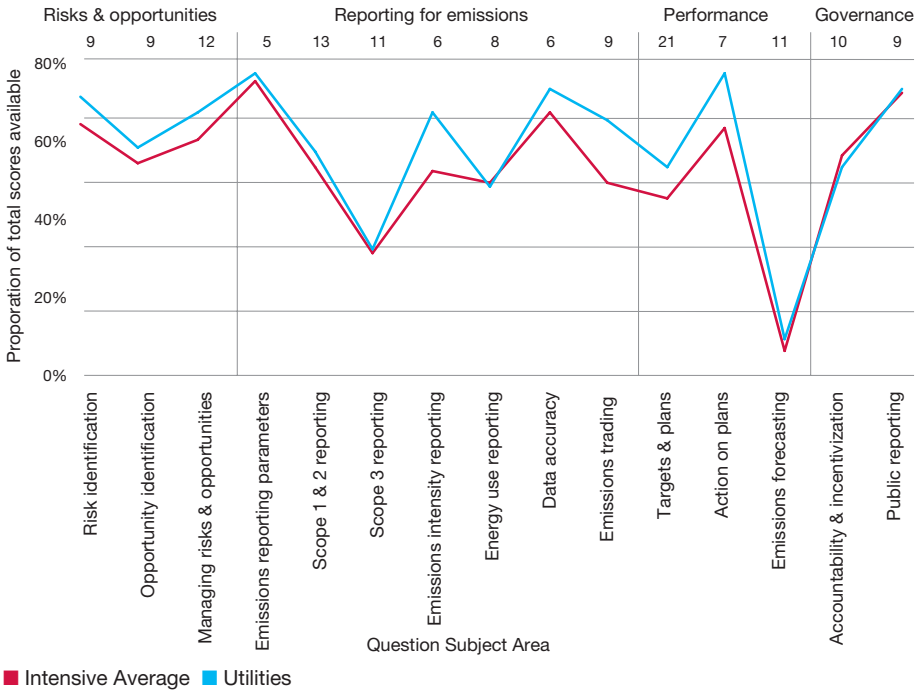
"Rising air temperatures will also cause rises in sea and river temperatures, cooling systems using these two sources of cooling will become less efficient and sea and river ecosystems more sensitive to

The most impressive performance is seen in the areas of independent verification of emissions and the setting of company-level emissions targets.

There was a clear expectation among CDP6 respondents that more stringent requirements for GHG reduction would be imposed in the short to medium term.

Energy infrastructure systems may suffer increased stress if demand for heating and cooling becomes more unpredictable.

Fig. 45: Sector disclosure – Utilities



"Government should outline as early and as clearly as possible the regulatory system within which these targets will be achieved in the long term, thereby minimizing regulatory risk, and allowing us to plan investment more accurately."

Scottish & Southern Energy

"Our most significant source of direct carbon emissions is our fleet of gas-fired power stations. Throughout 2008 we will be implementing a series of measures across our fleet designed to improve plant efficiency with the aim of saving over 50,000t CO_2 emissions annually thereafter."

Centrica

"Policy for climate change is discussed at the Advisory Bodies established by Japanese government. Electric power utilities in Japan, including Kansai, are usually elected as one of the member of such Advisory Bodies so that we can input the industry voice into the process of policy decision."

Kansai Electric Power

elevated temperatures possibly further limiting return water temperatures."
Centrica

"Physical risks also include a need for increased statutory compensation fees in cases of long power failures and the increased need for investments in transmission grid reliability in order to avoid compensation fees."
Fortum

General risks also touched on the interface with consumers. A number of companies noted that, as energy prices rose, consumers became more GHG-conscious, and there was a corresponding risk of lower final demand.

"Over time consumers are likely to increase the energy efficiency of their homes and businesses to save money as energy prices increase and to reduce their carbon footprint in response to climate change. Therefore, the average amount of energy we sell to each customer will correspondingly decline."
Centrica

In general, utilities appear to have good risk management systems in place, with a strong understanding of how to plan for, and mitigate against, regulatory risk. The key concern for utilities, however, is that the regulatory horizon for carbon is sufficiently long and transparent so as to enable efficient investment planning. Energy and utilities is an industry characterized by high capital costs and long lead times. Clearly, both the overall tone of climate policy in terms of longer term carbon targets and the detail is important.

"We… anticipate new legislation and regulations that may come into effect and ensure that we are adequately prepared to comply with them. This is evident in our commitment to reduce our baseline emissions by 80%, a higher target than the current United Kingdom government target of reducing emissions to 60% of 1991 levels by 2050."
National Grid

Opportunities identified around climate change were numerous and covered a number of dimensions. 89% of respondents believed that changing regulation would create new market opportunities and 78% anticipated more general opportunities (e.g. providing green products to customers). Competitive advantage and investment in renewable energy markets was the most common point made, but an additional factor was how climate change might impact upon seasonal load and whether it provided opportunities for greater smoothing of energy demand over the course of the year (e.g. by reducing winter heating and increasing summer air conditioning requirements in temperate climates).

"Regulation of greenhouse gases will significantly increase the demand for low-and zero-emitting electric generating technologies such as wind, solar, and biomass."
Duke Energy

"According to the RPA (Renewable Portfolio Agreement) with the government in 2005, KEPCO has invested US$740 million on building renewable energy facilities with the capacity of 332MW for the last 3 years. Also, we are putting funds into R&D to replacing fossil fuels with green energy."
Korean Electric Power

Reporting for emissions

Within the sector, 89% of companies disclosed Scope 1 emissions, one of the highest figures recorded. All companies reporting Scope 1 emissions were either able to disclose Scope 2 emissions or reported them as zero/negligible on the grounds that the company uses its own generated electricity for Scope 2 applications.

62% of respondents stated that they calculated emissions in line with the GHG Protocol, with the remainder reliant upon guidelines prescribed under domestic legislation. Only 41% of companies reported Scope 3 emissions in some format. Those who did not cited low materiality of Scope 3 emissions as the reason why they were not considered.

"Our emission profile is completely dominated by the emissions from our power generation which account for more than 99% of our total emissions."
RWE

Out of the companies reporting a significant rise in emissions, this was driven primarily by their expansion in energy sales that offset any efficiency gains. A small proportion of respondents also saw significant changes in emissions due to improvements in their calculation methodology.

"For scopes 1 and 2, emissions reported in previous years included only CO_2 for electricity generation. This year, emissions reported include four different GHG (CO_2, CH_4, N_2O, SF_6) and all the energy life cycle activities: mining, natural gas chain from liquefaction to regasification, electricity generation, and T&D of electricity."
Union Fenosa

Performance

In the utilities sector, 81% of companies reported an emissions reduction program in place, which is higher than the 75% observed across the overall Global 500 population. Most reduction targets were expressed in terms of medium-term reductions in emission intensity and/or absolute emissions, however some companies expressed more ambitious and longer-term plans, for example:

"The main target is to reduce carbon intensity of generation from our power stations by 50% from 2005/06 levels by 2019/20."
Scottish & Southern Energy

"Our ambition is to be able to generate energy at low cost and zero emission by 2020."
Enel

"Our long-term vision is to be a CO_2-free power and heat company."
Fortum

Companies are attempting to achieve these goals through a combination of investment in renewable or low-carbon energy sources and improved efficiency in existing fossil-fuelled plants. The scale of planned, or committed, investment varied significantly.

"We will make an investment effort without precedent in the world in order to grow in the Renewable Energy area. It is anticipated that this business will draw 48% of all organic investments, approximately €8,600 million, in order to achieve an installed capacity of 13,600 MW at the end of the period."
Iberdrola

"We are expanding our use of safe, emission-free nuclear generation through high capacity factors, uprates and the construction of new nuclear facilities."
Entergy

Governance

Out of all respondents, 85% say they have a dedicated board member responsible for carbon emissions. 59% say that they incorporate carbon targets into remuneration, notably higher than many other sectors. This partly reflects the fact that improved efficiency leads to direct financial savings for the company as well as having a beneficial impact on emissions.

"All plant operators and general managers have a direct connection to efficiency as a part of their performance evaluations."
FPL Group

"Incentives are related to achievements of goals in the generation process efficiency and to the development of capacity from renewables."
Enel

"In 2007, Exelon began including a GHG Commitment metric on our Corporate Scorecard."
Exelon

Utilities are relatively strong on disclosure, with 78% publishing GHG emissions in their annual reports and 85% publishing a dedicated CSR report. They are particularly strong on stakeholder engagement: 96% of respondents state that they engage with stakeholders on a regular basis. This result is representative for all geographies:

"As a part of FirstEnergy's effort to engage in public policy discussions surrounding issues of importance to our customers and shareholders, we have joined the Global Roundtable on Climate Change, a three-year project to analyze and evaluate climate change issues. Comprising 150 high-level representatives of critical stakeholder groups."
FirstEnergy

"National Grid is trying to get regulatory buy-in to implement Energy Efficiency programs in the United Kingdom, taking responsibility for energy savings measures, since it has longer term contracts for transmission of energy compared to distributors who do not have long-term contracts with their customers."
National Grid

Conclusions

Overall, the utilities sector has scored well in CDP6 achieving joint first position within the energy-intensive sectors on the basis of CDLI scores. As noted previously, however, the differences within the top three sector scores are minimal and the utilities sector is recognized as a high performer in CDP6.

To date, much of the burden for reductions in carbon emissions has been placed upon this sector, especially in Europe. This is likely to continue since policy measures targeting other sectors are challenging to design and implement, both technically and politically. Utilities companies also have a strong track record of engagement with policy makers and other stakeholders. This is a good example of a pro-active sector and other industries would do well to follow their lead.

Respondents have clear strengths in the areas of overall disclosure, emissions trading and agreeing/implementing carbon action plans. Asian utilities could do more in areas such as risk management and independent verification of emissions; while all companies may wish to look to see whether improvements are possible around governance for climate change, since this is the only area where utilities do not outperform the intensive industries average.

Outlook for Carbon Trading Markets

Learning-by-doing in Europe

The EU Emissions Trading Scheme (EU ETS) introduced in 2005 remains the cornerstone of European policy efforts to regulate carbon. Covering around 40% of EU-27 GHG emissions, this mandatory cap-and-trade scheme applies to over 10,000 industrial installations across the power and heat generation, oil refining, iron and steel, cement and ceramics sectors.

The scheme is divided into distinct phases and Member States are required to prepare National Allocation Plans (NAPs) to determine the total level of allowances or cap. Ideally, the cap should be set below business-as-usual projections in order to establish scarcity. Scarcity, of course, leads to value. The principal allocation method to date involves granting allowances for free, typically on the basis of historical emissions data (known as 'grandfathering').

During Phase 1, a combination of poor data availability (and lack of transparency) resulted in significant over-allocation. Consequently, once the market was revealed to be structurally long – and it became clear the magnitude of this length would be enough to absorb any higher emissions burn over the remainder of the Phase – Phase 1 prices eroded to almost zero as shown in figure 46.

This outcome leads many commentators to denounce the EU ETS as a failure. This is perhaps somewhat harsh, particularly if the underlying objective of Phase 1 was to establish a functioning market.

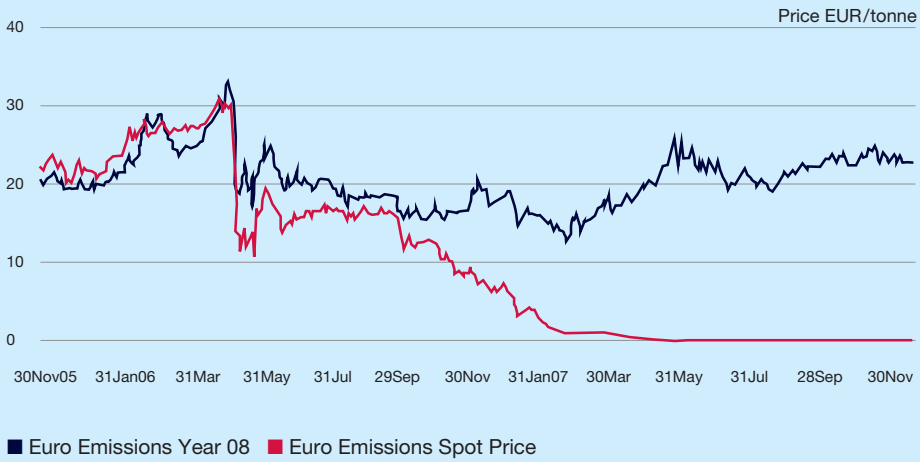
Yes, there were too many allowances in the system (empirical studies suggest that industrials received the most generous allocations) but once this was known, the market reacted appropriately. Furthermore, traded volumes in the EU ETS have grown strongly each year with liquidity bolstered by the participation of financial players such as investment banks and hedge funds. During 2007, it is estimated that the market traded around 2,000 million metric tons; an increase of over 85% on 2006. This represented a value of around €37 billion[32]. Figure 47, based on CDP data, highlights the prevalence of emissions trading, with utilities purchasing substantial amounts of quota from other sectors.

At the policy level, the European Commission has taken on board the message that carbon trading needs fundamental scarcity and has adopted a much more stringent approach to the approval of Phase 2 NAPs within the EU ETS. This perception of a genuine 'short' in the system has resulted in sustained support for forward carbon prices with the cost of carbon in Europe currently in the €27-31t/CO_2 range, depending on delivery year.

But what impact has the EU ETS actually had – how many entities are trading and how is carbon impacting upon strategic and operational decision-making? Firstly, it is important to remember the composition of the market which exhibits both a high degree of concentration (60% of the total volume of allowances is held by approximately 20 large entities) and high fragmentation (a large number of small installations with a very small total carbon position).

The overall materiality of the carbon position will strongly affect participation rates. For example, the energy generators will typically trade actively and hedge their carbon position as they sell their power forward. In contrast, the large industrials might intervene on a monthly/quarterly basis to balance their carbon position. Participation involves transaction costs and, for many companies, the diversion of resources from core business activities. The evidence from Phase 1 is that these costs may well be prohibitive for small companies captured by the Scheme.

Fig. 46: Daily EU allowance prices during Phase 1 of the EU ETS



32 State and Trends of the Carbon Market (2008), World Bank, Washington DC.

For the power sector, having a price of carbon caused many to re-appraise the portfolio of generation assets and consider the carbon constraint on longer-term investment plans. Industrial players within the EU ETS, especially steel and cement producers, have enjoyed mixed fortunes to date. Many were generously allocated and able to realize significant value from the sale of surplus allowances before the price crash. However, they have also had to absorb higher wholesale energy prices as generators have passed through carbon costs. Furthermore, the competitive impacts of a global marketplace with an un-level playing field in respect of carbon regulation have begun to be felt in a number of sectors.

In order to make step-change investments in cleaner technologies and products, companies will require sufficient visibility on the regulatory horizon for carbon and the likely cost of emissions. The good news is that market participants have begun to see this horizon in recent months following the release of the European Commission's proposals[33] to amend the EU ETS Directive in time for Phase 3, which will start in 2013. Key elements include more stringent carbon targets, centralized cap-setting and improved harmonization of allowance allocation, and much greater use of auctioning. The EU ETS will also expand to include additional sectors (chemicals, aluminum and carbon capture and storage activities) and other greenhouse gases (such as nitrous oxide).

Developments in North America

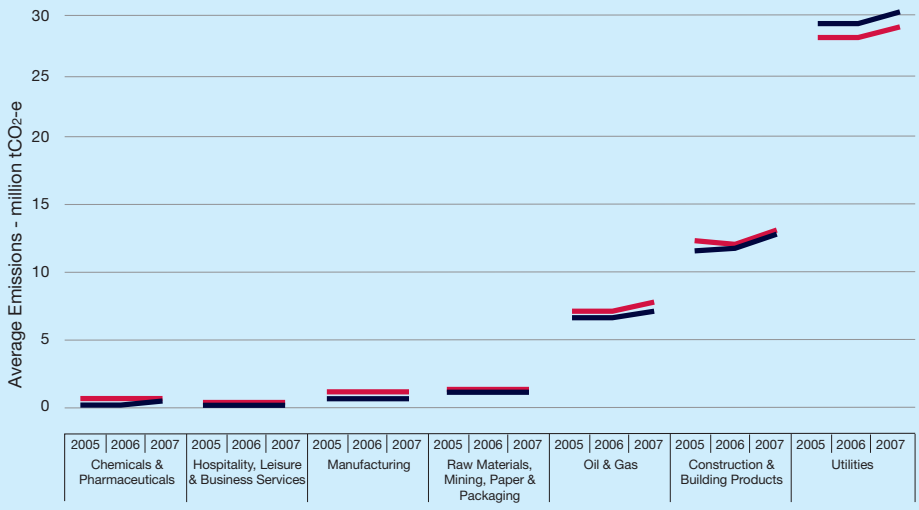
In the United States, there has been progress on the climate issue at both a Federal and State level. While the Bush administration remains focused on the role of technology in addressing climate change, a number of bi-partisan approaches in the U.S. Senate proposing firm carbon targets have gained some ground, especially the Lieberman-Warner Climate Security Act which was debated in the Senate in early June this year. Although the vote was short of the number needed to bring debate to a close and vote on the bill, its proponents hope that it can be re-invigorated next year.

At the State level, there are significant policy proposals under development including the Regional Greenhouse Gas Initiative (RGGI) covering ten North-eastern and Mid-Atlantic States, and plans for the first mandatory state cap in California. RGGI, which covers emissions from the power sector, will conduct its first auction of carbon allowances in September 2008 in advance of the formal start date of January 2009.

In Canada, the Federal government has proposed a cap-and-trade system with implementation by 2010. The caps are set on an intensity basis and are unique to each industry. Caps are to be reduced by 18% for the first year and then by 2% per annum thereafter, until 2020. In addition to internal abatement measures, Canadian industry has a range of options to comply with the regulation including the purchase of domestic offsets, the purchase of technology fund units and recognition of so-called "early actions" (prior to the inception of the scheme).

However, the patchwork of regulation is complex by virtue of the significant autonomy at the provincial level. For example, Alberta has already implemented a baseline-and trade system for certain facilities and British Columbia has joined the Western Climate Initiative (WCI) through which it has committed to reduce the provincial footprint by 33% by 2020. Policy measures to achieve this include a carbon tax which was implemented July 1, 2008 and proposals for a cap-and-trade system. The government of Quebec has also implemented similar market-based approaches.

Fig. 47: EU Emissions versus EUA gap by industry based on CDP6 data



33 See: http://ec.europa.eu/environment/climat/emission/pdf/com_2008_16_en.pdf

Australasia moves to establish market-based instruments

The election of the new premier in Australia, Kevin Rudd, saw Australia re-engage with the international climate change regime and immediately move to ratify the Kyoto Protocol. The Rudd administration is now working on the design of a multi-sectoral national emissions trading scheme which could be operational by mid-2010; it would have a long-term goal of reducing emissions by 60% below 2000 levels by 2050.

In July 2008, the Australian Government published a Green Paper setting out the key elements of the scheme. The level of ambition is high, with proposals for a cap-and-trade system covering all six greenhouse gases and sectoral coverage including stationary energy, transport, fugitive emissions, industrial processes and waste. Forestry will be excluded initially, but may enter in 2015. The overall level of the cap is yet to be finalized, but a combination of benchmarking (based on energy efficiency) and auctioning will form the basis for allowance allocation. Interestingly, the proposals also suggest that auction revenues will be recycled to compensate households and certain industries affected by the scheme.

A little further south in New Zealand, draft legislation was introduced into Parliament in December 2007 for an emissions trading scheme. This bill passed its first reading and is currently undergoing further consultations and amendment. The NZ ETS is ambitious; covering all sectors and gases, and would be introduced through a staged process. Interestingly, it is the first significant scheme to include the forestry sector and recognize the emissions contribution of the agricultural sector, specifically from methane and nitrous oxide.

The New Zealand scheme design is also unique in that there is effectively a zero cap. This means that participants who are required to be 'points of obligation' under the ETS will, in first instance, be required to offset 100% of their CO_2-e emissions with either specific New Zealand units ("NZUs") or other Kyoto compliant emission units, such as Certified Emission Reductions (CERs). It is anticipated that there will be a shortfall of NZUs to cover the total CO_2-e liability of businesses who are participants in the scheme, but the actual mechanics of allocation have yet to be finalized.

Market outlook

The expectation among market participants and policymakers, both within the U.S. and the EU, is that the post-2012 world could well involve linked regional carbon trading markets, irrespective of progress at the international level. Belief in the longevity of emissions trading as a policy instrument is high. The most recent IETA market sentiment survey, conducted by Pricewaterhouse-Coopers, found that 80% of respondents were confident that the carbon market would continue after 2012, notwithstanding the challenges of reaching a follow-on treaty to the Kyoto Protocol[34]. Hence, the future for carbon trading as a key policy instrument looks bright.

"Since the introduction of EU ETS, E.ON has fully incorporated the value of carbon within its generation optimization process. The production schedule of our power stations is continually optimized on short, medium, and long-term timeframes according to the current price including CO_2 emission prices. Additionally, all [infrastructure] projects that fall within the requirements of the EU ETS have a financial assessment based on their future emissions."

E.ON

"Factoring in this uncertainty, and in anticipation of the release of a definitive policy on domestic and international offsets, Suncor has taken some anticipatory early action in the area of emissions trading."

Suncor Energy

"The ratification of the Kyoto Protocol by the Australian Government has further expanded our opportunities to participate in the international CDM and JI trading market"

BHP Billiton

34 See: www.ieta.org

Non-Carbon-Intensive Sectors

Introduction & overview

The non-carbon-intensive sectors have generally been slightly weaker on disclosure in CDP6 than carbon intensive sectors.

This partly reflects a common perception that these industries play a less significant role in climate change due to their lower Scope 1 and Scope 2 emissions; it is also partly due to the structure of this year's CDP questionnaire, in which non-carbon-intensive companies were given the option to answer only the minimum requirement questions.

