

ACCOUNTANCY FUTURES

The carbon we're not counting

ACCOUNTING FOR SCOPE 3 CARBON EMISSIONS

About ACCA

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Founded in 1904, ACCA has consistently held unique core values: opportunity, diversity, innovation, integrity and accountability. We believe that accountants bring value to economies at all stages of their development. We seek to develop capacity in the profession and encourage the adoption of global standards. Our values are aligned to the needs of employers in all sectors and we ensure that, through our qualifications, we prepare accountants for business. We seek to open up the profession to people of all backgrounds and remove artificial barriers, innovating our qualifications and their delivery to meet the diverse needs of trainee professionals and their employers.

We support our 147,000 members and 424,000 students in 170 countries, helping them to develop successful careers in accounting and business, based on the skills required by employers. We work through a network of 83 offices and centres and more than 8,000 Approved Employers worldwide, who provide high standards of employee learning and development. Through our public interest remit, we promote appropriate regulation of accounting and conduct relevant research to ensure accountancy continues to grow in reputation and influence.

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He is currently actively involved in the development of the Integrated Reporting Framework as a member of The Prince of Wales's International Integrated Reporting Committee. He has authored two books on sustainability standards as well as numerous articles and reports, including a number of reports on climate change and greenhouse gas emissions.

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The question of carbon emissions – how we manage, measure and hopefully reduce them – is central to the issues of climate change and global warming. The accountancy profession is gradually recognising that, if not already at the tipping point beyond which irreversible climate change will occur, then we are very nearly at that point, with inevitable costs for business and society. There is a major part for the profession to play in developing strategies and solutions in response to the carbon challenge.

This report highlights that businesses can't evaluate the nature, extent and value of greenhouse gas emission-associated risks and opportunities until high-quality information is available. And this means an investment in credible and complete carbon accounting.

Credible information on Scope 1 and Scope 2 emissions allow a company to better understand what is happening inside its fences. But more significant is the carbon many businesses aren't counting. Scope 3 emissions look across the full value chain. Measuring Scope 3 emissions provides the information needed to understand climate-related risks and opportunities upstream and downstream from operations, beyond operational boundaries and in the products and services developed and sold.

Unfortunately, none of the many regulatory or voluntary accounting and reporting programmes require Scope 3 accounting and reporting. At best they make it optional and the reasons for this are understandable. There is the fear of double counting when the Scope 3 emissions for one organisation may be the Scope 1 emissions of another. There are also methodological difficulties and evidence gathering and quality issues are also a challenge.

In reality, in 2009, 82% of the Global 500 responded to the Carbon Disclosure Project's request for information. Forty-two percent provided information on their Scope 3 emissions. On the surface this may not sound too bad. But as our findings reveal, if you look more deeply it quickly becomes evident that some of this Scope 3 reporting is of limited value. The fact that only six of the Global 500 companies reported on all five of the CDP's Scope 3 emissions classes indicates that the field is wide open. There is lots of opportunity for market-leading innovation.

Joining the low-carbon economy doesn't happen by chance. It happens only when you have the right information to make the right decisions. Scope 3 is really about innovation and the future. It is about business remodelling rather than improved efficiency. It is not about doing what you do better, it is about understanding what and how to do things differently. Scope 1 and Scope 2 are about better. Scope 3 is about different. We need Scope 3 reporting if we are going to get beyond the efficiency drive to business remodelling.

A handwritten signature in black ink, which appears to read 'Helen Brand'. The signature is stylized and fluid.

Helen Brand
Chief executive, ACCA

Despite widespread concern about climate change, government leaders have repeatedly failed to negotiate international binding agreements on policies to reduce greenhouse gas (GHG) emissions. This policy vacuum has made the role of business and markets increasingly important: the drive for value creation could be the key trigger for behavioural change leading to reduced emissions.

Formulating value-creating business strategies requires comprehensive and reliable information. If GHG emissions are to be managed, they must first be measured and reported. Accountants therefore have major roles to play in the analysis of GHG data, its reporting and incorporation into business strategy formulation. ACCA has a strong interest in enhancing understanding in these areas, thus supporting environmental accountability and long-term business sustainability.