However, it is worth noting that the very high CDLI scores achieved by many non-intensive companies – especially those in the financial services sector – reflect high levels of disclosure in the 'comprehensive' questions rather than just good scores at the minimum requirement questions. In future CDP iterations, as the focus on Scope 3 emissions for non-industrial companies intensifies, it may be expected that levels of disclosure expected from companies in intensive and non-intensive sectors will converge.

In general, non-intensive sectors have performed most strongly at determining risks and opportunities, and least strongly in terms of reduction performance. This is perhaps to be expected: all companies will be affected by the impact of climate change irrespective of their levels of emissions, whereas companies with high energy intensity face more direct pressure from regulators, customers and their own cost concerns to cut their emissions level.

Risks and opportunities

Financial Services is the top-scoring sector for risks and opportunities, reflecting these companies' relationship with and awareness of risk. The lowest-scoring companies are in Retail and Consumer sector, despite the direct exposure to these companies of brand risk if consumers perceive them to be dealing poorly with carbon and wider sustainability issues.

Reporting for carbon

As with intensive sectors, there is a fairly strong cross-sector correlation on different questions, with only a few noticeable divergences between companies. This is particularly clear for hospitality, leisure and business services, which significantly outperforms the other sectors in terms of Scope 1 and Scope 2 disclosures, energy consumption, and actions taken against climate change, but underperforms significantly in Scope 3 disclosure.

Performance

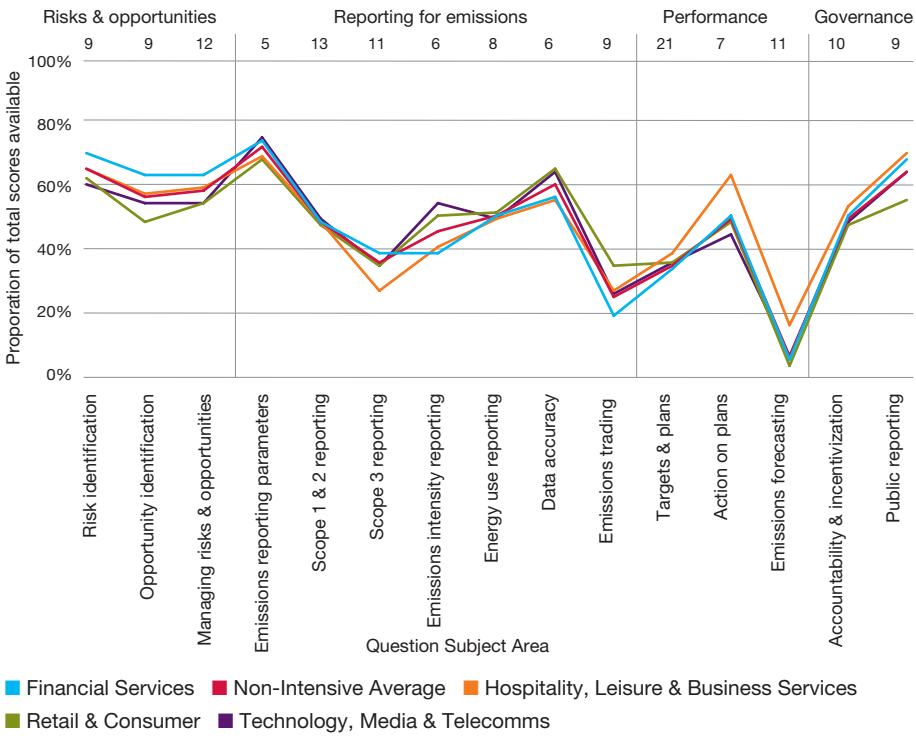
Another sector with some divergence is emissions trading, where Technology, Media & Telecommunications (TMT) and Retail and Consumer outperform Financial Services and Hospitality, Leisure and Business Services. This primarily reflects the fact that consumer goods and technology manufacturers are covered under emissions trading schemes, and therefore there is more direct awareness of these in the sector.

Even though the leading European financial services institutions are closely involved with emissions trading schemes and have a strong involvement with them, this awareness is not strong enough among all financial services companies globally to offset the lack of direct experience in the sectors (at least at the level where the CDP response was completed – it is quite possible that many respondents have some expertise in carbon trading but that these experts were not consulted for the purposes of the CDP response).

Governance

In terms of governance, companies have performed consistently, with all sectors scoring around 50% of total points available. There is more of a divergence within reporting to stakeholders, with Retail and Consumer companies scoring lowest. This partly reflects the fact that the most important groups for these industries to engage are consumers, who are not the target audience for sustainability reports or regulatory communications – ongoing, a challenge for the industry will be to reach these groups. Hospitality, Leisure and Business Services firms were best at reporting, scoring more than 60% of points available.

Fig. 48: Score profile by industry: Non-intensive sectors



Company highlights*

- Top disclosers by CDLI score: **ANZ Bank, Barclays, Merrill Lynch, Munich Re, National Australia Bank**
- Largest non-respondents by market capitalization: **Bank of China, Berkshire Hathaway, China Construction Bank, China Life Insurance, Sberbank-CLS**

Key sector metrics

- Number of companies in the Global 500 in sector: **121**
- Number of companies responding in sector#: **91** (75% – ranked =5th overall, =2nd out of non-carbon-intensive)
- Number of companies disclosing publicly: **76** (83% of respondents)
- Sector average CDLI score: **70** (ranked =1st out of non-carbon-intensive)
- Range of scores: **7** lowest – **98** highest
- Percentage of respondents disclosing emissions: Scope 1: **64%**, Scope 2: **65%**, Scope 3: **56%**
- Most common metric used for measuring emissions intensity – **per employee, & per square meter**

* Companies listed include non-public responses. Names are listed alphabetically within categories.

\# The information in this box is based on the final number of respondents to CDP as of 31 July 2008. However, for time reasons the cut-off date for the responses received in the data and charts in the rest of the section was July 1 2008, and hence these may differ slightly from this figure.

Financial Services

Financial Services is the largest sector in the Global 500 making up almost a quarter of the total companies. The sector represents just under a quarter of the companies that have responded to CDP6.

For the purposes of the analysis in this report the sector comprises of the three sub-sectors: banks (54% of respondents), insurers (35% of respondents) and diversified financials (which include asset and loan managers, exchanges and private equity, totaling 37% of respondents). In terms of geography the sector is still dominated by the developed countries with 92% coming from Europe, U.S., Canada, Japan and Australia.

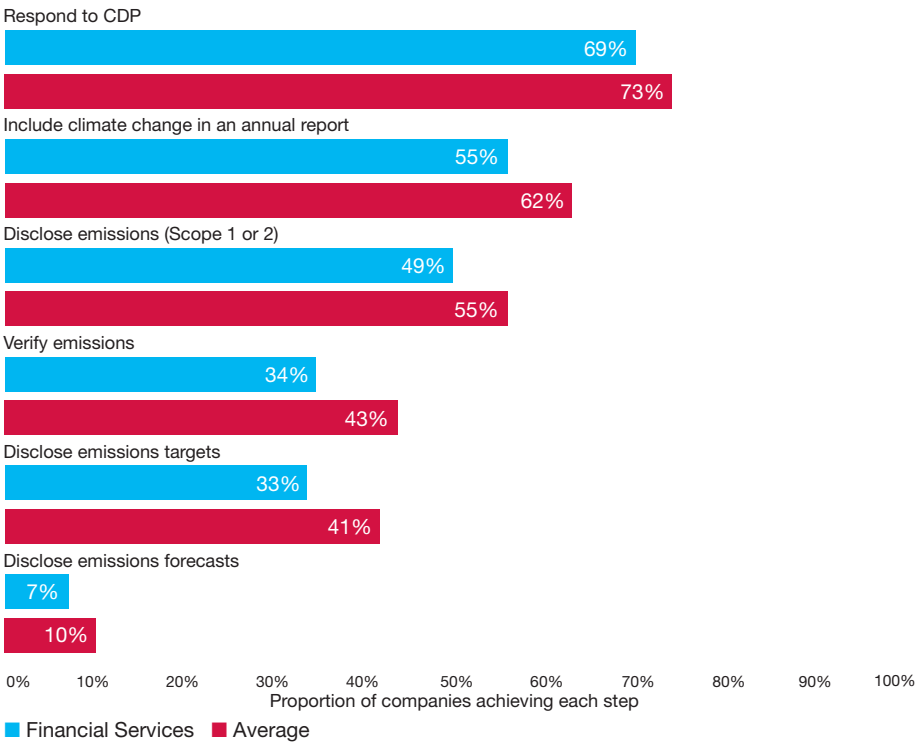
Since CDP5 (2007) there has been little impact of climate change on the industry itself, whether directly through physical events or indirectly through regulation – though the impact is quite substantial when the sector's investments are considered. The recent credit crunch and general global economic downturn has had an impact on the performance, risk appetite and activities of the financial services sector and its customers. This may temporarily have shifted the attention of the sector, potentially away from the climate change agenda.

Climate change awareness within the industry has several drivers:

- Industry collaborations such as the Institutional Investor Group on Climate Change (IIGCC) in Europe, Investor Network on Climate Risk (INCR) in the U.S., Carbon Principles in the U.S., Investor Group on Climate Change (IGCC) in Australia; and globally, United Nations Environment Program Finance Initiative (UNEPFI), Enhanced Analytics Initiative (EAI), and CDP;
- Participation in emissions trading and carbon credit project financing;
- Low-carbon technology and other new investment opportunities; and
- The supply of risk transfer products such as insurance and hedging (e.g. weather derivatives).

The sector underperforms the Global 500 average in terms of response rates (figure 49), which has driven underperformance in all other levels

Fig. 49: Disclosure waterfall – Financial Services



of disclosure. In line with the Global 500 the most significant shortcoming in performance within the sector is the level of emissions forecasting which is disclosed. Forecasting can assist a company in planning emissions reduction strategies and setting ambitious but achievable targets. For the Financial Services industry, however, it is clear that direct emissions are not the most material; instead it is the indirect emissions from the investment and loan books where most risks will emerge.

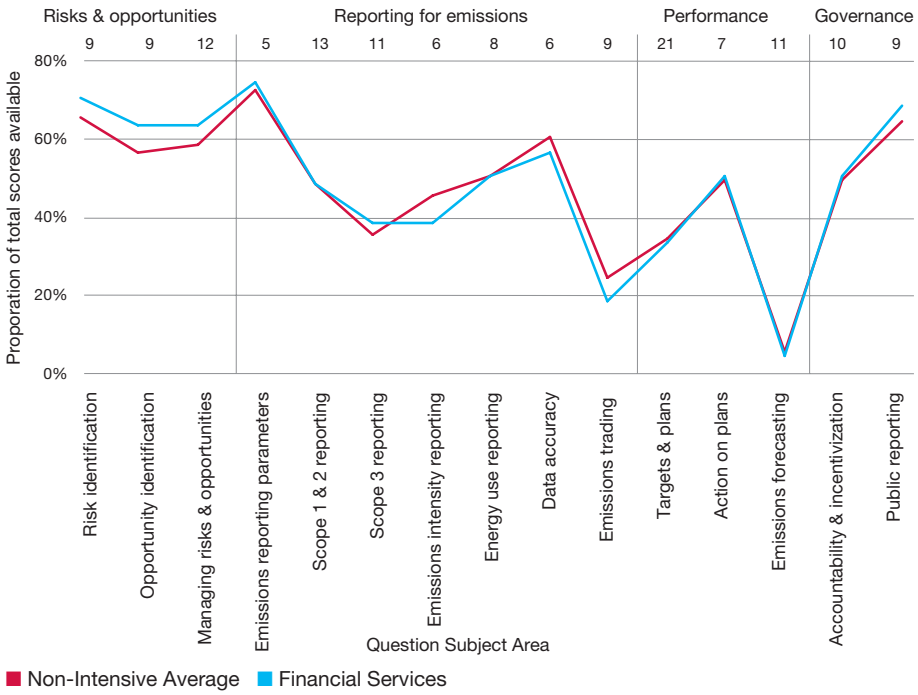
Among those companies who do respond, levels of disclosure are strong: the sector is the joint highest scoring non-intensive sector. High scores are a reflection of the sector's large exposure to reputational risk, its long track record of sustainability reporting generally and its need to understand the risks and opportunities of the businesses in which it invests. The most important risk in financial services companies is in their Scope 3 emissions via their investments, which is an increasingly important area of reporting.

Figure 50 illustrates the performance of the financial services sector on the different aspects of disclosure included in the CDP questionnaire. The key messages highlighted by the chart are:

- The sector is strong in disclosing risks & opportunities i.e. their identification, management and assessment of business impact. This awareness is likely to be a result of the industry needing to integrate climate change risks and opportunities into its day-to-day investment, lending and contract decisions to run a successful and sustainable business;
- The level of disclosure with regard to emissions trading is relatively low. This is surprising given that the industry has a role in setting up, trading and providing advice concerning carbon markets;
- Emissions intensity is also an area of low disclosure. This is likely to be a result of the sector's preference to use absolute rather than intensity targets, reflecting the sector's relatively low emissions intensity; and
- In line with the non-intensive sectors average the disclosure of information on emissions forecasts is almost negligible.

High scores are a reflection of the sector's large exposure to reputational risk, its long track record of sustainability reporting generally and its need to understand the risks and opportunities of the businesses in which it invests.

Fig. 50: Sector disclosure – Financial Services



"In terms of investment policy, companies which are ill-prepared for more stringent environmental regulation may face unexpected new expenses and a decreasing ability to sustain their returns and share price, thus decreasing their value in AXA's investments portfolios."

AXA Group

Just over half of companies in the sector stated that they have emissions reduction targets in place and were able to provide the time period and reduction target.

Risks & opportunities

The financial services sector disclosures suggested that the three key risks for the sector are:

- **Reputation** – as a result of growing consumer awareness;
- **Credit-worthiness** – of the businesses in its investment portfolio; and
- **Increased energy costs** – as a result of the increased cost of compliance of utilities companies.

Given the sector is not an energy intensive industry the increase in energy costs may not be material. The sector acknowledges its exposure to reputational risk and respondents say that so long as sufficient action is taken on mitigation and adaptation, both in their investment/lending decisions and own operations, this risk can be managed.

Climate change impacts on the companies that constitute the sector's investment and loan portfolios, other exposures and the subsequent credit and other risks are a large and complex area for the sector to evaluate. This is captured in **AXA's** response.

Mitigating these risks, for example by positive selection criteria and exerting influence on the portfolio, could reduce its potential to negatively impact the investor's profitability.

The sector does not believe that there are any significant physical risks to its own operations with the exception of the potential for branches and data centers being located in flood-risk areas. However, due to the nature of their business there are significant indirect physical risks through their investment portfolios and other exposures.

Each sub-sector is seeing opportunities from climate change arising which are specific to their area of business expertise. The insurance sector has seen opportunities in the areas of managing the risk of carbon credit projects and providing new products to insure against extreme weather events. The banking sector has seen opportunities arising from participation in the trading of carbon and renewables certificates and providing specialist 'green products' for responsible investors. The response from **Allianz** shows just how much potential there is for new product and service innovation in the change to a low-carbon economy:

"Regulatory changes to combat climate change are providing a huge portfolio of opportunities."
Allianz

The level of risk management undertaken in relation to climate change varies significantly throughout the sector. Some companies stated that they do not consider themselves to be exposed to regulatory, physical or general risks, e.g. **Aegon** and **AFLAC**, though they do appear to consider risks in relation to their product portfolios. Other companies have integrated climate change considerations into business continuity plans as well as forging links to scientific and academic institutions and introducing climate change investment & lending screening procedures (e.g. **American Express**, **AXA** and **Canadian Imperial Bank of Commerce**).

In addition to this a significant proportion of the sector now factors in carbon and climate change considerations into their investment decisions and financial decision making, as can be seen from **ANZ Bank's** response:

"Future carbon prices and potential carbon credits are factored into our financial decision-making processes where possible."
ANZ Bank

Reporting for emissions

Almost all financial services sector companies are now able to disclose basic emissions accounting information such as organizational boundaries, the accounting period and the standard used. The GHG Protocol is the most commonly used guidance with over half the sector applying this to their emissions accounting and reporting. Where this Protocol is not practiced, national government guidance is most

commonly used in its place which often is based on the Protocol. Other standards used in the financial services sector include ISO 14064-1, AA 1000 assurance standard and those of the VfU (Association for Environmental Management based in Germany).

More than half of the sector stated that their reported emissions had not varied significantly from last year (in either direction). Where there has been a significant reduction the main cause is from a fall in the emissions intensity either through the purchase of renewable energy or through energy efficiency measures. Where a significant increase has been observed the main cause is an increase in the scope of emissions reported or changes in company size through organic growth or M&A activity. Another reported cause of variance is an improvement in the accuracy of emissions monitoring and accounting processes driving better emissions data.

Most companies that disclosed the level of their Scope 1 emissions (64%) were also able to disclose on Scope 2 (65%). Just over half of the sector was able to disclose some Scope 3 emissions – however, almost all of the sector disclosures state that their most significant Scope 3 emissions were from employee business travel and in particular from air travel, while in practice emissions from the investment supply chain (i.e. companies in which financial services institutions invest) are likely to present the greatest exposure to climate change impacts, and few respondents are monitoring these emissions

The main reason for the focus on business travel at the expense of other Scope 3 emissions is likely to be due to the sector seeing business travel emissions as their responsibility and the relative ease of monitoring e.g. through expense systems, travel agents, suppliers etc.

Just under half (49%) of the sector respondents now have their emissions data independently verified with a higher proportion (64%) having a system in place to assess the accuracy of the data themselves. However, it is apparent from the disclosures that these systems vary in their robustness and value. There is a variety of processes applied by the sector to calculate emissions data; some are automated and some are outsourced. At least one quality control procedure is normally applied to the process whether through a form of sense check, peer review, internal audit or external verification and these are generally based on a recognized standard (e.g. GHG Protocol).

The disclosure from **Westpac** provides an example of how a company can take control of its full emissions spectrum and embed a robust assurance process into its emissions accounting:

"Underlying data from which our emissions are calculated is provided by external suppliers, who are required to provide management representation letters verifying the information along with the data, as part of our internal governance processes. In 2007 Westpac Group Internal Audit conducted a review of the data collection and verification process undertaken for our Stakeholder Impact and Australian Greenhouse Office reporting. The key recommendation that Westpac auditors have greater visibility of supplier's source data will be implemented in future contracts."
Westpac

Just over half of companies in the sector stated that they have emissions reduction targets in place and were able to provide the time period and reduction target. The majority of these targets were absolute, rather than intensity, targets. For targets that do not include Scope 3 emissions this is likely to be a result of the limited interdependence between the nature of the sector's business (e.g. lending and investing) and their carbon emissions.

Both absolute and intensity targets were most commonly spread over five year periods ending in 2012 tying in with the end of the current Kyoto Protocol period. The magnitude of the targets also varied significantly within the sector with some institutions having over twice the target of a comparable company. However, the historic emissions levels, choice of baseline year and projected growth are just some of the factors which would need to be understood to truly determine the level of ambition in each target.

Performance

Although there were some targets of impressive magnitude – most notably **Nomura Holdings** at 44% reduction over the period 2005-09 but also UBS at 40% below 2004 levels by 2012 and **National Australia Bank** at 20% below 2006 levels by 2010 (on Australian based emissions) – the details of the scope, starting position and expansion plans of companies are some of the key factors in determining the true ambition of a target.

Given the nature of the business undertaken by companies in the sector the disclosures suggest that the focus of attention is on reducing emissions through the purchase of renewable energy, changing travel patterns and energy efficiency initiatives rather than product or operational redesign or through the supply chain. Some of the key actions taken by the sector are listed below:

- **Energy use** – motion detectors, thermostat adjustments, new computer technology, data centre redesign, re-location or expansion into low-carbon buildings as well as increasing the proportion of energy purchased from renewable sources;
- **Travel** – car pooling, public transport incentives, purchasing of or conversion to hybrid vehicles and video conferencing; and
- **Other** – e.g. developing green procurement policies.

Clearly the sector has more work to do on minimizing risk, seizing opportunity and reducing emissions within its investment portfolio. The Carbon Principles are an example of how the industry is recognizing

"The bank has set specific goals and targets for reducing emissions of greenhouse gases from both our owned operations and in our energy and utility portfolio…The goal is to realize a 7% reduction in indirect emissions within our energy and utility portfolio. The bank is on track for meeting that goal and is doing so in two ways: first, we are changing the mix of the portfolio and have added customers using renewable energy sources. Second, we have applied good business practices to environmental behavior and are annually tracking the portfolios' emission levels."

Bank of America

carbon as a factor in their investments. In February 2008, financial services companies including **Citigroup**, **JPMorgan Chase**, and **Morgan Stanley**, developed key principles that outline a portfolio approach to financing U.S. power deals. The principles include a commitment to energy efficiency and renewable energy, and enhanced due diligence for conventional power-generation projects. **Bank of America** has been one of the first firms to set an emissions reduction target for part of its portfolio.

Governance

The majority (83%) of companies in the sector have a board committee or other executive body with overall responsibility for climate change. Climate change comes under the remit of either a corporate responsibility, environmental, governance or communications committee; a real estate committee; an operational risks committee or a combination of these.

In each case a board member either chairs or sits on the committee and therefore often has overall responsibility – most often the CEO or Chief Risk Officer. This shows the importance attached by the senior management to having visibility of their company's action on the climate change agenda. The board in most cases receives a report on climate change issues at least annually but in most cases at quarterly or half-yearly intervals.

The responses suggest that below board level the climate change agenda may be integrated throughout the business by providing suitable staff incentives. Just under a half of the companies in the sector implement incentive mechanisms for individual management of climate change issues and achievement of targets and under half of these companies have stated that the incentives are linked to remuneration. Over half of the sector (57%) discloses information on climate change issues in their annual statutory reporting. Approximately three quarters of the sector have stated that they produce voluntary communications such as Corporate Social Responsibility reporting.

Almost two thirds of the sector state that they engage with policymakers on possible responses to climate change. Within the sector this takes several forms including business alliance groups to take concerted action or advise the government; signing industry declarations and principles (such as the Investor Statement on Climate Change); lobbying and supporting for national and international targets and policies (such as INCR, IGCC, UNEPFI); or providing evidence, research and reports to government.

Conclusions

Given their level of exposure to the public and the general consumer most of the companies in the sector, in particular the banks, have taken great steps to ensure they are seen to be 'green'. These steps have to date included providing products for the environmentally conscious consumer, reducing energy use and offsetting emissions. As well as saving energy costs, these schemes have been reported as providing the leading institutions with good reputations and hence potential customer acquisition.

However, the disclosures from the financial services sector show that its greatest risk from climate change and its greatest opportunity to reduce the advance of global warming is through its investment and lending portfolios and other customer exposures. The deep and wide risks that a financial institution is exposed to through its portfolio must be increasingly understood and made transparent to assure investors that climate change poses a managed/minimized risk to their investment. In conjunction with this, financial institutions have the opportunity to influence their portfolio to reduce emissions, provide 'solution' products and adapt to the changing climate. However, this is a challenging task and will most often depend on the nature of the banking and insurance services provided.

How Far is Investors' Carbon Horizon?

Everyone recognizes that climate change is important, but has the scientific debate, regulatory agenda and public attitudes moved sufficiently to affect real investment decisions? In particular, how are fund managers using information about climate change in their investment strategies and portfolio decisions?

The issue is important, since information about climate change impacts and opportunities has the potential to fundamentally affect capital flows in the global economy. This information will play a key role in determining the allocation of capital to technologies and investments with the potential to diminish GHG outputs and mitigate the impacts of climate change.

In 2007 CDP conducted research with a group of U.S. investors into how they were using the information reported through CDP. The findings plus ongoing feedback from signatory investors show that company responses to CDP are used for:

- Company engagement;
- Qualitative checking;
- Sell-side research;
- The filing of shareholder resolutions; and
- The creation of new products and indices.

CDP is now extending this research globally in order to improve their understanding of the investment community's requirements; the results will be released in early 2009.

PwC also undertook primary research earlier this year to gain insight into the way that fund managers currently use climate change information in making company investment decisions – and their expectations about how this could change in the future. The four principal types of funds interviewed were: Private Equity, Indexed Funds, Quant (Hedge) Funds and Actively Managed Funds. PwC expected that investors' sensitivity to climate change factors would be most closely related to their investment time horizons.

Figure 51 illustrates this initial model, with hedge funds often having the shortest time horizons and public pension funds being amongst the longest.

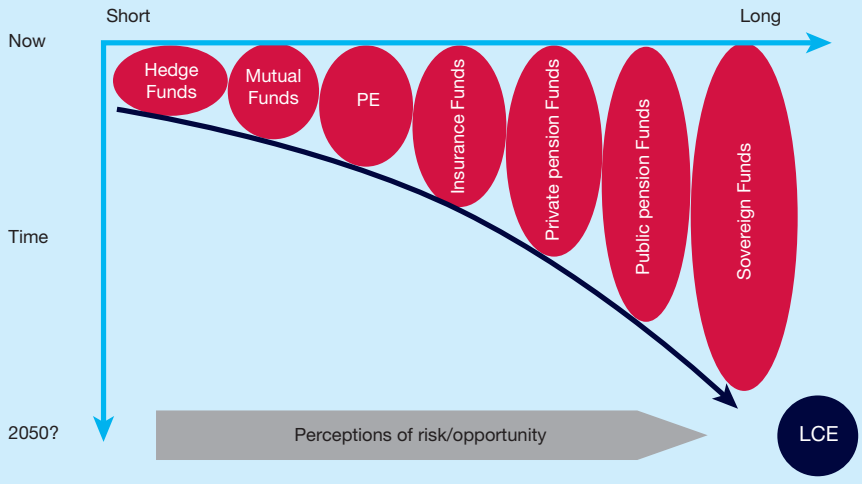
A summary of some of the initial findings is provided below. These should be treated with some caution as the sample size was small, but they do provide some insight:

Institutional investors attach different importance to climate change but uncertainty over impacts and timescales deters action

Although several of the fund managers interviewed had 'thematic' funds specializing in the climate and the environment, some did not consider climate change to be an investment factor worthy of specific emphasis in their investment processes and decisions.

Overall, PwC found no consensus amongst institutional investors about the timing or extent of climate change

Fig. 51: Investment Horizon



impacts. The most oft-cited example was the increased frequency of extreme weather events. But many fund managers also thought that there is no hard evidence about the timing or degree of climate change impacts on specific sectors, making the inclusion of climate change factors in investment strategies on a systematic basis problematic.

Furthermore, some fund managers expressed the view that climate change as an investment opportunity could become an investment bubble. This perspective was reinforced by the large number of 'green', environmental and climate change funds being launched and targeted at retail investors. Given the substantial investment required to create the low carbon economy these fears may be unfounded. Other issues mentioned by investors included:

- Taxation and regulation;
- New technology, namely clean tech and energy efficiency; and
- Shifts in consumer sentiment and demand.

Further improvements in data quality are required to further catalyze capital flows towards low carbon solutions

A major issue for all investors was the quality of information available on the actual and potential impact of climate change and related regulatory regimes on specific companies and different sectors of the economy. It was this information deficit which led to the creation of CDP in 2000. Although the quality of information is seen as improving, not least because of CDP's efforts, much of what is produced appears only now to be beginning to be used – in part due to the short term nature of investor behavior. There is a key divide between qualitative and quantitative information. Increasing the amount of 'soft' qualitative data available is not a substitute for high quality quantitative data.

Investors are only able to use climate related information in a systematic way if data is quantitative and the methodology is robust, replicable and responds to changes in factors which will affect future investment returns. As the quality and quantity of climate change data improves, as demonstrated by this year's CDP results, it is likely that the use of such data will increase.

Indexed funds are developing engagement strategies

Indexed funds are broadly based portfolios with investment weightings based on market capitalizations. The investment of new funds and balancing of portfolios to reflect market weightings is a mechanical process. The investment objective is to track the performance of the index within narrow parameters. There is no stock picking process or selection of companies and no prospect of market outperformance based on, for example, the elimination of poorly performing companies or increasing investment in companies expected to provide superior returns.

A passive investment strategy does not mean an index fund has to be a passive owner. But to improve the performance of its funds in absolute terms, a fund manager needs to impact on the total market performance. Although there will also be significant free rider effects (because other investors will benefit from the fund's engagement with the companies it owns) this is still rational behavior for investors with highly diversified equity portfolios.

For 'active owners' of indexed funds, it can therefore make sense to use data such as that provided to CDP to identify companies which are 'carbon laggards' in their sector and to engage with these companies to try to reduce carbon related risks and promote carbon positive business and investment strategies. By taking the role of the 'universal owner', indexed funds have the opportunity to increase the performance of their entire portfolio. This use of carbon data, therefore, is directed at maximizing overall market returns rather than returns from a sub-sector of the market.

Quant funds in search of a 'Green' Beta?

As increasingly reliable, quantitative, climate related and carbon intensity information becomes available, this may allow for carefully constructed 'quant' funds to focus on achieving superior returns through overweighting their portfolios in 'carbon light' companies and underweighting 'carbon heavy' companies, e.g. **Schroders'** Climate Change Fund. If the performance of a portfolio tilted in this way is systematically higher on a risk adjusted basis than the market, it is possible that a new 'factor' is being exploited which will enable, disciplined and broadly diversified investors to achieve superior risk adjusted returns.

Along with a small number of well recognized investment return factors, it is possible that if climate effects on company and sector performance are sufficiently broadly based, a 'green Beta' factor may emerge with explanatory power for the modeling of portfolio returns.

This has yet to be proven, but the entry of 'quant' hedge funds into the climate change investment fund market suggests that the correlation between carbon intensity and portfolio returns may be tradable through a portfolio and therefore become one of the mechanisms through which carbon intensity is systematically compounded in a company's share price.

Active fund managers in search of a 'Green' Alpha?

Active fund managers are, in key respects, the opposite of indexed and 'quant' managers, since individual stock selection is the basis of investment decisions. Actively managed pension funds, for example, typically invest in 80-100 shares and these portfolios are managed in search of outperformance against the benchmark indices on a risk adjusted basis. Active funds are managed on the basis that they will be able to outperform the market and thus achieve an 'Alpha' return that is superior to the market, which by definition has an Alpha of zero.

The question is how climate change factors or metrics, combined with energy price data, can best contribute to the achievement of this Alpha goal. If there are systematic effects, these may be more effectively captured by the use of purely 'quant' investment strategy such as those used by at least some hedge funds.

But an alternative for active fund managers is to invest in dedicated long-only funds focusing on companies expected to benefit positively from climate change e.g. **Generation Investment Management.** This is not a question of under and overweighting an investment portfolio on the basis of a returns enhancing carbon factor, but of only investing in companies expected to have a positive 'Green Alpha'. Although such dedicated funds are relatively new, there are many being launched by fund managers across Europe suggesting investor appetite particularly at the retail level.

The experience of Socially Responsible Investment (SRI) funds suggests that these types of funds are relatively volatile. It is not clear whether the returns which are achieved by these specialist funds adequately compensate for their investment risk (volatility). But in practice, many of the specialist climate, environment and 'green' funds are still too new to draw any significant conclusions from quantitative analysis of their returns.

Specialist climate and environmental funds still represent a tiny part of the global portfolio. The more fundamental question is at what rate, and to what extent, will carbon and climate change exposure factors enter into mainstream portfolio management decision processes. The overall impression is that climate change data is currently considered to be part of the general data 'noise' and does not yet provide unique or compelling inputs into the investment decisions of generalist fund managers – however several interviewees reported that this view is beginning to change as the quality of information improves and the cost of carbon becomes clearer.

Summary and outlook

Although most of the investors PwC interviewed believed that climate change would produce winners and losers eventually, the idea that these could emerge relatively quickly through periods of rapid regulatory, technological or social change was not strongly held.

Instead, investors held a more gradualist view of the impact of climate changes on their portfolios. Improved data quality will be essential to achieving this, and therefore the importance of the work of CDP is likely to increase.

"We would expect to see favorable market conditions for renewable and clean technology companies and a positive impact on the value of our portfolio of investments in this space."

Lehman Brothers

"We actively speak with leading experts in the field of climate change to ensure we understand what sectors and technologies will succeed, which markets will grow the fastest etc. in order to select the companies with the best potential for growth."

Henderson Group

"Within most investment areas, explicit environmental, social and governance considerations are integrated only when this is part of the client mandate."

State Street Corporation

Company highlights*

- Top disclosers by CDLI score: **Carnival. FujiFilm, IBM, Johnson Controls, Taiwan Semiconductor**
- Largest non-respondents by market capitalization: **Cheung Kong, DLF, Las Vegas Sands, MGM Mirage, Sun Hung Kai Properties**

Key sector metrics

- Number of companies in the Global 500 in sector: **30**
- Number of companies responding in sector#: **18** (60% – ranked 11th overall, 4th in non-carbon-intensive)
- Number of companies disclosing publicly: **14** (77% of respondents)
- Sector average CDLI score: **70** (ranked =1st out of non-carbon intensive)
- Range of scores: **35** lowest – **95** highest
- Percentage of respondents disclosing emissions: Scope 1: **65%**, Scope 2: **71%**, Scope 3: **29%**
- Most common metric used for measuring emissions intensity – **per US$ revenue**

* Companies listed include non-public responses. Names are listed alphabetically within categories.

\# The information in this box is based on the final number of respondents to CDP as of 31 July 2008. However, for time reasons the cut-off date for the responses received in the data and charts in the rest of the section was July 1 2008, and hence these may differ slightly from this figure.

Hospitality, Leisure & Business Services

For the purposes of the analysis in this report, Hospitality, Leisure & Business Services is made up of two key sub-sectors: Hospitality, Leisure & Business Services. While these sectors are not directly alike in terms of customer base, both have a small representation in the Global 500, both are relatively low-emission services focused businesses (perhaps with the exception of travel companies), and both are in themselves collections of companies with relatively divergent and wide-ranging activities.

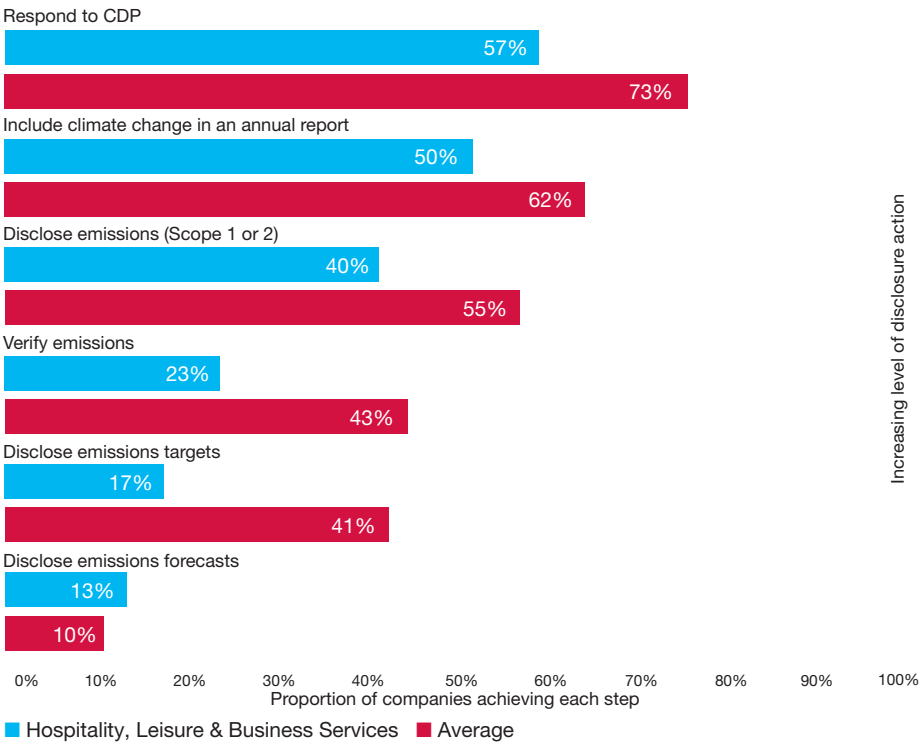
Climate change has not had a substantial impact on the hospitality and leisure industry as yet. Although longer-term shifts in climate will clearly impact on the global make-up of the industry, there is so far limited evidence of changed journey patterns. Similarly, while carbon taxation on aviation is likely to impact on long-haul tourism in future, there is currently little evidence that people are changing their journey patterns significantly.

The Business Services industry is widely constituted, with Global 500 members ranging from healthcare providers such as **Aetna** and **McKesson**, via real estate groups such as **Westfield** and **Mitsubishi**, through to IT consulting firms such as **Accenture** and **IBM**. These companies clearly face radically different impacts from climate change; risks range from increased disease prevalence through to physical losses at work sites, while opportunities include marketing energy-efficient products as oil prices rise and selling environmental consulting services.

Companies in this sector do not appear to be strongly concerned about reputational risk as those in other low-intensity sectors such as financial services or retail and consumer. Hospitality, Leisure & Business Services had the lowest proportion of respondents of all Global 500 sectors at 60%, although those companies that did respond were among the highest scoring.

Figure 53 shows that overall performance among respondents in Hospitality, Leisure & Business Services is comparable to performance in other non-intensive industries, although slightly higher overall making this the leading non-intensive sector.

Fig. 52: Disclosure waterfall – Hospitality, Leisure & Business Services



On risks and opportunities, the sector is almost exactly in line with the industry average. Scope 1 and 2 disclosure performance is slightly weaker than average, while other reporting metrics are line with other non-intensive industries. Companies in the sector also score well on performance, with a slight advantage on the industry average for targets and plans and a significant advantage in terms of action plans to reduce emissions. They are better than the average non-intensive company at forecasting, although still fewer than 20% of companies create forecasts.

In terms of governance and reporting, the industry is again slightly ahead of the average, with a 70% score in terms of reporting carbon policy to shareholders and other stakeholders.

Risks & opportunities

The Hospitality & Leisure response indicates that the sector is exposed to risks from climate change that are primarily either directly physical on their facilities or indirectly on the supply of raw materials. The impact of disease epidemics on tourism levels was also noted as a potential area of concern.

Within business services, the major risks are seen as physical disruption to supply, with few companies considering wider issues. Retail property manager **Westfield**, however, believes that there are concerns arising from perceptions of the company's carbon performance from stakeholders of all types:

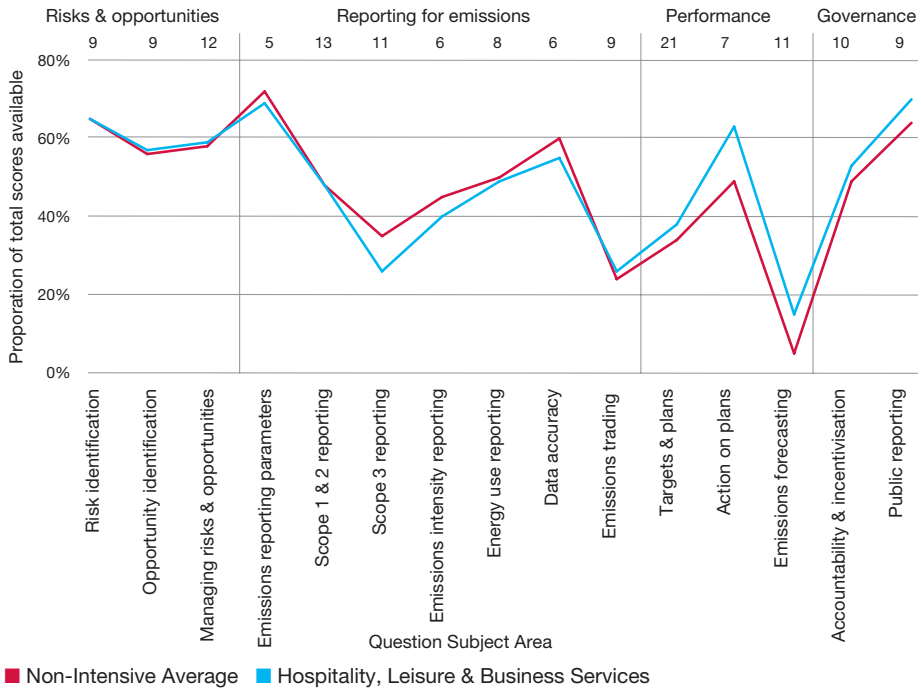
"Investors are becoming increasingly aware of climate change and emissions-related issues. Companies that do not comply with these expectations could be penalized over time, through changes in decisions by consumers about where they shop, by retailers about where they lease space, and by investors about the set of measures by which they judge investment performance."
Westfield

In general, companies in the tourism, leisure and business services arena primarily perceive opportunities from climate change based around marketing energy-efficient products and services as a competitive advantage. There were few other significant opportunities noted by companies in the sector.

In terms of governance and reporting, the industry is slightly ahead of the average.

Within business services, the major risks are seen as physical disruption to supply, with few companies considering wider issues.

Fig. 53: Sector disclosure – Hospitality, Leisure & Business Services



"IBM pledges to reduce total global GHG emissions by 7% from 2005 to 2012."

IBM

"By developing new generations of technologies, we achieve lower power consumption of chips, which will significantly help electronic products' end users for longer battery durability and re-charging duration."
Taiwan Semiconductor

"If Fujifilm's products provide economic benefits to users by consuming as little energy as possible, the market for such products can be expected to grow."
Fujifilm

"We anticipate more demand for our products and services as the demand for energy efficiency grows either as a result of costs or enactment of new regulations. For example, Citigroup recently included Johnson Controls as one of twelve major corporations most likely to benefit as carbon becomes more constrained."
Johnson Controls

Reporting for emissions

Within the sector, 70% of companies were able to disclose basic Scope 1 and Scope 2 emissions, with another 12% stating that they track these emissions but were not able to disclose them. This is low compared to high-emission sectors, but is relatively strong considering the industry's nature.

Only 29% of companies were able to disclose Scope 3 emissions, with a general apparent belief that these are small within the sector compared to Scope 1 and Scope 2 emissions. Almost all firms reporting Scope 1 and Scope 2 emissions state that they are doing so according to the GHG Protocol, apart from one firm that states it is using ISO 14064-1.

Out of the companies reporting a significant rise or a fall in emissions, this was driven primarily by improvements in carbon efficiency, although some companies saw increases in reported emissions due to improved methodologies and business expansion.

Performance

67% of respondents in the sector state that they have an emissions reduction plan in place, although these range significantly in sophistication and levels of development. There is a fairly even split between intensity and absolute targets.

"IBM pledges to reduce total global GHG emissions by 7% from 2005 to 2012."
IBM

Most business services companies are planning to lower emissions primarily by improving energy efficiency at an office level and reducing Scope 3 emissions from travel; the purchase of offsets, renewable energy and RECs is also popular within the sector. Those hospitality and leisure companies with emissions reduction plans are primarily targeting cuts at a hotel or ship level.

"Between 2006 and 2007, IBM's purchase of renewable energy – which included the direct purchases of renewable energy for our own consumption as well as the purchases of Renewable Energy Certificates (RECs) – grew by 24% increasing from 368,000 MWH to 455,000 MWH. These purchases represented 8.5% of IBM's 2007 global electricity use."
IBM

"Our carbon reduction activities include developing alternatives to travel: we have already implemented the Telepresence system at twelve major office locations globally."
Accenture

"Carnival is evaluating shorter routes and rotation/changes of destination ports in the itineraries and collecting and analyzing data on departure and arrival times to identify opportunities to reduce fuel consumption and air emissions."
Carnival Corporation

Governance

67% of companies in the sector report that they have an executive body dedicated to managing climate change risks, ranging from dedicated committees reporting on a regular basis to a board member with the responsibility on top of their normal duties. The reporting of emissions to the board also varies substantially from a formalized monthly process to ad-hoc discussions between the CEO and other board members when relevant.

"Emissions are addressed on a monthly basis in the energy team meetings. In addition to these updates, monthly emissions reports are written to address emissions on a site-by-site basis. Annual emissions reports summarize the total company emissions and include small source emissions that are not tracked on a monthly basis."
Biogen IDEC

Only 44% of companies claim to incentivize managers and employees based on carbon performance. Even among these companies, there is a split between providing carbon education with no direct impact on appraisal performance; incentivizing people on teams with specific carbon responsibility; and making climate change performance a substantial part of the bonus system.

"We are deploying efforts to communicate clearly to each employee and his or her family factors such as the meaning, importance, and economic efficiency of energy-conservation activities…we also actively recruit volunteers to participate in tree-planting and other activities."
FujiFilm

Only 50% of the companies in the sector state that they disclose their GHG performance in their annual report and only 50% engage in other regular formal communications with stakeholders – although 78% produce a corporate responsibility report. 56% of companies claim to engage with policymakers on climate change issues, either as part of a wider group or in their own direct interests; however, many make the point that companies in higher-emissions sectors are better placed to take the lead in driving regulatory change forward.

"Carnival is actively engaged with regulatory agencies and policy makers at the local, national and international level both directly and through industry associations in North America and Europe on matters related to marine air emissions."
Carnival

"IBM will be less directly affected by policies to control greenhouse gas emissions in comparison to organizations or certain industry sectors that have significantly greater GHG emissions, nor do we possess the same degree of expertise or familiarity regarding the effectiveness of various GHG policies or regulatory approaches as those organizations/ industries. As a result, we have not engaged in any significant way on the merits of particular regulatory or policy proposals."
IBM

Conclusions

Hospitality, Leisure & Business Services is a low-emissions sector with a limited direct impact on climate change and limited direct risks from climate change. For most companies in this sector the key emissions are Scopes 2 and 3 – so action to reduce them will be dependent on engaging with utilities, transport providers, and other service providers to minimize emissions. Within Hospitality & Leisure, the key opportunity is seen as providing carbon-friendly travel options. Within the business services sector, many firms see significant opportunities in helping companies in other sectors to reduce emissions.

67%

of respondents in the sector state that they have an emissions reduction plan in place.

Within Hospitality & Leisure, the key opportunity is seen as providing carbon-friendly travel options.

Company highlights*

- Top disclosers by CDLI score: **Cadbury Schweppes, Coca Cola, Matsushita Electric, Sony, Tesco**
- Largest non-respondents by market capitalization: **Amazon.com, Archer Daniels Midland, CVS Caremark, Lowe's Companies, PPR**

Key sector metrics

- Number of companies in the Global 500 in sector: **58**
- Number of companies responding in sector#: **51** (88% – ranked 2nd overall, 1st out of non-carbon)
- Number of companies disclosing publicly: **45** (88% of respondents)
- Sector average CDLI score: **67** (ranked 4th out of non-carbon-intensive)
- Range of scores: **2** lowest – **96** highest
- Percentage of respondents disclosing emissions: Scope 1: **71%**, Scope 2: **67%**, Scope 3: **39%**
- Most common metrics used for measuring emissions intensity – **per product unit, per $million sales, per square meter (retailers)**

* Companies listed include non-public responses. Names are listed alphabetically within categories.

\# The information in this box is based on the final number of respondents to CDP as of 31 July 2008. However, for time reasons the cut-off date for the responses received in the data and charts in the rest of the section was July 1 2008, and hence these may differ slightly from this figure.

Retail & Consumer

For the purposes of this analysis the Retail & Consumer sector comprises of eight subsectors: Beverages & Tobacco, Specialty Retail, Food Products, Food & Drug Retailing, Household & Personal Products, Textiles & Apparel & Luxury Goods, Multiline Retail and Household Durables.

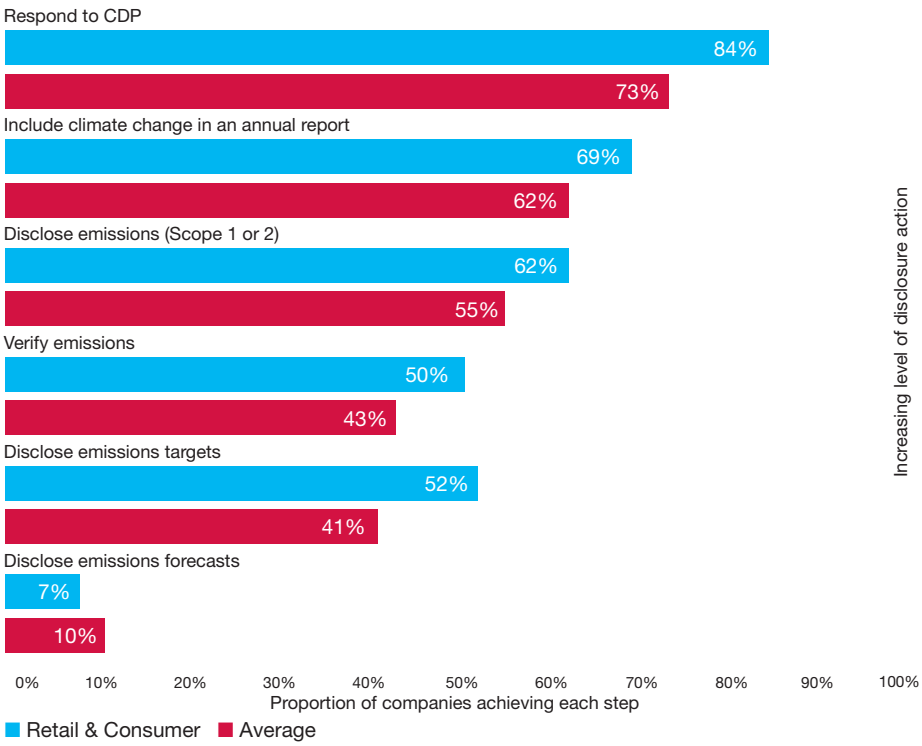
The disclosure waterfall (figure 54) illustrates that retail & consumer companies are well above the average for Global 500 companies on disclosure actions, with the exception of forecasting where they are slightly below the average. The step change from disclosing targets to forecasting emissions is significant, but not unique to this sector, and seems to reflect more the reluctance of companies to disclose due to commercial sensitivities rather than that they do not forecast.

At all levels of disclosure the retail & consumer sector follows the non-intensive average closely (figure 55). The following observations can be made:

- The Retail & Consumer sector is below the non-intensive sector average on opportunities identification, which may seem at odds with consumer demand for sustainable products and the number of new product markets that are likely to develop as a result of emerging climate change regulation. However, the reluctance to disclose such information publicly may be explained by concerns about commercial confidentiality. New products in this area can be a source of competitive advantage and hence companies may be reluctant to publicize them ahead of their launch; and
- Companies are generally poor at analyzing Scope 3 emissions; however some companies in the sector have started to recognize the need to understand their supply chain and carbon footprint better, by becoming involved with projects such as the CDP Supply Chain Project.

Since CDP 5, there has been an increase in the prominence of climate change and sustainability issues,

Fig. 54: Disclosure waterfall – Retail & Consumer



influencing the sector through direct impacts on the cost base, resource scarcity, consumer awareness and attitudes, voluntary regulation schemes, and the start of a visible shift in corporate strategy to address climate change. These key trends identified in company responses are addressed in the following sections.

Risks & opportunities

The Retail & Consumer industry is not impacted significantly by mandatory emission regulations; only 30% of respondents have operations which are included within the EU ETS and of those no more than 10% of sites are regulated (for example **Colgate-Palmolive** have no regulated sites, whilst **Danone** has 5 plants out of 67). However, despite the current, relatively low level of regulatory risk, there is a general expectation amongst retail and consumer companies that the industry will increasingly face emission regulation:

"Mandatory emissions trading programs are emerging or are likely to emerge that will affect non-energy intensive sectors such as retail, e.g. the Carbon Reduction Commitment (CRC) Scheme in the United Kingdom…other government policies on climate change that affect H&M include the implementation of energy efficiency standards, e.g. the California Energy Commission's Building Energy Efficiency Standards, with requirements for maximum installed wattage of lighting per square meter."
Hennes & Mauritz

The potential impact of emission regulations on the sector could be significant for some companies:

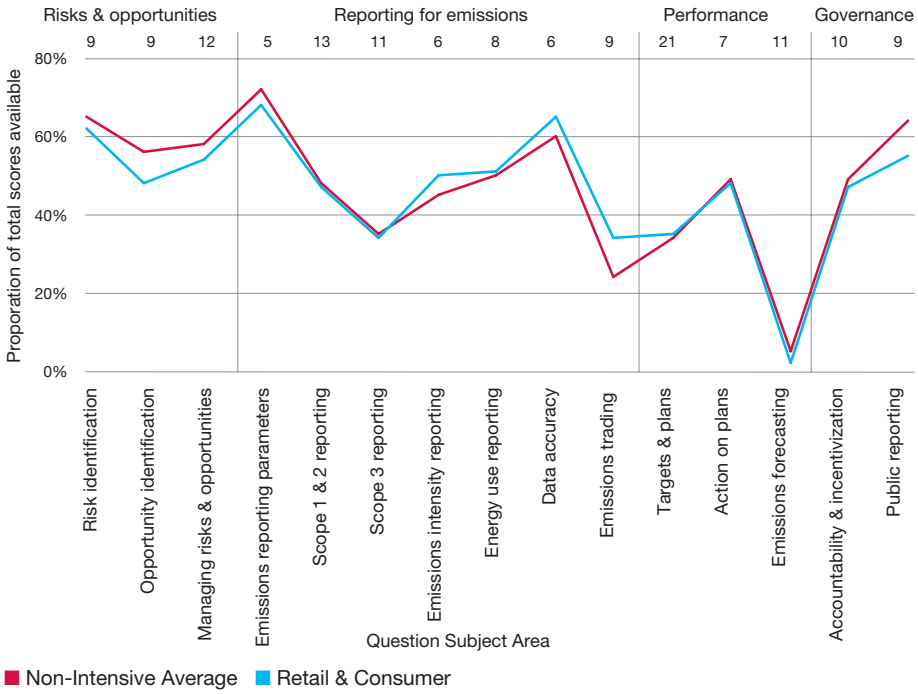
"We are manufacturing devices (plasma display panels, semi-conductor, etc.), which consume a large amount of energy compared to assembly processes, in Japan and these are our source of growth. Because of this business structure, Panasonic's CO_2 emissions from manufacturing sites in Japan has been increasing recently though global CO_2 emission has been decreasing since fiscal 2004 in gross volume. Therefore, stronger regulations…could be a huge risk to our business operation."
Matsushita Electric Industrial

Retail & Consumer companies are well above the average for Global 500 companies on disclosure actions.

30%

of respondents have operations which are included within the EU ETS and of those no more than 10% of sites are regulated.

Fig. 55: Sector disclosure – Retail & Consumer



"Climate change is in principle viewed as a commercial opportunity."

Philips Electronic

Carrefour, Tesco and Wal-Mart Stores are investing a significant amount of time and resources in understanding the carbon footprint of their supply chain and are beginning to incorporate the results of this into their strategies.

99%

of respondents in this sector state that they have taken or have planned action to manage the risks of climate change.

Other regulatory risks include increased energy costs as a result of increased regulation of the energy generation sector, and the impact of CO_2 labeling on products. Retailers also act as a form of regulation on consumer goods companies: by mandating through their CSR and carbon policies, they are changing the nature of competition and making demands on suppliers concerning the types of products that they should produce. It is also interesting that **Imperial Tobacco** noted the importance of relative performance to peer group companies (as a factor impacting costs:

"[We] estimate that the additional cost implication of regulatory developments may be a potential increase of 20% in energy spend in the form of additional carbon taxes if we are considered to perform poorly in comparison to industry peers in the league tables."
Imperial Tobacco

Retail and consumer companies need to look beyond their immediate value chain, from suppliers through to post-consumption disposal of their products, in order to fully understand the potential risks and opportunities of climate change and ultimately to determine where responsibility will fall for their emissions. Future regulation may not impact only on emissions controlled directly by the retailer or manufacturer.

Physical risks also featured strongly, with 84% of companies considering this category of risks. The most commonly mentioned risks included:

- The effect on crop harvests and yields, resulting in supply problems and higher prices;
- Increased scarcity of reliable water resources; and
- Exposure to extreme weather events from floods to cyclones and the resulting cost and disruption to the business including the impact on supply chains and markets.

The most common 'general risk' identified by 41% of companies was the potential impacts on a company's brand if consumers felt that they were not taking the challenges of climate change seriously enough or doing enough to address them.

A number of companies are signing up to voluntary schemes as a means of demonstrating to their consumers that they are doing what they can to mitigate the impacts of their operations on the climate. By taking a leading role in driving voluntary action, companies hope to mitigate the risk of potentially tougher guidelines or mandatory regulation governing GHG emissions in this sector.

The vast majority of respondents in this sector (99%) state that they have taken or have planned action to manage the risks of climate change. Risk management has been largely focused on improving energy efficiency, both directly and in the supply chain. A number of companies are actively involved in risk mapping that covers natural disasters and environmental risks.

"Key focus areas have been: improving the measurement of GHG emissions including transport emissions; engaging our suppliers to reduce their emissions; and engaging our businesses in long-term scenario planning for a low carbon economy."
SAB Miller

There are differences of opinion on the level of opportunities presented by current or anticipated regulatory requirements on climate change.

"In anticipation of carbon labeling requirements, our Walkers division has provided carbon footprint information on its packaging. By being one of the first consumer products companies to do such, our company will be better positioned to take advantage of any future regulatory benefits available as a result of such labeling."
PepsiCo

However, companies are generally unsure about the future direction of regulations and their level of cost exposure, with some taking proactive action and others not. This probably reflects the lack of clarity on the future direction of regulation and therefore future risk exposures.

Electronic goods companies state that they are generally well positioned to benefit from increasing regulation.

"We consider that regulatory requirements on energy efficiency that are bound to come into force within several years offer one of the most exciting opportunities for our products and services….."
Sony Corporation

"We understand that it is more important than ever to continuously develop industry's best technologies and energy-efficient products not only in Japan, but also for global markets, which as a result, leads to establishment of our competitiveness and boosts our brand image."
Matsushita Electric Industrial

Electronic goods companies have fundamentally changed what they produce as a result of clear labeling requirements and guidelines, specifically around product energy consumption, which has encouraged them to invest in new products for these markets. However, for non-durable products there is no associated 'energy consumption' in relation to product usage and therefore it is more difficult for the consumer to compare the merits of one product against another with regard to its impact on the climate. As a result many companies are struggling with how to engage consumers on this issue.

Reporting for emissions

The GHG Protocol is the most commonly used guidance with 65% of the sector applying this to their emissions accounting and reporting. Other standards used in the sector include ISO 14040 and 14044 standards and local accounting standards, which typically follow the GHG Protocol.

74% of respondents provided a breakdown of Scope 1 and 2 emissions, with 94% of respondents stating that their emissions did not vary significantly from the previous year due either to this being the first year of reporting or to improvements in energy efficiency offsetting the impact on emissions from an increase in the size of operations.

Only 39% of respondents disclosed a figure for Scope 3 emissions, with the most significant sources being logistics and production, which is consistent with the large distribution networks present in the industry. Many of those that reported Scope 3 emissions are beginning to measure the carbon footprint of their products and are involved in schemes such as CDP's Supply Chain Leadership project as a means by which they can obtain a better understanding of their Scope 3 emissions.

"To develop a better understanding of the impacts of our products we have conducted Life Cycle Assessments (LCAs) of typical power tools in both the consumer and professional segments."
Black & Decker Corporation

It is apparent that there are some differences in the extent of work being performed by companies and the progress they have made in identifying Scope 3 emissions in relation to their operations. Retailers such as **Carrefour**, **Tesco** and **Wal-Mart Stores** are investing a significant amount of time and resources in understanding the carbon footprint of their supply chain and are beginning to incorporate the results of this into their strategies. Other companies which do not deal directly with retail consumers are often only just starting to consider Scope 3 emissions; however increasing pressure from retailers will result in more of these companies looking at their supply chain in the future.

The number of companies that have their emissions externally verified was 60%, whilst 90% have a system in place to measure and assess the accuracy of the results. Typically this assessment will involve comparisons with prior years and other reasonableness checks.

"Most importantly, we have a long track record of GHG emissions accounting. All data are compared to corresponding data of previous years and reviewed on completeness, accuracy and plausibility. We make sure they are credible explanations for all significant changes (both positive and negative)."
eBay

Performance

Over 90% of respondents in the sector stated that they had emission reduction targets and of these 60% disclosed the time period and reduction target. Those companies that did not have a target referred to the difficulties in setting a meaningful target when there are so many factors that can influence their ability to meet these targets (such as acquisitions, divestments etc).

No one type of target seems to dominate the industry; however a small majority of companies tend to favor intensity-based targets over absolute emission reduction targets. The timeline over which these targets are to be met, are mostly either by 2012 or more distant, towards 2020 or even 2030. Many companies are using a combination of short-term intensity-based targets and longer term absolute targets.

In order to achieve these targets companies are pursuing energy efficiency programs that involve switching to energy efficiency lighting and new energy efficient buildings, purchasing renewable energy and assessing whether they can reorganize their supply chain to reduce the carbon footprint of their products.

Only 35% of respondents disclosed the level of investment that they are making in order to achieve the targets set. The most common reason for the lack of disclosure was either due to commercial sensitivity or the difficulties in identification and measurement. Without visibility on climate change regulations, companies find it difficult to assess payback periods and returns and so often do not allocate specific budgets for tackling climate change.

"There is no centralized budget for avoiding and reducing energy consumption, as this would not fit with our highly decentralized business culture. Every site is responsible for reaching its energy reduction targets in the way it sees most appropriate."
Imperial Tobacco

90%

of respondents in the sector stated that they had emission reduction targets and of these 60% disclosed the time period and reduction target.

There is an opportunity for more companies to take more of a leadership position on the climate change agenda.

Only 20% of respondents factor the cost of future emissions into capital expenditure planning. As emissions regulations become more widespread, this is likely to drive greater capital expenditure on CO_2 reduction.

"Establishing a carbon price will be a key driver for investment in innovation, providing the certainty and incentive required for long-term investment decisions."
Tesco

For those companies that did disclose, the size of the commitment varied considerably:

"Level of annual investment target on environment: €17 millions [c.US$25m]."
Danone

"In fiscal 2008, we invested 13 billion yens [c.US$110m] and CO_2 reduction effect was 210,000 tons."
Matsushita Electric Industrial

56% of companies with an emissions reduction plan in place have reported a reduction in their emissions, and in some cases the financial benefit of this has been quantified.

"In the case of Latin America North, we invested €10 Millions [c.US$15m] in the last 3 years, and we estimate a saving of €6 Millions/Year [c.US$9m] (Including reduction cost fuel, carbon credits, and reduction CO_2 emissions)."
Inbev

However, 40% of companies with a plan in place were unable to quantify the impact of the reduction on emissions, either because the plans had not been in place for sufficient time or because of difficulties in determining the specific impacts.

Governance

The majority of respondents (86%) have a board or executive body, such as the Corporate Social Responsibility Committee or equivalent body, that has direct responsibility for climate change. The majority also appear to have identified an individual on the main board with overall responsibility for the issue.

Just over half of respondents provide incentive mechanisms for individual management to attain GHG targets; however most companies did not elaborate in great detail as to what these mechanisms involved.

"Environment represents 15% of global bonus."
Danone

Just over 80% of companies communicate voluntarily on climate change issues and actions through their CSR report and 45% of companies include GHG information within their annual report.

Only 56% of respondents are actively engaged with policy makers (either directly or through trade bodies) despite the tendency towards self-regulation in the industry. This suggests that there is an opportunity for more companies to take more of a leadership position on the climate change agenda and to better understand the risks and opportunities presented by climate change.

Conclusions

Actions by sector leaders are forcing change in the sector. Changing consumer attitudes and expectations are starting to drive more behavior in many markets and these pressures are now being pushed up the value chain to consumer product companies as well as raw material suppliers by the larger retail companies.

Views on regulatory and market risks vary widely and this is reflected in different levels of engagement and action on climate change. Some are taking action on labeling, others choice editing (removing more intensive products from product ranges) and others innovating to improve energy efficiency.

As greater clarity on climate change regulation and guidelines emerges in different markets, the business case for investment in reducing emissions is likely to become stronger.

Technology, Media & Telecoms

For the purposes of the analysis in this report the Technology, Media & Telecoms (TMT) sector comprises of ten sub-sectors with the most significant sub-sectors being Integrated Telecommunication Services (26%), Communications Equipment (12%), Wireless Telecommunication Services (12%), Computers & Peripherals (10%), Movies & Entertainment (10%).

TMT companies are broadly in line with the Global 500 overall in terms of disclosure (Figure 56) – they are slightly less likely than average to include emissions in their annual report, to disclose Scope 1 or Scope 2 emissions to CDP and to set targets, but slightly more likely than average to verify and forecast emissions.

In terms of response quality (figure 57, overleaf), the TMT sector is almost exactly in line with non-intensive sectors overall. The places where there are noticeable differences from the average are in risk identification, where TMT companies are slightly worse than the average (which primarily reflects the preponderance of financial services companies, with a strong focus on risk assessment, among non-intensive companies), emissions intensity reporting, where TMT companies are slightly better than average, and taking action based on targeted plans, where TMT companies perform slightly worse than average.

Risks & opportunities

The TMT sector responses indicate that the sector is exposed to general risks from climate change, mostly as a result of: growing consumer awareness and a shift toward purchasing products that are carbon neutral or have a very low carbon footprint; increases in production costs due to resource and energy shortages; impacts on production and supply chain or on supply process and deliveries; changes in purchasing power; and political risks.

However, most of these factors are not TMT sector-specific, and are applicable to the vast majority of respondents from other industry sectors.

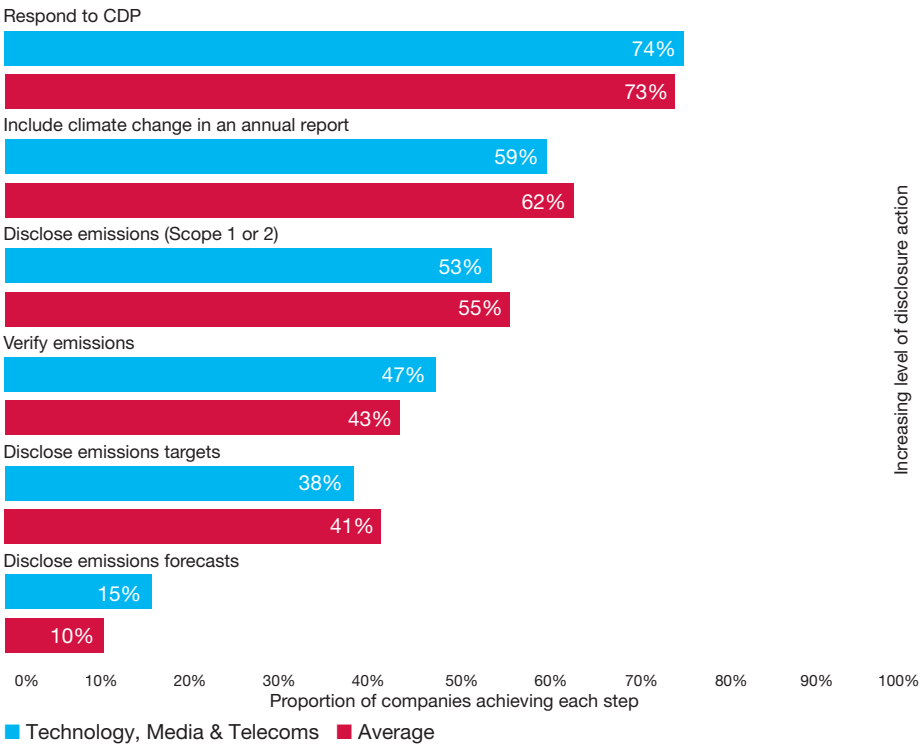
Company highlights*

- Top disclosers by CDLI score: **BT Group, Cisco Systems, Dell, EMC, Nokia Group**
- Largest non-respondents by market capitalization: **America Movil, China Mobile, ComCast, Research In Motion, Singapore Telecom**

Key sector metrics

- Number of companies in the Global 500 in sector: **73**
- Number of companies responding in sector#: **55** (75% – ranked =5th overall, =2nd out of non-carbon-intensive)
- Number of companies disclosing publicly: **43** (78% of respondents)
- Sector average CDLI score: **68** (ranked 3rd out of non-carbon-intensive)
- Range of scores: **7** lowest – **98** highest
- Percentage of respondents disclosing emissions: Scope 1: **72%**, Scope 2: **70%**, Scope 3: **46%**
- Most common metric used for measuring emissions intensity – **per US$ revenue**

Fig. 56: Disclosure waterfall - Technology, Media & Telecoms



* Companies listed include non-public responses. Names are listed alphabetically within categories.

\# The information in this box is based on the final number of respondents to CDP as of 31 July 2008. However, for time reasons the cut-off date for the responses received in the data and charts in the rest of the section was July 1 2008, and hence these may differ slightly from this figure.

24%

of the TMT sector respondents indicate they do not consider themselves exposed to regulatory risks.

74%

of companies consider their worldwide operations including those of their customers and suppliers could be subject to extreme weather events.

"Consumers, business customers and investors are becoming increasingly aware of the potential impacts of Climate Change. BT has to be able to demonstrate that it is mitigating its own impact and that of the products and services which it is offering if Information and Communications Technology (ICT) is to be seen as part of the solution to Climate Change. For example, BT accounts for 0.7% of the United Kingdom electricity consumption."
BT Group

"The price increase resulting from the shortage of energy or resources may (1) Inflate production cost and (2) Change consumer trends to the preferential purchase of energy-efficient products."
Hitachi

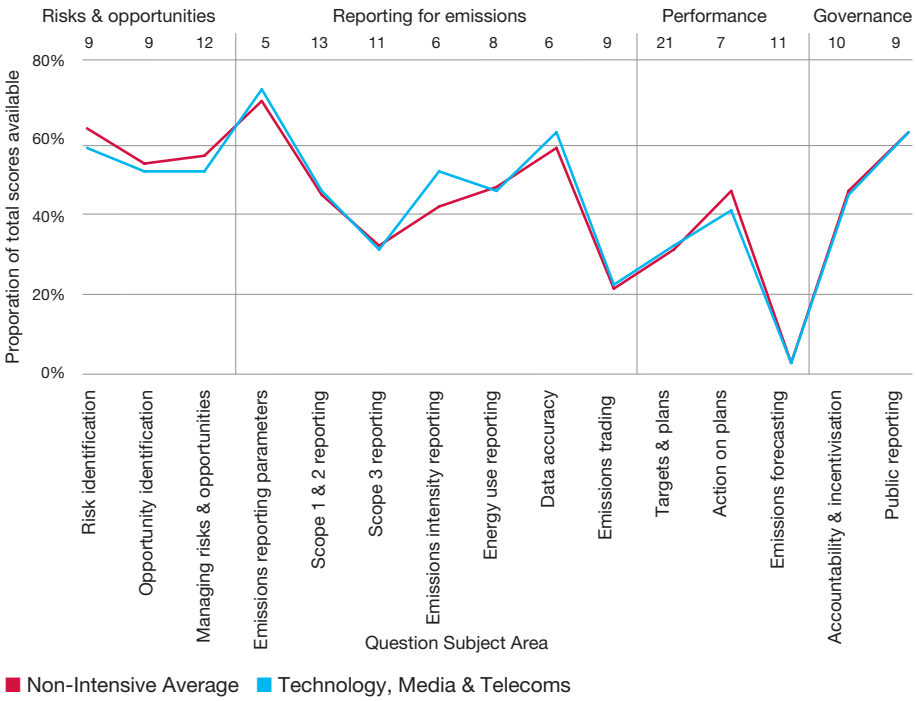
24% of the TMT sector respondents indicate they do not consider themselves exposed to regulatory risks. Those exposed believe such exposure is limited as the significant majority of companies in this sector do not generate significant direct emissions of Greenhouse Gases and the industry itself is not currently subject to major greenhouse gas emission regulation.

"At present, the telecommunications industry is not subject to greenhouse gas emission regulation and is not included in the German and/or EU emissions trading scheme. Today, therefore, Deutsche Telekom does not face any regulatory/financial risks in this respect."
Deutsche Telekom

Around 74% of companies consider their worldwide operations including those of their customers and suppliers could be subject to extreme weather events such as sea level rise, hurricanes, frequency of storms, droughts, flooding and fires.

"Hurricane Katrina provided Sprint valuable information in terms of disaster preparedness and risk mitigation. We recognize that these types of catastrophic weather events are likely to recur and have taken action to improve our network and facility resilience when they do. For example, to reduce the effect of power loss on our wireless networks, we invested over $50 million in network preparations last year in storm-prone coastal communities… We are also deeply involved in researching renewable energy sources that can be used both as

Fig. 57: Sector disclosure - Technology, Media & Telecoms



back-up and even primary power for sites with greater risk of climate change impact."
Sprint Nextel Corporation

Each sub-sector is seeing opportunities resulting from market, technology and regulatory changes specific to its own business area. Wireless telecommunication services, integrated telecommunications services and software companies mention specific opportunities for products and solutions that help to reduce GHG emissions from travelling and transport (teleconferencing, mobile devices, etc).

"As a software developer, there is a major upside to regulatory risks associated with climate. Many of Adobe's software products provide internet based conferencing and training which support travel reduction. Since travel is a major source of emissions, regulatory actions and increased carbon offset costs can be expected to drive increased use of software that support travel reductions by many organizations."
Adobe Systems

Companies in the semiconductor equipment & products subsector indicate potential opportunities from government policy and regulation encouraging the use of renewable energy sources and more energy efficient technologies.

"To the extent there is accelerating concern over global warming and interest in renewable energy, the demand for our solar PV, low-e glass and other alternative energy products is expected to increase."
Applied Materials

Around 74% of respondents anticipate opportunities arising from the physical impacts of climate change. Opportunities include the provision of services and equipment in the following areas:

- Measurement equipment – products positioned to enable the world scientific community to better measure and quantify the impact of climate change;
- Renewable energy product range – expected increase in demand for solar PV, low-e glass and other alternative energy products;
- Disaster recovery equipment and software – various software and related services offerings improve our customers' disaster recovery and business continuity capabilities.

Reporting for emissions

Almost all TMT companies now disclose basic emissions accounting information such as including the accounting period and protocol used. The GHG Protocol is the most commonly used guidance with circa 60% of the sector applying this to their emissions accounting and reporting.

Where this Protocol is not followed, national government guidance is most commonly used and this is often based on the Protocol. Other standards used in the Technology, Media & Telecoms sector include IS04064, WRI, WBSCD, ISO 14064, EPA's emission calculation guideline, California Climate Action Registry (CCAR).

48% of companies in the sector indicate that their reported emissions have varied significantly from last year (in either direction). Explanations of reductions include the purchase of more renewable energy, energy efficiency measures or the disposal of business segments or excess office/warehouse space. Most common causes of significant increase in emissions are acquisitive or organic growth, or one-off factors such as harsh winter temperatures, although a small number of respondents attribute increases to improvements in the accuracy of emissions monitoring.

"For both reported Scope 1/2 and Scope 3 emissions, the primary driver for changes in emissions is business growth. Cisco revenue increased almost 23% from FY2006 to FY2007 and head count increased as well. This growth, partly fuelled by acquisitions, expands Cisco's real estate portfolio, pushing emissions higher (if not offset by renewable).

74%

of respondents anticipate opportunities arising from the physical impacts of climate change.

64%

of respondents have their emissions data independently verified.

68%

of companies in the sector indicate that they have emission reduction targets in place.

A majority of Cisco's business air travel is by the sales and service organizations, which is tied fairly directly to growth in revenue."
Cisco Systems

Sources of Scope 3 emissions are an area in which business in general is continuing to increase its level of understanding and monitoring. Around 46% of sector companies disclosed Scope 3 emissions, and the majority of the sector respondents stated that by far their most significant Scope 3 emissions was from employee business travel (particularly air travel) and commuting.

Other disclosed sources of Scope 3 emissions are company supply chains, use/disposal of company products and services, external distribution and logistics. In a significant number of responses business and employee travel were the only source of Scope 3 emission identified, potentially due to the ease of quantification. A fuller, more rigorous estimate of Scope 3 might lead to different results.

Around 72% of respondents have internal systems in place to assess the accuracy of the data reporting, and 64% of respondents have their emissions data independently verified. However, it is apparent from the disclosures that these systems vary in their robustness and value.

Companies in the sector calculate emissions data in many different ways. Some use automated systems to measure emissions directly; others outsource the work to external consultants. At least one quality control procedure is normally applied to the process, whether through a form of sense check, peer review, internal audit or external verification, and the process generally based on an accredited standard such as GHG Protocol.

EMC's disclosure is a strong example of how a company can take control of its full emissions spectrum and embed a robust assurance process into its emissions accounting:

"In collaboration with the EPA Climate Leaders program, EMC Corporation has developed a GHG emissions Inventory Management Plan (IMP). The IMP includes all institutional, managerial, and technical arrangements made for the collection of data, preparation of the inventory, and implementation of steps to manage the quality of the inventory. An IMP provides a systematic process for ensuring data quality, and identifies areas where investments will likely lead to the greatest improvement in overall inventory quality. The primary objective of an IMP is ensuring the credibility of a company's GHG inventory information."
EMC Corporation

Performance

Around 68% of companies in the sector indicate that they have emission reduction targets in place and 70% of these are able to provide quantitative data on target size and the time periods over which it is set. Around 44% of companies with reduction targets said that these were absolute rather than in emission intensity terms, which may prove challenging given companies' growth plans over the same period.

Overall, both absolute and intensity targets vary in magnitude from company to company. Most are set for five year or shorter periods, ending in 2010-2012 in the majority of cases. Emission reduction activities identified by TMT companies include:

- Energy use – investing in energy efficient lighting and heating, use of natural air-conditioner to reduce electricity use, implementation of new technologies in air conditioning systems to improve efficiency;
- Energy type – purchase of low carbon energy, generation of on-site renewable energy;
- Travel – reduction of business travel through greater use of teleconferencing, car sharing schemes and cycling promotions
- Other – offsetting the balance of emissions.

"Each News Corp. company is on the path to achieving net zero carbon emissions by 2010 [including the impact of offsetting], and we intend to reduce our use of non-renewable sources of energy enough to decrease our carbon footprint in 2012 by 10 percent compared with 2006."
News Corporation

Governance

The majority (78%) of companies in the sector have an executive body with overall responsibility for climate change. The executive body varies from company to company, with the most common forms being audit committee, steering committee, CSR board, public policy committee and risk management group.

In each case a board member sits or chairs the committee and therefore has overall responsibility – most often the CEO or CFO. Respondents' boards receive reports on climate change issues at least annually but in most cases at quarterly or half-yearly intervals.

Around 50% of the sector has incentive mechanisms in place for the management of specific climate change issues and targets, and under half of these have stated that the incentives are linked to remuneration.

"Intel has incorporated climate and energy conservation strategies into the company-wide formula for employee bonus. In 2008, a portion of each employee's variable pay will be based on meeting key product milestones to ensure Intel products lead the market in energy efficiency... In addition, managers who have responsibility for the major climate change goals such as PFC reductions or energy efficiency are held accountable for their performance to those goals."
Intel Corporation

Around 56% of the sector discloses information on climate change issues in their annual statutory reporting. Approximately 52% of the sector indicated that they produce voluntary communications such as Corporate Social Responsibility reporting, while around 74% of the sector state that they engage with policymakers on possible responses to climate change.

Such collaboration with regulators varies in form and depth, with the most common examples being: participation in and support for industry lobbying groups; consultation and advice to national governments and NGOs; and research and reports to government.

Conclusions

Companies are developing various technologies ranging from outsourced data centers to new methods in semiconductor production to minimize the consumption of electricity in their business and through use of their products.

Growth of internet access reduces consumer demand for printed media in favor of digital copies allowing for reduction of emissions and energy consumption in paper production and also avoiding the waste of unsold copies (c.40%).

On the other hand, the growth of telecoms businesses in emerging markets with large geographical coverage and restricted access to the national electricity grid often involves less efficient energy solutions such as autonomous power generators and batteries. Items of IT hardware can often have short lifespans, creating waste disposal issues as well as potentially being resource intensive. It is worth noting that much manufacture of IT equipment is outsourced and hence does not show up as Scope 1 or Scope 2 emissions on the part of the brand owner.

Overall the sector has disclosed results which are broadly consistent with the non-intensive average. Noticeable differences from the average were observed in risk identification, with slightly less disclosure than the general population. Disclosure of opportunities was particularly strong within technology, with many firms researching, developing and producing sustainable energy and other technologies (recycling technologies, solar panel, silicon).

78%

of companies in the sector have an executive body with overall responsibility for climate change.

50%

of the sector has incentive mechanisms in place for the management of specific climate change issues and targets.

6

Appendix 1

CDLI scores and emissions disclosure for all respondents, by sector.

Full Company Scores

Key:

AQ: answered questionnaire[a]

L: answered questionnaire but response received after the deadline and therefore was not scored

NP: answered questionnaire but response not made publicly available

IN: did not answer questionnaire but provided other information e.g. sent copy of CSR report. This was not analyzed

DP: declined to participate

NR: no response

X: company not in sample that year

Reported emissions have been rounded to the nearest whole 1000 metric tons. Companies with "0" emissions did provide a figure but it was less than 500 metric tons, therefore could not be rounded up to "1". To view the exact figure please check the company response at www.cdproject.net

a Where a company has a CDLI score this means they were AQ for CDP6. Where a company refers to a parent companies response this is marked as 'see parent company'.

CDLI scores and emissions disclosure for all respondents, by sector

Sector	Company	CDLI score	Scope 1*	Scope 2*	Scope 3**	Intensity***	CDP5	CDP4
Chemicals & Pharmaceuticals	Abbott Laboratories	52	890	814	0	66	AQ	AQ
	Air Liquide	30	8,100	7,995	442	1,364	AQ	AQ
	Air Products & Chemicals	54	13,000	9,000	–	2,192	AQ	AQ
	Akzo Nobel	45	800	2,400	–	198	AQ	X
	Alcon – See Nestle	–	–	–	–	–	AQ	AQ
	Allergan	63	41	78	–	30	AQ	AQ
	Amgen	38 (NP)	–	–	–	–	AQ	AQ
	Astellas Pharma	41 (NP)	–	–	–	–	AQ	AQ
	AstraZeneca	73	442	276	576	24	AQ	AQ
	BASF	82	23,463	4,050	28,190	346	AQ	AQ
	Baxter International	74	252	476	162	65	AQ	AQ
	Bayer	78	3,890	3,710	-69,800	171	AQ	AQ
	Becton Dickinson & Co.	39	72	408	–	75	AQ	AQ
	Bristol-Myers Squibb	64	435	537	54	50	AQ	AQ
	Celgene Corporation	DP	–	–	–	–	DP	X
	Covidien	DP	–	–	–	–	X	X
	Daiichi Sankyo	46 (NP)	–	–	–	–	AQ	AQ
	Dow Chemical Company	66	29,600	7,700	–	691	AQ	AQ
	E.I. du Pont de Nemours & Company	63	9,800	4,200	–	476	AQ	AQ
	Eli Lilly and Company	53	614	1,457	106	111	AQ	AQ
	Formosa Petrochemical	NR	–	–	–	–	NR	NR
	Genentech	62	42	78	31	13	AQ	IN
	Genzyme Corporation	35 (NP)	–	–	–	–	AQ	AQ
	Gilead Sciences	2	–	–	–	–	AQ	AQ
	GlaxoSmithKline	62	872	1,095	3,832	43	AQ	AQ
	Johnson & Johnson	74	343	580	244	15	AQ	AQ
	Medtronic	36 (NP)	–	–	–	–	AQ	AQ
	Merck & Co.	58	779	583	–	56	AQ	AQ
	Monsanto Company	41	1,305	840	67	251	AQ	IN
	Mosaic Company	NR	–	–	–	–	X	X
	Novartis	69	586	883	146	39	AQ	AQ
	Novo Nordisk	56	204	32	–	28	AQ	AQ
	Pfizer	67	1,058	1,136	–	45	AQ	AQ
	Potash Corporation of Saskatchewan	54	9,000	3,300	–	2,350	AQ	AQ
	Praxair	74	3,168	11,000	260	1,507	AQ	AQ
	Roche Holding	42	439	496	109	24	AQ	AQ
	Sanofi-Aventis	52 (NP)	–	–	–	–	AQ	AQ
	Schering-Plough	61	140	419	131	44	AQ	AQ
	Shin Etsu Chemical	37 (NP)	–	–	–	–	AQ	AQ
	Stryker Corporation	NR	–	–	–	–	DP	AQ
	Syngenta International	51 (NP)	–	–	–	–	AQ	X
	Takeda Pharmaceutical	NR	–	–	–	–	AQ	AQ
	Teva Pharmaceutical Industries	NR	–	–	–	–	NR	NR
	Wyeth	49	551	602	–	51	AQ	AQ

* 000s metric tons.

** Any Scope 3 emissions reported, 000s metric tons.

*** Scope 1 and Scope 2 combined. Metric tons per million US$ revenue, based on revenue figures reported to CDP if available or publicly disclosed if not.

CDLI scores and emissions disclosure for all respondents, by sector (cont.)

Sector	Company	CDLI score	Scope 1*	Scope 2*	Scope 3**	Intensity***	CDP5	CDP4
Construction & Building Products	ACS Actividades de Construccion y Servicios	IN	–	–	–	–	NR	X
	Cemex	75 (NP)	–	–	–	–	AQ	AQ
	China Communications Construction	DP	–	–	–	–	X	X
	Country Garden Holdings	NR	–	–	–	–	X	X
	CRH	53 (NP)	–	–	–	–	AQ	AQ
	Heidelberg Cement	48 (NP)	–	–	–	–	AQ	NR
	Holcim	59	102,828	6,631	6	4,018	AQ	AQ
	Lafarge	66	96,166	8,087	2,265	4,318	AQ	AQ
	Larsen & Toubro	NR	–	–	–	–	NR	X
	Saint-Gobain	44	14,300	0		240	AQ	AQ
	Vinci	57	978	1,036		48	AQ	AQ
Financial Services	Aegon	81	10	75	14	1	AQ	AQ
	AFLAC	56	7	31		2	NR	DP
	Akbank	IN	–	–	–	–	X	X
	Allianz SE	91	73	415	221	3	AQ	AQ
	Allied Irish Banks	73 (NP)	–	–	–	–	AQ	DP
	Allstate Corporation	69	96	182	31	8	AQ	NR
	American Express Company	80	0	212	–	8	AQ	AQ
	American International Group	57	75	420	78	5	AQ	AQ
	Australia and New Zealand Banking Group	97	14	198	18	20	AQ	AQ
	Aviva	83	76	42	12	1	AQ	AQ
	AXA Group	86	63	91	82	1	AQ	AQ
	Banco Bradesco	79	19	79	113	24	AQ	AQ
	Banco do Brasil	40	–	–	–	–	AQ	AQ
	Banco Itau	61	164	134		17	AQ	AQ
	Banco Popular Espanol	79	1	24	2	0	AQ	AQ
	Banco Santander	NR	–	–	–	–	NR	AQ
	Bank of America Corporation	L	–	–	–	–	AQ	AQ
	Bank of China	IN	–	–	–	–	NR	X
	Bank of Communications Co.,	DP	–	–	–	–	NR	X
	Bank of Montreal	90	54	96	16	6	AQ	AQ
	Bank of New York Mellon Corporation	46 (NP)	–	–	–	–	AQ	AQ
	Bank of Nova Scotia (Scotiabank)	75	0	0	20	–	AQ	AQ
	Barclays	98	31	457	78	11	AQ	AQ
	BB&T Corporation	74	2	106		10	AQ	AQ
	BBVA	57	301	0	26	35	AQ	AQ
	Berkshire Hathaway	NR	–	–	–	–	NR	NR
	BNP Paribas	76 (NP)	–	–	–	–	AQ	AQ
	BOC Hong Kong	NR	–	–	–	–	DP	NR
	Brookfield Asset Management	40 (NP)	–	–	–	–	AQ	AQ
	Canadian Imperial Bank of Commerce (CIBC)	86	12	45	36	5	AQ	AQ
	Capital One Financial	32	–	–	–	–	IN	DP
	Cathay Financial Holding	NR	–	–	–	–	NR	AQ

* 000s metric tons.

** Any Scope 3 emissions reported, 000s metric tons.

*** Scope 1 and Scope 2 combined. Metric tons per million US$ revenue, based on revenue figures reported to CDP if available or publicly disclosed if not.

CDLI scores and emissions disclosure for all respondents, by sector (cont.)

Sector	Company	CDLI score	Scope 1*	Scope 2*	Scope 3**	Intensity***	CDP5	CDP4
Financial Services	Charles Schwab Corporation	9 (NP)	–	–	–	–	AQ	IN
	China Construction Bank Corporation	NR	–	–	–	–	NR	X
	China Life Insurance Company	NR	–	–	–	–	DP	AQ
	Chubb Corporation	42	–	–	–	–	DP	DP
	Citigroup	97	45	1,366	79,666	17	AQ	AQ
	CME Group	NR	–	–	–	–	X	X
	Commerzbank	63 (NP)	–	–	–	–	AQ	AQ
	Commonwealth Bank† of Australia	64	13	129	22	5.4	DP	DP
	Credit Agricole	81	17	17	55	1	AQ	AQ
	Credit Suisse	92	17	169	101	27	AQ	AQ
	Danske Bank A/S	57	5	42	7	5	AQ	AQ
	DBS Group	DP	–	–	–	–	DP	DP
	Deutsche Bank	86	4	169	275	4	AQ	AQ
	Deutsche Boerse	67 (NP)	–	–	–	–	AQ	AQ
	DEXIA	71	12	27	4	4	AQ	AQ
	DnB NOR	39	–	–	–	–	AQ	AQ
	Erste Bank der Osterreichischen Sparkassen	NR	–	–	–	–	NR	X
	Fannie Mae	DP	–	–	–	–	DP	DP
	Fortis	83	56	51	42	4	AQ	AQ
	Franklin Resources	68	5	25	8	5	DP	NR
	Freddie Mac	IN	–	–	–	–	AQ	IN
	GBL	DP	–	–	–	–	X	X
	Generali	NR	–	–	–	–	NR	IN
	Goldman Sachs Group	76 (NP)	–	–	–	–	AQ	AQ
	Great West Lifeco	DP	–	–	–	–	DP	DP
	Hang Seng Bank	26	–	–	–	–	AQ	AQ
	Hartford Financial Services Group	90	36	92	16	5	AQ	IN
	HBOS	95	41	35	31	2	AQ	AQ
	Hong Kong Exchanges & Clearing	IN	–	–	–	–	DP	X
	HSBC Holdings	91	109	595	115		AQ	AQ
	ICICI Bank	NR	–	–	–	–	AQ	X
	Industrial and Commercial Bank of China	41 (NP)	–	–	–	–	AQ	X
	ING Group CVA	74	0	159	52	1	AQ	AQ
	Intesa Sanpaolo S.p.A	54	65	135	11	9	AQ	DP
	JP Morgan Chase & Co.	71	–	–	–	–	AQ	AQ
	KBC Group	60	–	–	–	–	AQ	AQ
	Kookmin Bank	NR	–	–	–	–	NR	DP
	Lehman Brothers Holdings	67 (NP)	–	–	–	–	AQ	DP
	Lloyds TSB	97	30	101	30	6	AQ	AQ
	Loews Corporation	DP	–	–	–	–	NR	NR
	Manulife Financial	79	7	103		3	AQ	AQ
	Merrill Lynch & Co.	98	12	365	98	6	AQ	AQ
	Metlife	NR	–	–	–	–	NR	DP
	Millea Holdings	88	0	0	8	–	AQ	AQ

* 000s metric tons.

** Any Scope 3 emissions reported, 000s metric tons.

*** Scope 1 and Scope 2 combined. Metric tons per million US$ revenue, based on revenue figures reported to CDP if available or publicly disclosed if not.

† This intensity figure was amended after publication and is therefore different to the printed version of this report.

CDLI scores and emissions disclosure for all respondents, by sector (cont.)

Sector	Company	CDLI score	Scope 1*	Scope 2*	Scope 3**	Intensity***	CDP5	CDP4
Financial Services	Mitsubishi UFJ Financial Group	64	–	–	–	–	AQ	AQ
	Mizuho Financial Group	40	–	–	–	–	AQ	AQ
	Morgan Stanley	82	16	192	89	6	AQ	AQ
	Munich Re	98	7	138	42	2	AQ	AQ
	National Australia Bank	98	19	218	14	12	AQ	AQ
	National Bank of Greece	L	–	–	–	–	AQ	X
	NATIXIS	58 (NP)	–	–	–	–	AQ	X
	Nomura Holdings	48	33	0	–	4	AQ	AQ
	Nordea Bank	50 (NP)	–	–	–	–	NR	DP
	NYSE Euronext	NR	–	–	–	–	AQ	NR
	Ping An Insurance Company of China,	NR	–	–	–	–	DP	NR
	PKO Bank Polski	NR	–	–	–	–	X	X
	PNC Financial Services Group	L	–	–	–	–	AQ	AQ
	Power Financial	DP	–	–	–	–	NR	DP
	Prudential	65	0	59	–	1	AQ	AQ
	Prudential Financial	73	9	92	–	3	AQ	DP
	QBE Insurance Group	60	0	24	9	2	AQ	DP
	Raiffeisen International Bank	DP	–	–	–	–	NR	X
	Reliance Communication Ventures	NR	–	–	–	–	X	X
	Resona Holdings	DP	–	–	–	–	AQ	NR
	Royal Bank of Canada	97	11	32	44	2	AQ	AQ
	Royal Bank of Scotland Group	94	92	395	89	8	AQ	AQ
	Sberbank-CLS	IN	–	–	–	–	IN	DP
	Shinhan Financial Group Company	7	–	–	–	–	AQ	X
	Societe Generale	76	35	155	76	6	AQ	AQ
	Standard Bank Group	69	6	111	6	8	AQ	DP
	Standard Chartered	94	11	209	58	20	AQ	AQ
	State Bank of India	22	–	–	–	–	NR	X
	State Street Corporation	60	5	110	–	14	AQ	AQ
	Sumitomo Mitsui Financial Group	55 (NP)	–	–	–	–	AQ	AQ
	Sun Life Financial	59 (NP)	–	–	–	–	AQ	AQ
	SunTrust Banks	L	–	–	–	–	DP	IN
	Swiss Re	78	6	53	–	2	AQ	AQ
	Toronto-Dominion Bank	66	32	92	19	9	AQ	AQ
	Travelers Companies.	87	25	49	–	3	AQ	AQ
	U.S. BanCorp	50	34	415	27	22	AQ	AQ
	UBS	87	27	219	36	6	AQ	AQ
	Unicredit Group	75	0	0	92	–	AQ	AQ
	United Overseas Bank	DP	–	–	–	–	DP	NR
	VTB Bank	NR	–	–	–	–	X	X
	Wachovia Corporation	71	25	279	402	5	AQ	AQ
	Wells Fargo & Company	97	42	539	95	15	AQ	AQ
	Wesfarmers	78	2,114	412	–	284	AQ	AQ
	Westpac Banking	95	7	109	–	5	AQ	AQ
	Zurich Financial Services	59 (NP)	–	–	–	–	AQ	AQ

* 000s metric tons.

** Any Scope 3 emissions reported, 000s metric tons.

*** Scope 1 and Scope 2 combined. Metric tons per million US$ revenue, based on revenue figures reported to CDP if available or publicly disclosed if not.

CDLI scores and emissions disclosure for all respondents, by sector (cont.)

Sector	Company	CDLI score	Scope 1*	Scope 2*	Scope 3**	Intensity***	CDP5	CDP4
Hospitality, Leisure & Business Services	Abertis Infraestructuras	NR	–	–	–	–	X	AQ
	Accenture	41	–	–	–	–	AQ	NR
	Accor	79 (NP)	–	–	–	–	AQ	AQ
	Aetna	67	12	73	–	3	AQ	AQ
	Automatic Data Processing	DP	–	–	–	–	IN	IN
	BIOGEN IDEC	78	49	47	–	30	NR	NR
	Cardinal Health	DP	–	–	–	–	DP	AQ
	Carnival Corporation	93	9,858	82	–	763	AQ	AQ
	Cheung Kong	NR	–	–	–	–	NR	AQ
	DLF	NR	–	–	–	–	AQ	X
	FujiFilm Holdings Corporation	88	949	627	65	63	AQ	AQ
	Infosys Technologies	NR	–	–	–	–	AQ	AQ
	International Business Machines Corporation	92	599	2,266	–	29	AQ	AQ
	Johnson Controls	91	524	1,133	69	48	AQ	AQ
	Las Vegas Sands Corporation	NR	–	–	–	–	NR	X
	McDonalds Corporation	42 (NP)	–	–	–	–	AQ	AQ
	McKesson Corporation	35	–	–	–	–	AQ	IN
	Medco Health Solutions	65	4	64	–	2	AQ	IN
	MGM Mirage	DP	–	–	–	–	X	X
	Mitsubishi Corporation	47 (NP)	–	–	–	–	AQ	AQ
	Mitsubishi Estate	69	354	354	–	106	AQ	AQ
	Mitsui & Co	74 (NP)	–	–	–	–	AQ	AQ
	Mitsui Fudosan	NR	–	–	–	–	NR	NR
	Simon Property Group	88	27	776	14	220	AQ	AQ
	Sun Hung Kai Properties	NR	–	–	–	–	DP	NR
	Taiwan Semiconductor Manufacturing	95	2,466	1,967	3,009	416	AQ	AQ
	Tata Consultancy Services	NR	–	–	–	–	NR	NR
	UnitedHealth Group	50	–	–	–	–	AQ	AQ
	WellPoint	DP	–	–	–	–	DP	DP
	Westfield Group	62	–	–	–	–	IN	DP
Manufacturing[3]	3M Company	61	7,400	1,690	–	372	AQ	AQ
	ABB	67	864	713	–	54	AQ	AQ
	Alstom	64	136	263	–	18	AQ	AQ
	BAE Systems	49 (NP)	–	–	–	–	AQ	AQ
	BMW Bayerische Motorenwerke	60	307	817	–	13	AQ	AQ
	Boeing Company	53	550	1,142	–	25	AQ	AQ
	Caterpillar	40	768	1,580	–	52	AQ	AQ
	Continental	DP	–	–	–	–	DP	NR
	Daimler	61 (NP)	–	–	–	–	AQ	AQ
	Danaher Corporation	24 (NP)	–	–	–	–	AQ	AQ
	Deere & Company	57	474	917	–	58	IN	IN
	Denso Corporation	47	0	0	1,883	–	AQ	AQ
	EADS	38 (NP)	–	–	–	–	AQ	AQ
	Emerson Electric Co.	39	613	–	–	27	AQ	AQ
	Fanuc	NR	–	–	–	–	NR	AQ
	Fiat	NR	–	–	–	–	AQ	X
	General Dynamics Corporation	IN	–	–	–	–	AQ	IN

3 Note that certain companies within the manufacturing sector did not fall into subsectors described as "carbon-intensive" in CDP's original guidance, and therefore have been scored as non-carbon-intensive companies.

* 000s metric tons.

** Any Scope 3 emissions reported, 000s metric tons.

*** Scope 1 and Scope 2 combined. Metric tons per million US$ revenue, based on revenue figures reported to CDP if available or publicly disclosed if not.

CDLI scores and emissions disclosure for all respondents, by sector (cont.)

Sector	Company	CDLI score	Scope 1*	Scope 2*	Scope 3**	Intensity***	CDP5	CDP4
Manufacturing	General Electric Company	56 (NP)	–	–	–	–	AQ	AQ
	GPO Acciona	NR	–	–	–	–	X	X
	Honda Motor Company	44 (NP)	–	–	–	–	AQ	AQ
	Honeywell International	40	–	–	–	–	IN	IN
	Hutchinson Whampoa	NR	–	–	–	–	NR	AQ
	Hyundai Heavy Industries	NR	–	–	–	–	DP	X
	Illinois Tool Works	35 (NP)	–	–	–	–	AQ	AQ
	Komatsu	54	185	310	1,556	31	AQ	AQ
	Linde	62	4,650	10,090	–	768	AQ	AQ
	Lockheed Martin Corporation	DP	–	–	–	–	IN	IN
	MAN	86	155	290	–	42	AQ	AQ
	Mitsubishi Electric	9 (NP)	–	–	–	–	AQ	NR
	Nissan Motor	78	975	1,840	165,468	30	AQ	AQ
	Northrop Grumman Corporation	30	–	–	–	–	AQ	AQ
	Raytheon Company	43	125	536	–	31	AQ	AQ
	Reliance Industries	NR	–	–	–	–	NR	NR
	Renault	73	671	1,021	90,000	30	AQ	AQ
	Schneider Electric	69	90	420	–	19	AQ	AQ
	Siemens	77	1,550	2,410	499	35	AQ	AQ
	Tenaris	NR	–	–	–	–	NR	NR
	ThyssenKrupp	49	–	–	–	–	AQ	AQ
	Toyota Motor	55	3,230	4,840	–	34	AQ	AQ
	Tyco International	49 (NP)	–	–	–	–	AQ	IN
	United Technologies Corporation	52	1,076	1,153	97	41	AQ	AQ
	Volkswagen	65	1,455	4,982	–	37	AQ	AQ
	Volvo	42 (NP)	–	–	–	–	AQ	AQ
Oil & Gas	Anadarko Petroleum Corporation	49	7,575	745	–	524	AQ	AQ
	Apache Corporation	35	–	–	–	–	AQ	AQ
	Baker Hughes	30 (NP)	–	–	–	–	AQ	AQ
	BG Group	65	9,401	7	83,000	583	AQ	AQ
	Bharat Heavy Electricals	NR	–	–	–	–	AQ	X
	BP	64	63,460	10,670	521,000	261	AQ	AQ
	Canadian Natural Resources	L	–	–	–	–	AQ	IN
	Chevron Corporation	74	63,759	-3,097	–	275	AQ	AQ
	China Coal Energy Company	NR	–	–	–	–	X	X
	China Petroleum & Chemical Corporation	NR	–	–	–	–	NR	NR
	China Shenhua Energy Company	3	–	–	–	–	NR	NR
	Cia Espanola De Petroleos	NR	–	–	–	–	X	X
	CNOOC	27 (NP)	–	–	–	–	AQ	AQ
	ConocoPhillips	46	63,706	–	–	5,296	AQ	AQ
	Devon Energy Corporation	42	3,680	490	–	367	AQ	AQ
	Empresas COPEC	NR	–	–	–	–	X	X
	Encana	55	9,517	1,006	–	491	AQ	AQ
	ENI	63	67,556	0	–	565	AQ	AQ
	EOG Resources	41	–	–	–	–	AQ	DP
	Exxon Mobil Corporation	53	141,000	(4,000)	–	361	AQ	AQ
	Gazprom	NR	–	–	–	–	NR	DP

* 000s metric tons.

** Any Scope 3 emissions reported, 000s metric tons.

*** Scope 1 and Scope 2 combined. Metric tons per million US$ revenue, based on revenue figures reported to CDP if available or publicly disclosed if not.

CDLI scores and emissions disclosure for all respondents, by sector (cont.)

Sector	Company	CDLI score	Scope 1*	Scope 2*	Scope 3**	Intensity***	CDP5	CDP4
Oil & Gas	Halliburton Company	53	3,272	165	0	225	AQ	AQ
	Hess Corporation	37	5,850	546	–	202	AQ	AQ
	Husky Energy	NR	–	–	–	–	AQ	NR
	Imperial Oil	54	14,600	1,400	–	648	DP	IN
	Inpex Holdings	NR	–	–	–	–	X	X
	Lukoil	NR	–	–	–	–	NR	DP
	Marathon Oil Corporation	28	14,750	4,910	–	305	AQ	AQ
	National Oilwell Varco	NR	–	–	–	–	NR	NR
	Occidental Petroleum Corporation	43	10,000	5,800	–	841	AQ	AQ
	Oil & Natural Gas	15	–	–	–	–	AQ	NR
	OMV	56	12,134	0	82,060	442	X	X
	Petro Canada	59	6,123	1,262	–	345	AQ	AQ
	PETROCHINA Company	IN	–	–	–	–	NR	DP
	Petróleo Brasileiro S.A – PETROBRAS	47 (NP)	–	–	–	–	AQ	AQ
	PTT	20	–	–	–	–	AQ	NR
	Reliance Petroleum	NR	–	–	–	–	NR	X
	Renewable Energy	NR	–	–	–	–	X	X
	Repsol YPF	72	27,403	1,830	173,180	381	AQ	AQ
	Rosneft Oil	NR					NR	X
	Royal Dutch Shell	68	92,000	13,000	743,180	295	AQ	AQ
	Sasol	64	61,716	8,627	–	5,583	AQ	IN
	Schlumberger	29	1,500	1,700	–	137	AQ	AQ
	StatoilHydro	57	15,422	312	48	175	AQ	AQ
	Suncor Energy	75	10,419	118	–	588	AQ	AQ
	Surgutneftegas	NR	–	–	–	–	NR	NR
	Total	64	58,400	0	636,300	268	AQ	AQ
	Transocean	46 (NP)	–	–	–	–	AQ	AQ
	Valero Energy Corporation	L	–	–	–	–	NR	AQ
	Weatherford International	NR	–	–	–	–	AQ	NR
	Williams Companies	33	17,000	740	–	1,680	AQ	AQ
	Woodside Petroleum	45 (NP)	–	–	–	–	AQ	IN
	XTO Energy	32	4,593	510	–	926	AQ	NR
Raw Materials, Mining, Paper & Packaging	Alcoa	74	31,100	27,900	–	1,919	AQ	AQ
	Anglo American	54	12,704	11,768	4,417	961	AQ	AQ
	Anglo Platinum	41	–	–	–	–	AQ	NR
	Arcelor Mittal	45	181,299	23,250	–	1,944	NR	X
	Barrick Gold	53	2,245	2,114	–	688	AQ	AQ
	BHP Billiton	77	21,394	30,626	330,165	1,096	AQ	AQ
	Cia. Siderurgica Nacional – CSN	DP	–	–	–	–	DP	DP
	Companhia Vale do Rio Doce – CVRD	66	13,805	1,417	–	407	AQ	AQ
	Freeport-McMoRan Copper & Gold	54	–	–	–	–	AQ	NR
	GMK Norilsk Nickel	NR	–	–	–	–	NR	NR
	Goldcorp	38	241	285	–	238	AQ	DP
	Impala Platinum Holdings	45	396	2,716	–	711	AQ	X
	JFE Holdings	53 (NP)	–	–	–	–	AQ	AQ
	Nan Ya Plastics	NR	–	–	–	–	DP	IN

* 000s metric tons.

** Any Scope 3 emissions reported, 000s metric tons.

*** Scope 1 and Scope 2 combined. Metric tons per million US$ revenue, based on revenue figures reported to CDP if available or publicly disclosed if not.

CDLI scores and emissions disclosure for all respondents, by sector (cont.)

Sector	Company	CDLI score	Scope 1*	Scope 2*	Scope 3**	Intensity***	CDP5	CDP4
Raw Materials, Mining, Paper & Packaging	Newmont Mining Corporation	66	2,886	983	–	700	AQ	AQ
	Nippon Steel	59	67,000	0	–	1,838	AQ	AQ
	POSCO	61 (NP)	–	–	–	–	AQ	AQ
	Precision Castparts	IN	–	–	–	–	X	X
	Rio Tinto	71	29,600	20,600	660,300	1,690	AQ	AQ
	Sandvik	40	215	339	–	43	AQ	X
	Severstal JSC	NR	–	–	–	–	X	X
	Southern Copper Corporation	NR	–	–	–	–	X	X
	Steel Authority of India	NR	–	–	–	–	NR	X
	Sumitomo Metal Industries.	67 (NP)	–	–	–	–	AQ	NR
	Xstrata	70	14,979	9,135	174	845	AQ	AQ
Retail & Consumer	Altria Group	77	458	0	–	12	AQ	DP
	Amazon.com	DP	–	–	–	–	NR	NR
	Ambev – Cia. Bebidas das Americas	72	461	206	–	60	AQ	DP
	Anheuser-Busch Companies	68	1,340	1,720	–	183	AQ	IN
	Archer Daniels Midland	DP	–	–	–	–	DP	DP
	Best Buy	46	–	–	–	–	AQ	AQ
	British American Tobacco	66 (NP)	–	–	–	–	AQ	AQ
	Cadbury Schweppes	90 (NP)	–	–	–	–	AQ	AQ
	Carrefour	87	1,274	2,348	1,105	32	AQ	AQ
	Christian Dior	NR	–	–	–	–	X	X
	Coca Cola Company	93	1,933	3,050	55	173	AQ	AQ
	Colgate-Palmolive Company	90	244	431	23	49	AQ	AQ
	Compagnie Financière Richemont	62 (NP)	–	–	–	–	AQ	NR
	Costco Wholesale Corporation	AQ	–	–	–	–	DP	NR *
	CVS Caremark Corporation	NR	–	–	–	–	AQ	NR *
	Danone	70	429	692	4	56	AQ	NR *
	Diageo	90	604	133	1,505	38	AQ	AQ
	eBay	30	–	–	–	–	AQ	AQ
	General Mills	83	283	787	16	86	AQ	AQ
	Heineken	78	1,107	535	–	83	AQ	AQ
	Hennes & Mauritz	85	6	64	168	5	AQ	AQ
	Home Depot	12 (NP)	–	–	–	–	AQ	AQ
	Imperial Tobacco Group	87	53	68	–	21	AQ	AQ
	InBev	78	2,699	679	–	151	NR	NR *
	Inditex	62	57	0	2	4	AQ	AQ
	Japan Tobacco	L	–	–	–	–	AQ	AQ
	Kellogg Company	54	500	675	–	100	AQ	AQ
	Kimberly-Clark Corporation	88	2,804	3,397	632	340	AQ	AQ
	Kraft Foods	73	1,097	1,436	–	68	AQ	AQ
	Kroger	15	–	–	–	–	AQ	IN
	L'Oreal	72	83	136	–	8	AQ	AQ
	Lowe's Companies	NR	–	–	–	–	DP	IN
	LVMH	88 (NP)	–	–	–	–	AQ	AQ
	Marks & Spencer Group	86	204	265	6,000	26	AQ	AQ
	Matsushita Electric Industrial	91	937	3,020	20,170	43	AQ	AQ
	Metro	68	381	247	1,288	28	AQ	AQ
	Nestle	83	3,920	0	–	44	AQ	AQ
	NIKE	56	–	–	–	–	AQ	AQ
	Nintendo	46	0	7	–	1	AQ	AQ

* 000s metric tons.

** Any Scope 3 emissions reported, 000s metric tons.

*** Scope 1 and Scope 2 combined. Metric tons per million US$ revenue, based on revenue figures reported to CDP if available or publicly disclosed if not.

CDLI scores and emissions disclosure for all respondents, by sector (cont.)

Sector	Company	CDLI score	Scope 1*	Scope 2*	Scope 3**	Intensity***	CDP5	CDP4
Retail & Consumer	PepsiCo	90	2,332	1,471	–	96	AQ	AQ
	Pernod-Ricard	65	463	0	–	76	AQ	AQ
	Philips Electronics	88	492	765	319,088	34	AQ	AQ
	PPR	NR	–	–	–	–	IN	IN
	Procter & Gamble Company	67	2,970	3,377	–	83	AQ	AQ
	Reckitt Benckiser	64	135	177	13,209	30	AQ	AQ
	Reynolds American	75	159	212	–	41	AQ	NR
	SABMiller	76	1,910	830	–	128	AQ	AQ
	Seven & I Holding	L	–	–	–	–	AQ	AQ
	Sony Corporation	91	526	1,546	20,480	23	AQ	AQ
	SYSCO Corporation	2 (NP)	–	–	–	–	AQ	IN
	Target Corporation	57	164	2,710	–	45	AQ	AQ
	Tesco	96	1,705	2,691	70	42	AQ	AQ
	Thomson Corporation	44	0	312	–	43	NR	NR *
	Unilever	88	1,300	1,684	170,100	50	AQ	AQ
	Wal Mart de Mexico – See Wal-Mart	–	–	–	–	–	AQ	AQ
	Walgreen Company	19	–	–	–	–	IN	IN
	Wal-Mart Stores	87	5,161	15,079	–	54	AQ	AQ
	Woolworths	76	676	2,224	–	71	AQ	DP
Technology, Media & Telecoms	Adobe Systems	65	3	30	1	11	AQ	AQ
	America Movil	NR	–	–	–	–	AQ	NR
	Apple Computers	7	–	–	–	–	AQ	AQ
	Applied Materials	79	25	147	35	18	AQ	AQ
	AT&T	55	109	513	–	5	AQ	AQ
	Bell Canada	90 (NP)	–	–	–	–	AQ	AQ
	Bharti Airtel	NR	–	–	–	–	AQ	AQ
	Bouygues	40 (NP)	–	–	–	–	AQ	DP
	British Sky Broadcasting	75 (NP)	–	–	–	–	AQ	AQ
	BT Group	94	238	557	22	21	AQ	AQ
	Canon	84	161	826	5,511	25	AQ	AQ
	China Mobile	NR	–	–	–	–	DP	NR
	China Netcom	NR	–	–	–	–	X	NR
	China Telecom	IN	–	–	–	–	IN	IN
	China Unicom	NR	–	–	–	–	AQ	DP
	Chunghwa Telecom	NR	–	–	–	–	AQ	AQ
	Cisco Systems	96	66	479	206	16	AQ	AQ
	Comcast Corporation	IN	–	–	–	–	AQ	AQ
	Corning	59	307	874	–	202	AQ	AQ
	Dell	91	35	403	52	7	AQ	AQ
	Deutsche Telekom	87	195	2,356	–	30	AQ	AQ
	DIRECTV Group	DP	–	–	–	–	DP	DP
	EMC Corporation	98	32	232	85	20	AQ	IN
	Ericsson	88	9	168	4,679	6	AQ	AQ
	France Telecom	61	322	946	51	16	AQ	AQ
	Garmin	NR	–	–	–	–	X	X
	Google	58	–	–	–	–	AQ	NR
	Hewlett-Packard Company	88	103	1,416	2,464	15	AQ	AQ
	Hitachi	88	1,225	3,210	10,688	42	AQ	AQ
	Hon Hai Precision Industries – see Foxconn Technology	L	–	–	–	–	NR	NR

* 000s metric tons.

** Any Scope 3 emissions reported, 000s metric tons.

*** Scope 1 and Scope 2 combined. Metric tons per million US$ revenue, based on revenue figures reported to CDP if available or publicly disclosed if not.

CDLI scores and emissions disclosure for all respondents, by sector (cont.)

Sector	Company	CDLI score	Scope 1*	Scope 2*	Scope 3**	Intensity***	CDP5	CDP4
Technology, Media & Telecoms	Intel Corporation	87	1,152	2,527	250	96	AQ	AQ
	KDDI Group	58	1	1,027	–	31	AQ	AQ
	KPN	59	51	489	–	43	AQ	AQ
	LG Display	85 (NP)	–	–	–	–	AQ	DP
	Microsoft Corporation	71	15	152	255	3	AQ	AQ
	Mobile Telesystems	NR	–	–	–	–	X	X
	Motorola	78	15	360	–	10	AQ	AQ
	MTN Group	57	10	183	–	19	AQ	X
	News Corporation	72	110	474	53	18	AQ	IN
	Nippon Telegraph & Telephone	75	269	3,507	–	41	AQ	AQ
	Nokia Group	95	13	223	2,297	3	AQ	AQ
	NTT DoCoMo	61	9	1,102	–	24	AQ	AQ
	Oracle Corporation	61	–	–	–	–	AQ	AQ
	QUALCOMM	74	36	–	–	4	AQ	AQ
	Research In Motion	DP	–	–	–	–	NR	NR
	Rogers Communications	25 (NP)	–	–	–	–	AQ	NR
	Samsung Electronics	75 (NP)	–	–	–	–	AQ	AQ
	SAP	65 (NP)	–	–	–	–	AQ	AQ
	Singapore Telecom	DP	–	–	–	–	NR	AQ
	SK Telecom	75	12	346	–	30	AQ	AQ
	Softbank	NR	–	–	–	–	NR	NR
	Sprint Nextel Corporation	68	81	2,146	–	55	AQ	IN
	Swisscom	72	26	0	10	3	AQ	AQ
	Telecom Italia	81	161	1,039	71	24	AQ	AQ
	Telefonica	78 (NP)	–	–	–	–	AQ	AQ
	Telefonos de Mexico	NR	–	–	–	–	X	X
	Telekomunikasi Indonesia	NR	–	–	–	–	DP	AQ
	Telenor A/S	84 (NP)	–	–	–	–	AQ	AQ
	TeliaSonera	89	3	77	60	5	AQ	AQ
	Telstra Corporation	87	123	1,081	–	52	AQ	AQ
	Texas Instrumentsorporated	66	–	–	–	–	AQ	AQ
	Thermo Fisher Scientific	43	–	–	–	–	NR	X
	Time Warner	23	101	666	62	17	IN	IN
	Toshiba	83 (NP)	–	–	–	–	AQ	AQ
	Turkcell Iletisim Hizmet	NR	–	–	–	–	X	X
	Verizon Communications	63	537	7,013	–	81	AQ	AQ
	Viacom	35 (NP)	–	–	–	–	AQ	AQ
	Vimpel-com	NR	–	–	–	–	X	X
	Vivendi Universal	65	16	149	6	6	AQ	AQ
	Vodafone Group	81 (NP)	–	–	–	–	AQ	AQ
	Walt Disney Company	46	–	–	–	–	AQ	AQ
	Yahoo Japan	12	–	–	–	–	AQ	AQ
	Yahoo!	63	7	0	28	1	AQ	NR

* 000s metric tons.

** Any Scope 3 emissions reported, 000s metric tons.

*** Scope 1 and Scope 2 combined. Metric tons per million US$ revenue, based on revenue figures reported to CDP if available or publicly disclosed if not.

CDLI scores and emissions disclosure for all respondents, by sector (cont.)

Sector	Company	CDLI score	Scope 1*	Scope 2*	Scope 3**	Intensity***	CDP5	CDP4
Transport & Logistics	A.P. Moller – Maersk	DP	–	–	–	–	NR	DP
	Atlantia	NR	–	–	–	–	X	X
	Burlington Northern Santa Fe Corporation	47	14,895	70	–	947	AQ	AQ
	Canadian National Railways	36	4,669	0	–	591	AQ	AQ
	Central Japan Railway	NR	–	–	–	–	IN	IN
	Deutsche Post	66	7,050	950	23,260	83	AQ	AQ
	East Japan Railway	28 (NP)	–	–	–	–	AQ	AQ
	FedEx Corporation	39	–	–	–	–	AQ	AQ
	Norfolk Southern Corporation	16	–	–	–	–	DP	IN
	Union Pacific Corporation	32 (NP)	–	–	–	–	IN	IN
	United Parcel Services	63	7,516	728	–	166	AQ	AQ
Utilities	Centrica	74	9,562	123	28,300	295	AQ	AQ
	CEZ	36	46,913	0	–	4,719	AQ	AQ
	Chubu Electric Power	53	49,540	0	30	2,341	AQ	AQ
	Dominion Resources	45	115,724	1,464	–	7,477	IN	IN
	Duke Energy Corporation	61	103,600	0	–	8,145	AQ	AQ
	E.ON	68	121,261	3,286	–	1,323	AQ	AQ
	EDP – Energias de Portugal	15 (NP)	–	–	–	–	NR	X
	Electricite de France	51 (NP)	–	–	–	–	AQ	AQ
	ENEL	58	71,604	61	–	1,062	AQ	AQ
	Entergy Corporation	61	32,522	1,136	–	2,931	AQ	AQ
	Exelon Corporation	78	11,000	150	–	589	AQ	AQ
	FirstEnergy Corporation	43	46,142	0	–	3,604	AQ	AQ
	Fortum	74	7,730	408	1,725	1,173	AQ	AQ
	FPL Group	77	50,000	18,346	18	4,350	AQ	AQ
	Gas Natural SDG	45	6,921	20	1,283	435	NR	AQ
	Gaz de France	63	11,024	119	1,132	406	AQ	AQ
	Iberdrola	82	37,769	3,462	1,363	1,616	AQ	AQ
	Kansai Electric Power	46	–	–	–	–	AQ	AQ
	Korea Electric Power	47	172,307	8,111	–	6,500	AQ	AQ
	National Grid	64	3,919	161	3	178	AQ	AQ
	National Thermal Power (NTPC)	NR	–	–	–	–	AQ	AQ
	Public Service Enterprise Grouporporated	69	24,682	1,146	–	2,009	AQ	AQ
	RWE	67	152,500	34,600	300	3,169	AQ	AQ
	Scottish & Southern Energy	78	22,724	17	38	751	AQ	AQ
	Southern Company	41	151,000	–	–	9,835	AQ	AQ
	Suez	62	82,870	1,128	–	1,291	AQ	AQ
	Tepco	L	–	–	–	–	AQ	AQ
	TransCanada Corporation	L	–	–	–	–	AQ	AQ
	Unified Energy System	NR	–	–	–	–	NR	NR
	Union Fenosa	65	23,748	523	3,125	2,743	AQ	AQ
	Veolia Environnement	56	39,481	3,322	–	891	AQ	AQ

* 000s metric tons.

** Any Scope 3 emissions reported, 000s metric tons.

*** Scope 1 and Scope 2 combined. Metric tons per million US$ revenue, based on revenue figures reported to CDP if available or publicly disclosed if not.

Appendix 2

CDP6 Questionnaire and CDLI Scoring Methodology

The CDP questionnaire has been developed over six years through consultation with signatory investors, corporations and other stakeholders. The CDP6 questionnaire represents a best practice framework for the information companies should measure and report regarding the impact of climate change on their business.

Glossary of Key Terms

BRIC	Brazil, Russia, India and China
C&BP	Construction & Building Products
CDLI	Carbon Disclosure Leadership Index
CDM	Clean Development Mechanism – Kyoto Protocol carbon reduction facility
CDP	Carbon Disclosure Project
E&P	Energy & Power
EC	European Community
EU ETS	European Union Emissions Trading Scheme
FTSE	Financial Times & Stock Exchange
GHG	Greenhouse Gases
IOC	International Oil Companies
IPCC	Intergovernmental Panel on Climate Change
ISO	International Organization for Standardization
JI	Joint Implementation – Kyoto Protocol carbon reduction facility
LEED	Leadership in Energy & Environmental Design – US construction standards
M&A	Mergers and Acquisitions
NGOs	Non-Government Organizations
NOC	National Oil Companies
OPEC	Organization of the Petroleum Exporting Countries
R&D	Research & Development
RoW	Rest of the World
tCO_2-e	metric tons of carbon dioxide equivalent
TMT	Technology, Media & Telecommunications

Methodology overview

The CDP6 questionnaire and guidance

CDP has used a similar questionnaire for CDP6 to those used in prior years, building on the experience of data collection and reporting in many of the companies covered by the process.

To encourage clarity in responses, the questionnaire was split into four sections covering risks and opportunities; emissions accounting; performance against targets; and governance. The main additional questions in CDP6 (compared to CDP5) are in the areas of data accuracy and stakeholder/ policymaker engagement. Respondents were also provided with a detailed set of guidance notes highlighting the content that an ideal response to each question might include.

The questionnaire is included in this section, while the guidance notes are available on the CDP website at www.cdproject.net

Overview of scoring and weighting system

The Climate Disclosure Leadership Index has again been produced based on the weighted scoring of companies' responses to the individual questions in the questionnaire. The methodology and weightings were developed jointly between CDP and PricewaterhouseCoopers LLP.

A number of important refinements were made to the scoring system used in CDP6, compared to the approach used in previous years' reports, in particular in relation to the greater disclosure by companies outside of traditionally carbon-intensive sectors.

In the questionnaire for CDP5, companies in non-carbon-intensive sectors were invited to answer only a subset of the questions posed to companies in carbon-intensive sectors, and their CDLI scores were based only on these questions. For CDP6, all companies were encouraged to provide at least a minimum level of response to every question; companies in carbon-intensive sectors were asked to answer all questions, whereas non-intensive companies were asked to answer 'minimum requirement' questions and also invited to answer 'comprehensive' questions if they so chose.

Hence, carbon-intensive sectors have been scored on the basis of all questions (with a total theoretical maximum of 146 points, which is then adjusted to a score out of 100%), while non-carbon-intensive sectors are scored on the basis of only the minimum requirement (a maximum of 85 points adjusted to a score out of 100%), with extra credit given for 'comprehensive' answers. A company in a non-carbon-intensive sector that gives a high-scoring comprehensive answer can theoretically achieve more than 85 points for its answer in which case this is adjusted down to the maximum for the relevant section. CDP believes that this approach is more consistent with the importance that is now placed on climate change across all sectors.

The impact of this change is that companies in non-carbon-intensive sectors have tended to achieve higher overall weighted scores, despite achieving slightly lower unweighted scores. It should be remembered, therefore, that comparisons within different sectors (intensive/non-intensive) are perhaps more meaningful than comparisons across sectors.

Data quality and accuracy

All data presented and reviewed in this report is self-reported by the CDP6 respondent companies and has not been verified by either CDP or PricewaterhouseCoopers for the purposes of this report (although some companies have provided verification statements commissioned for their own purposes). Where responses included material that appeared incorrect or confusing, attempts were made to clarify these directly with CD6 respondent companies, but no formal due diligence or any other form of assurance has been undertaken by either CDP or Pricewaterhouse-Coopers on the responses or underlying data.

How response quality is assessed

The scoring system is based on quantitative and qualitative assessment of responses; in broad terms this takes into account whether a question has been answered at all and an analysis of the extent and quality of the response. Inevitably, there is an inherent element of subjectivity in the scoring. We have sought to mitigate this through the provision of detailed guidance on the scoring process and through independent reviews and benchmarking of the scoring process.

The scoring system focuses on disclosure, not climate change performance *per se*. In general, a good score can be achieved by following the guidance issued by CDP and by providing comprehensive responses to individual questions. Particularly good responses are typically both specific and detailed.

For example, this is an example of a response that would attract full points under Question 1(a)(i) "How is your company exposed to regulatory risks related to climate change?"

The majority of our power plants are subject to the EU ETS. The present NAP II proposals cause an additional financial burden for [company] in the form of insufficient allocation equivalent to 30-40% of needed emission rights.

The European Commission adopted a new set of climate-protection measures for the period from 2013 to 2020. They include binding goals for all EU member states regarding the reduction of greenhouse gas emissions and the share of electricity consumption accounted for by renewable energy. But the details of

an international or European emissions trading system remain largely unclear. However, we anticipate that costs will be much higher than in the current trading period, which will last until 2012. We intend to continue reducing CO_2 emissions and make our power generation portfolio more flexible by investing in power plants in the future. Furthermore, we limit CO_2 risks through climate-protection projects in developing and newly industrializing countries within the scope of the Kyoto "Clean Development Mechanism" (CDM) and "Joint Implementation" (JI).

Presently we see no significant pressure arising from national or international targets on demand management. Our investment decisions already include the influence of energy efficiency programs. We believe that gas consumption will be much more affected than electricity consumption.

Compared to CDP 5 our views have not changed significantly especially as the uncertainty concerning the period beyond 2012 still prevails.

Where responses score poorly, this is generally because of one or all of the following:

- A response does not fully answer the question asked;
- A response is insufficiently specific to the respondent (i.e. it could apply to any company);
- A response does not provide relevant data or specific information to support the statements being made.

Defining emissions

The classification of emissions used by CDP in the context of questions about emissions measurement, management and reporting follows the classification adopted by the GHG Protocol. For ease of reference we reproduce a summary of these definitions below.

Scope 1: Direct GHG emissions

Companies report GHG emissions from sources they own or control as Scope 1. Direct GHG emissions are principally the result of the following types of activities undertaken by the company. Examples include (i) the generation of electricity, heat, or steam from stationary sources; (ii) physical or chemical processing; (iii) emissions from the combustion of fuels in company owned/controlled mobile combustion sources; and (iv) emissions that result from intentional or unintentional releases during business operations.

Scope 2: Electricity indirect GHG emissions

Companies report the emissions from the generation of purchased electricity that is consumed in owned or controlled equipment or operations as Scope 2. For many companies, purchased electricity represents the largest component of GHG emissions if they do not have their own on-site power generation capability.

Scope 3: Other indirect GHG emissions

In broad terms, Scope 3 emissions could include (i) supply chain emissions from the extraction, production and transport of raw materials and fuels; (ii) employee business travel; (iii) employee commuting; (iv) transport of finished goods and waste products; and (v) emissions associated with product use and disposal. The definition of Scope 3 emissions is more open to interpretation but provides an opportunity for companies to be innovative in GHG management.

Note on difference in samples between response rates and analysis

Several companies responded to CDP after the deadline for information to be included in the analysis. These responses were still considered in the response rate analysis in Chapter 3, and all response rate data listed in sector Key Facts boxes is based on this analysis. However, the analysis of CDLI scores, disclosure levels and responses to specific questions, including the disclosure waterfalls, does not include these late responding companies. We do not believe this has made a material difference to sector performance.

CDP6 Questionnaire

1 Risks and Opportunities

Objective: To identify strategic risks and opportunities and their implications.

a **Risks:** (CDP5 Question 1a)

i **Regulatory Risks:** How is your company exposed to regulatory risks related to climate change?

ii **Physical Risks:** How is your company exposed to physical risks from climate change?

iii **General Risks:** How is your company exposed to general risks as a result of climate change?

iv **Risk Management:** Has your company taken or planned action to manage the general and regulatory risks and/or adapt to the physical risks you have identified?

v **Financial and Business Implications:** How do you assess the current and/or future financial effects of the risks you have identified and how those risks might affect your business?

b **Opportunities:** (CDP5 Question 1b)

i **Regulatory Opportunities:** How do current or anticipated regulatory requirements on climate change offer opportunities for your company?

ii **Physical Opportunities:** How do current or anticipated physical changes resulting from climate change present opportunities for your company?

iii **General Opportunities:** How does climate change present general opportunities for your company?

iv **Maximizing Opportunities:** Do you invest in, or have plans to invest in products and services that are designed to minimize or adapt to the effects of climate change?

v **Financial and Business Implications:** How do you assess the current and/or future financial effects of the opportunities you have identified and how those opportunities might affect your business?

2 Greenhouse Gas (GHG) Emissions Accounting

Objective: To determine actual absolute Greenhouse Gas emissions.

The term GHG Protocol below refers to The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (Revised Edition) developed by the World Resources Institute (WRI) and the World Business Council for Sustainable Development (WBCSD). This may be found on the GHG Protocol Website www.ghgprotocol.org

a **Accounting Parameters** (CDP5 Question 2a)

i **Reporting Boundary:** Please indicate the category that best describes the company, entities or group for which your response is prepared:
   a. Companies over which financial control is exercised – per consolidated audited Financial Statements.
   b. Companies over which operational control is exercised.
   c. Companies in which an equity share is held.
   d. Other (please provide details).

Please use the same approach for all answers.

ii **Reporting Year:** Please explicitly state the dates of the accounting year or period for which GHG emissions are reported.

iii **Methodology:** Please specify the methodology used by your company to calculate GHG emissions.

b Direct and Indirect Emissions – Scope 1 and 2 of the GHG Protocol (CDP5 Question 2b)

i Are you able to provide a breakdown of your direct and indirect emissions under Scopes 1 and 2 of the GHG Protocol and to analyse your electricity consumption? If so, please provide the following information together with a breakdown of the emissions reported under each category by country where possible. If not, please proceed to question 2b ii:

Scope 1 Direct GHG Emissions
a. Total global Scope 1 activity in metric tonnes CO_2-e emitted.
b. Total Scope 1 activity in metric tonnes CO_2-e emitted for Annex B countries.

Scope 2 Indirect GHG Emissions
c. Total global Scope 2 activity in metric tonnes CO_2-e emitted.
d. Total Scope 2 activity in metric tonnes CO_2-e emitted for Annex B countries.

Electricity consumption
e. Total global MWh of purchased electricity.
f. Total MWh of purchased electricity for Annex B countries.
g. Total global MWh of purchased electricity from renewable sources.
h. Total MWh of purchased electricity from renewable sources for Annex B countries.

ii If you are unable to detail your Scope 1 and Scope 2 GHG emissions and/or electricity consumption, please report the GHG emissions you are able to identify together with a description of those emissions.

c Other Emissions – Scope 3 of GHG Protocol: (CDP5 Question 2c)
How do you identify and/or measure Scope 3 emissions? Please provide where possible:
a. Details of the most significant Scope 3 sources for your company.
b. Details in metric tonnes CO_2-e of GHG emissions in the following categories:
i Employee business travel.
ii External distribution/logistics.
iii Use/disposal of company's products and services.
iv Company supply chain.
c. Details of the methodology you use to quantify or estimate Scope 3 emissions.

d External Verification (CDP5 Question 2a iii)

i Has the information reported in response to Questions 2b – c been externally verified or audited or do you plan to have the information verified or audited? If so:

ii Please provide a copy of the audit or verification statement or state your plans for verification.

iii Please specify the Standard or Protocol against which the information has been or will be audited or verified.

e Data Accuracy (New to CDP6)

Does your company have a system in place to assess the accuracy of GHG emissions inventory calculation methods, data processes and other systems relating to GHG measurement? If so, please provide details. If not, please explain how data accuracy is managed.

f Emissions History (CDP5 Question 2a iv)

Do the emissions reported for your last accounting year vary significantly compared to previous years? If so, please explain the reasons for the variations.

g Emissions Trading (CDP5 Question 4b)

i Does your company have facilities covered by the EU Emissions Trading Scheme? If so:
a. Please provide details of the annual allowances awarded to your company in Phase I for each of the years from 1 January 2005 to 31 December 2007 and details of allowances allocated for Phase II commencing on 1 January 2008.
b. Please provide details of actual annual emissions from facilities covered by the EU ETS with effect from 1 January 2005.
c. What has been the impact on your company's profitability of the EU ETS?

ii What is your company's strategy for trading or participating in regional and/or international trading schemes (eg: EU ETS, RGGI, CCX) and Kyoto mechanisms such as CDM and JI projects?

h **Energy Costs** (CDP5 Question 4d)

i Please identify the total costs in US $ of your energy consumption eg from fossil fuels and electric power.

ii What percentage of your total operating costs does this represent?

iii What percentage of energy costs are incurred on energy from renewable sources?

3 Performance

Objective: To determine performance against targets and plans to reduce GHG emissions.

a **Reduction Plans** (CDP5 Questions 1d and 4a)

i Does your company have a GHG emissions reduction plan in place? If so, please provide details along with the information requested below. If there is currently no plan in place, please explain why.

ii What is the baseline year for the emissions reduction plan?

iii What are the emissions reduction targets and over what period do those targets extend?

iv What activities are you undertaking to reduce your emissions e.g.: renewable energy, energy efficiency, process modifications, offsets, sequestration etc? What targets have you set for each and over what timescales do they extend?

v What investment has been or will be required to achieve the targets and over what time period?

vi What emissions reductions and associated costs or savings have been achieved to date as a result of the plan?

b **Emissions Intensity** (CDP5 Question 4c)

i What is the most appropriate measurement of emissions intensity for your company?

ii Please state your GHG emissions intensity in terms of total tonnes of CO_2-e reported under Scope 1 and Scope 2 per US $m turnover and EBITDA for the reporting year.

iii Has your company developed emissions intensity targets? If so:
a. Please state your emissions intensity targets.
b. Please state what reductions in emissions intensity have been achieved against targets and over what time period.

If not, please explain why.

c **Planning** (CDP5 Question 4e)

Do you forecast your company's future emissions and/or energy use? If so:

i Please provide details of those forecasts, summarize the methodology used and the assumptions made.

ii How do you factor the cost of future emissions into capital expenditure planning?

iii How have these considerations made an impact on your investment decisions?

4 Governance

Objective: To determine responsibility and management approach to climate change.

a Responsibility (CDP5 Question 5a)

Does a Board Committee or other executive body have overall responsibility for climate change? If not, please state how overall responsibility for climate change is managed. If so:

i Which Board Committee or executive body has overall responsibility for climate change?

ii What is the mechanism by which the Board or other executive body reviews the company's progress and status regarding climate change?

b Individual Performance (CDP5 Question 5b)

Do you assess or provide incentive mechanisms for individual management of climate change issues including attainment of GHG targets? If so, please provide details.

c Communications (New to CDP6)

Please indicate whether you publish information about the risks and opportunities presented to your company by climate change, details of your GHG emissions and plans to reduce emissions through any of the following communications:

i the company's Annual Report or other statutory filings, and/or

ii formal communications with shareholders or external parties, and/or

iii voluntary communications such as Corporate Social Responsibility reporting.

If so, please provide details and a link to the document(s) or a copy of the relevant excerpt.

d Public Policy (New to CDP6)

Do you engage with policymakers on possible responses to climate change including taxation, regulation and carbon trading? If so, please provide details.

CDLI Scoring Methodology

1 Risks and Opportunities

Question Number	Question	Response type	Max Points	Guidance
1(a)(i) Regulatory Risks	How is your company exposed to regulatory risks related to climate change?	Variable	3	[score under the standard scale for variable responses]
1(a)(ii) Physical Risks	How is your company exposed to physical risks from climate change?	Variable	3	[score under standard scale. Responses should be tailored and specific to the respondent's business. No points awarded if mentioned elsewhere and not here]
1(a)(iii) General Risks	How is your company exposed to general risks as a result of climate change?	Variable	3	[score under standard scale. No points for regulatory or physical risks. Must be others e.g. reputation, third party action, civil unrest, expensive inputs]
1(a)(iv) Risk Management	Has your company taken or planned action to manage the general and regulatory risks and/or adapt to the physical risks you have identified?	Variable	3	[score under standard scale – same points available whether answer is yes or no]
1(a)(v) Financial and Business implications	How do you assess the current and/or future financial effects of the risks you have identified and how those risks might affect your business?	Variable	3	[score under standard scale – same points awarded whether answer is yes or no]
1(b)(i) Regulatory Opportunities	How do current or anticipated regulatory requirements on climate change offer opportunities for your company?	Variable	3	[score under standard scale – no points for reductions/mitigations, only for actual opportunities]
1(b)(ii) Physical Opportunities	How do current or anticipated physical changes resulting from climate change present opportunities for your company?	Variable	3	[score under standard scale – no points for reductions/mitigations, only for actual opportunities]
1(b)(iii) General Opportunities	How does climate change present general opportunities for your company?	Variable	3	[score under standard scale – no points for regulatory or physcial risks; no points for reductions/ mitigations, only for actual opportunities]
1(b)(iv) Maximizing Opportunities	Do you invest in, or have plans to invest in products and services that are designed to minimize or adapt to the effects of climate change?	Variable	3	[score under standard scale – same points awarded whether answer is yes or not, but need specific commercial upside plans in place to score high points. Investment in either external products or in external mitigation is OK]
1(b)(v) Financial and Business Implications	How do you assess the current and/or future financial effects of the opportunities you have identified and how those opportunities might affect your business?	Variable	3	[score under standard scale – same points awarded whether answer is yes or no]
		Total points available	**30**	

2 Greenhouse Gas (GHG) Emissions Accounting

Question Number	Question	Response type	Max Points	Guidance
2(a)(i) Reporting Boundary	Please indicate the category that best describes the company, entities or group for which your response is prepared.	Binary	1	[1 for any answer, 0 for none]
2(a)(ii) Reporting Year	Please explicitly state the dates of the accounting year or period for which GHG emissions are reported.	Binary	1	[1 for any answer, 0 for none]
2(a)(iii) Methodology	Please specify the methodology used by your company to calculate GHG emissions.	Variable	3	[score under standard scale]
2(b)(i) Scope 1 and Scope 2 of GHG Protocol	a. Total global Scope 1 activity in Metric Tons CO_2-e emitted.	Binary	2	[2 for CO_2e or material "other", 0 for none/irrelevant other]
	b. Total Scope 1 activity in Metric Tons CO_2-e emitted for Annex B countries.	Binary	1	[1 for CO_2e or material "other", 0 for none/irrelevant other. 1 point if response is "0" and the company does not operate in Annex B countries]
	By country – Scope 1 activity in metric tons of CO_2-e by individual country.	Binary	1	[1 for CO_2e or material "other", 0 for none/irrelevant other]
	c. Total global Scope 2 activity in metric tons CO_2-e emitted.	Binary	2	[2 for CO_2e or material "other", 0 for none/irrelevant other]
	d. Total Scope 2 activity in metric tons CO_2-e emitted for Annex B countries.	Binary	1	[1 for CO_2e or material "other", 0 for none/irrelevant other. 1 point if response is "0" and the company does not operate in Annex B countries]
	By country – Scope 2 activity in metric tons of CO_2-e by individual country.	Binary	1	[1 for CO_2e or material "other", 0 for none/irrelevant other]
	e. Total global MWh of purchased electricity CO_2-e emitted.	Binary	1	[1 for MWh, 0 for none/irrelevant other]
	f. Total MWh of purchased electricity for Annex B countries.	Binary	1	[1 for MWh, 0 for none/irrelevant other. 1 point if response is "0" and the company does not operate in Annex B countries]
	By country – MWh of purchased electricity by individual country.	Binary	1	[1 for MWh, 0 for none/irrelevant other]
	g. Total global MWh of purchased electricity from renewable sources.	Binary	1	[1 for MWh, 0 for none/irrelevant other]
	h. Total MWh of purchased electricity from renewable sources for Annex B countries.	Binary	1	[1 for MWh, 0 for none/irrelevant other. 1 point if response is "0" and the company does not operate in Annex B countries]
2(b)(ii) – Scope 1 and Scope 2 of GHG protocol	If you are unable to detail your Scope 1 and Scope 2 GHG emissions and/or electricity consumption, please report the GHG emissions you are able to identify together with a description of those emissions.	Variable	3	[score under standard scale – 0 for blank or N/A even if company has disclosed under 2bi]
2(c)(i) Other Emissions – Scope 3 of GHG Protocol	a) i How do you identify and/or measure Scope 3 emissions?	Variable	3	[standard scale – 1 for "we don't". Question is ambiguous, so if methodology is also provided here then score it under c below]
	a) ii Please provide details of the most significant Scope 3 sources for your company.	Binary	1	[1 for an answer, 0 for blank]
	b. Details in metric tons CO_2-e of GHG emissions in the following categories: i Employee business travel.	Binary	1	[1 for CO_2e or material "other", 0 for none/irrelevant other]
	ii External distribution/logistics.	Binary	1	[1 for CO_2e or material "other", 0 for none/irrelevant other]
	iii Use/disposal of company's products and services.	Binary	1	[1 for CO_2e or material "other", 0 for none/irrelevant other]
	iv Company supply chain.	Binary	1	[1 for CO_2e or material "other", 0 for none/irrelevant other]
	c. Details of the methodology you use to quantify or estimate Scope 3 emissions.	Variable	3	[standard scale – but see a i above]
2(d) External Verification	(i) Has the information reported in response to Questions 2(b)-(c) been externally verified or audited or do you plan to have the information verified or audited?	Binary	1	[1 for an answer, 0 for blank]

Question Number	Question	Response type	Max Points	Guidance
	(ii) If your answer to question 2d(i) is Yes, please provide or attach a copy of the audit or verification statement or state your plans for verification.	Binary	1	[1 for an answer, 0 for blank]
	(iii) Please specify the standard or protocol against which the information has been audited or verified.	Binary	1	[1 for CO2e or material "other", 0 for none/irrelevant other]
2(e) Data Accuracy	Does your company have a system in place to assess the accuracy of GHG emissions inventory calculation methods, data processes and other systems relating to GHG measurement? If so, please provide details. If not, please explain how data accuracy is managed.	Variable	3	[score under standard scale – no points lost for answering "no" and can still get 3 pts if well justified]
2(f) Emissions History	Do the emissions reported for your last accounting year vary significantly compared to previous years? If so, please explain reasons for the variations.	Variable	2	[2 points "no", 1 point "yes" with no explanation, 2 points "yes" plus explanation
2(g) Emissions Trading	i) Does your company have facilities covered by the EU Emissions Trading Scheme? If so,	Binary	1	[1 for an answer, 0 for blank]
	a) Please provide details of the annual allowances (metric tons of CO_2) awarded to your company in Phase I for each of the years from 1 January 2005 to 31 December 2007 and details of allowances allocated for Phase II commencing on 1 January 2008.	Variable	2	[n/a if no ETS, 0 if no answer, 1 if some years, 2 if all years]
	b) Please provide details of actual annual emissions (metric tons of CO_2) from facilities covered by the EU ETS with effect from 1 January 2005.	Variable	2	[n/a if no ETS, 0 if no answer, 1 if some years, 2 if all years]
	c) What has been the impact on your company's profitability of the EU ETS?	Binary	1	[n/a if not ETS, 1 for an answer, 0 for blank]
	ii) What is your company's strategy for trading or participating in regional and/or international trading schemes (eg: EU ETS, RGGI, CCX) and Kyoto mechanisms such as CDM and JI projects? Explain your involvement for each of the following: EU ETS CDM/JI CCX RGGI Others ELECTRIC UTILITIES – not factored into CDP score but will be assessed in report sections.	Variable	3	[score under standard scale – treat answer for all projects as if one response]
2(h) Energy Costs	i) Please identify the total costs in US $ of your energy consumption e.g. from fossil fuels and electric power.	Binary	1	[1 for an answer, 0 for blank]
	ii) What percentage of your total operating costs does this represent?	Binary	1	[1 for an answer, 0 for blank]
	iii) What percentage of energy costs are incurred on energy from renewable sources?	Binary	1	[1 for an answer, 0 for blank]
		Total points available	**52**	

3 Performance

Question Number	Question	Response type	Max Points	Guidance
3(a) Reduction Plans	i) Does your company have a GHG emissions reduction plan in place? If so, please provide details along with the information requested below. If there is currently no plan in place, please explain why.	Variable	3	[standard scale – 1 point for just "yes" or "no"]
	ii) What is the baseline year for the emissions reduction plan?	Binary	1	[1 for an answer, 0 for blank]
	iii) What are the emissions reduction targets and over what period do those targets extend?	Binary (x2)	2	[1 for what are targets, 1 for what period]
	iv) What activities are you undertaking to reduce your emissions eg: renewable energy, energy efficiency, process modifications, offsets, sequestration etc? What targets have you set for each and over what timescales do they extend?	Variable	3	[standard scale]
	v) What investment has been or will be required to achieve the targets and over what time period?	Variable	2	[0 no or very limited response, 1 some thought, 2 projections]
	vi) What emissions reductions and associated costs or savings have been achieved to date as a result of the plan?	Variable	2	[0 no or very limited response, 1 some thought, 2 numbers – doesn't matter what the savings achieved actually are]

Question Number	Question	Response type	Max Points	Guidance
3(b) Emissions Intensity	i) What is the most appropriate measurement of emissions intensity for your company?	Binary	1	[1 for an answer, 0 for blank]
	Please give your company's emissions intensity figure for the measurement given above.	Binary	1	[1 for an answer, 0 for blank]
	ii) Please state your GHG emissions intensity in terms of total tonnes of CO_2-e reported under Scope 1 and Scope 2 per US $m turnover and EBITDA for the reporting year. Scope 1/ US$ turnover	Binary	1	[1 for an answer, 0 for blank]
	Scope 2/ US$ turnover	Binary	1	[1 for an answer, 0 for blank]
	Scope 1/ EBITDA	Binary	1	[1 for an answer, 0 for blank]
	Scope 2/ EBITDA	Binary	1	[1 for an answer, 0 for blank]
	iii) Has your company developed emissions intensity targets; what are they; what reductions have you achieved?	Variable	3	[standard scale – combine answers to all 3biii questions. Receive 1 pt for "no" , but can receive up to 3 points with a "no" answer if it is well justified.]
3(c) Planning – Forecasted emissions	Do you forecast your company's future emissions and/or electricity use?	Variable	3	[standard scale – 1 for just 'yes' or 'no', and up to 3 for an explained and reasonable "no"]
	i) Please provide details of those forecasts, summarize the methodology used and the assumptions made.	Variable	3	[standard scale]
	ii) How do you factor the cost of future emissions into capital expenditure planning?	Variable	3	[standard scale. Note that few answers appear comprehensive enough to justify 3 points]
	iii) How have these considerations made an impact on your investment decisions?	Variable	3	[standard scale]
	Please enter the accounting period used to report GHG emissions details below.	Binary	1	[1 for an answer, 0 for blank]
	Forecasted Scope 1 Direct GHG Emissions: Please provide: a. Forecasted Total global Scope 1 emissions in Metric Tons CO_2-e.	Binary	1	[1 for CO_2e or material "other", 0 for none/irrelevant other]
	b. Forecasted Total Scope 1 emissions in Metric Tons CO_2-e for Annex B countries.	Binary	1	[1 for CO_2e or material "other", 0 for none/irrelevant other]
	By country – Forecasted Scope 1 emissions in Metric Tons of CO_2-e by individual country.	Binary	1	[1 for CO_2e or material "other", 0 for none/irrelevant other]
	c. Forecasted total global Scope 2 emissions in Metric Tons CO_2-e.	Binary	1	[1 for CO_2e or material "other", 0 for none/irrelevant other]
	d. Forecasted total Scope 2 emissions in Metric Tons CO_2-e for Annex B countries.	Binary	1	[1 for CO_2e or material "other", 0 for none/irrelevant other]
	e. Forecasted total global MWh of purchased electricity.	Binary	1	[1 for MW or material "other", 0 for none/irrelevant other]
	f. Forecasted total MWh of purchased electricity for Annex B countries.	Binary	1	[1 for MW or material "other", 0 for none/irrelevant other]
	g. Forecasted total global MWh of purchased electricity from renewable sources by individual countries.	Binary	1	[1 for MW or material "other", 0 for none/irrelevant other]
	h. Forecasted total MWh of purchased electricity from renewable sources for Annex B countries.	Binary	1	[1 for MW or material "other", 0 for none/irrelevant other]
	i. Forecasted total global MWh of purchased electricity from renewable sources by individual countries. ELECTRIC UTILITIES – not factored into CDP score but will be assessed in report sections.	Binary	1	[1 for MW or material "other", 0 for none/irrelevant other]
		Total points available	**45**	

4 Governance

Question Number	Question	Response type	Max Points	Guidance
4(a) Responsibility	Does a Board Committee or other executive body have overall responsibility for climate change? If not, please state how overall responsibility for climate change is managed. If so, please answer parts (i) and (ii) below.	Variable	3	[standard scale – 1 point for just "yes" or "no"]
	i) Which Board Committee or executive body has overall responsibility for climate change?	Binary	1	[1 for an answer, 0 for blank]
	ii) What is the mechanism by which the Board or other executive body reviews the company's progress and status regarding climate change?	Variable	3	[standard scale]
4(b) Individual Performance	Do you assess or provide incentive mechanisms for individual management of climate change issues including attainment of GHG targets? If so, please provide details.	Variable	3	[standard scale – 1 point for just "yes" or "no"]
4(c) Communications	Please indicate whether you publish information about the risks and opportunities presented to your company by climate change, details of your GHG emissions and plans to reduce emissions through any of the following communications: i) the company's Annual Report or other statutory filings.	Variable	2	[0 for blank, 1 for a "no" answer or a "yes" with no additional commentary, and 2 points for a "yes" with commentary]
	ii) formal communications with shareholders or external parties.	Variable	2	[0 for blank, 1 for a "no" answer or a "yes" with no additional commentary, and 2 points for a "yes" with commentary. Note this MUST NOT be the CSR report]
	iii) voluntary communications such as Corporate Social Responsibility reporting.	Variable	2	[0 for blank, 1 for a "no" answer or a "yes" with no additional commentary, and 2 points for a "yes" with commentary]
4(d) Public Policy	Do you engage with policymakers on possible. responses to climate change including taxation, regulation and carbon trading? If so, please provide details.	Variable	3	[standard scale – doesn't matter whether the company does this directly or through trade associations as long as disclosed]
		Total points available	**19**	
		Total points in survey	**146**	

Methodology Weighting

	Points (comprehensive)	Points (comp but not EU ETS)	Points (min standards)	Points (weighted)
Section 1	30	30	30	30
Section 2	52	47	33	35
Section 3	45	45	15	25
Section 4	19	19	7	10
Total	146	141	85	100

Companies in carbon intensive sectors and participating in EU ETS are assessed out of 146 using the comprehensive scale.

Companies in carbon intensive sectors that do not participate in EU ETS are assessed out of 141 using the comprehensive scale minus EU ETS questions.

Companies in non-carbon-intensive sectors are assessed out of 85 using the minimum standards scale.

Scores are normalised to be out of 100 (max score 100).

Notes

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