Methodologies for measuring and reporting on GHG emissions have developed significantly, but many organisations focus only on direct emissions (Scope 1) and emissions resulting from the generation of purchased electricity (Scope 2). Hardly any measure, let alone report, Scope 3 emissions generated across the full value chain – upstream and downstream, including all elements of the supply chain – and emissions associated with a product's use and end of life.

This creates a huge knowledge gap. Research has suggested that Scope 3 emissions could account for around 75% of an entity's total GHG emissions.

Some companies, however, are using information gained from Scope 3 analysis to develop new business strategies: not just finding efficiencies, but also identifying opportunities for new products or services that create genuine business value.

This report describes three different approaches companies are taking to Scope 3 emissions:

- The Control Approach: focusing on operational efficiencies in areas the business controls.
- The Influence Approach: seeing Scope 3 information as an important guide for improvement in areas where the business has high influence, such as the supply chain. Improvements focus on technology and improved efficiency, but include innovations in materials, processes, products and ways of doing business.
- The Engaged Approach: businesses bring an understanding of Scope 3 emissions into all decision-making, identifying opportunities for innovation across the full value chain – internally, upstream and downstream. They look at how their products are made, used and disposed of.

Interest in Scope 3 emissions is set to increase. Formal guidance on Scope 3 accounting and reporting, developed by the World Resources Institute and the World Business Council for Sustainable Development, is expected to be published by Q4 2011. This ACCA report therefore provides a timely resource for all those with an interest in Scope 3 reporting and reducing GHG emissions, including policymakers, regulators and standard setters, as well as business leaders, CSR, risk and environmental experts, accountants in business and practice.

ACCA recommends action by all interested parties to encourage widespread use of Scope 3 reporting and so inspire new business insights and behaviours:

- Governments, intergovernmental agencies, standard setters and policymakers should consider making Scope 3 reporting mandatory rather than voluntary.
- Businesses should begin to account for and report on Scope 3 emissions.
- Businesses should begin to include Scope 3 analysis in strategy development and in operational decision making and actions.
- Scope 3 information and analysis should begin to be brought into the investment appraisal process.

Everyone agrees that we need to reduce greenhouse gas emissions. However, there is less agreement on how we achieve these reductions and the lack of coordinated public policy is symptomatic.

The UN Framework Convention on Climate Change (UNFCCC), whose role is to coordinate public policy on climate change internationally, has had limited success. Each year the UNFCCC convenes a conference of the parties (COP – all of the countries who have signed the UN climate change convention) to develop and agree on the policies and actions needed to combat climate change.

At the 15th annual conference of the parties held in Copenhagen in December 2009, the parties once again failed to negotiate a binding policy agreement – against a background of increasing urgency and high expectations. COP 16, held a year later in Cancun, Mexico, in late 2010 did not break the public policy log jam.

In this policy vacuum, the role of business and markets are becoming increasingly important. 'As the dust settles on Copenhagen, we believe leadership from business is more critical than ever,' notes The Carbon Trust.¹

Given the lack of coherent public policy signals, a key element of this leadership will be finding ways to deliver carbon reductions that also deliver value within the context of the marketplace. If reductions are not going to be driven by regulators, companies need to find the business case; they need to find and take advantage of the value drivers.

Finding these value drivers is not easy. It takes good information, innovative critical analysis and the ability to think outside of the 'business as usual' paradigm. It also requires looking at emissions across the full value chain.

To find and deliver value by reducing carbon, companies need to take a long-term view. And they need to look at an increasingly broadening range of GHG risks and opportunities associated with concerns such as:

- security of supply and adaptation requirements where there is risk of climate impacts such as floods, drought, severe weather events and growing resource scarcity
- material and process inputs and outputs such as electricity, water and waste where the associated GHG emissions are high
- supply chain emissions and supplier produced goods and services
- waste streams and waste disposal
- the transportation and distribution of goods and services
- the use of products and services
- changing customer and consumer demands for products and services
- changing public policy and market dynamics
- reputation.

A better understanding of the risks and opportunities (including cost, taxation, regulation and revenue) associated with GHG emissions needs to be brought into the investment appraisal process to enable the development of strategies that will create value for organisations and their stakeholders.

¹ www.carbontrust.co.uk

The carbon we're not counting

'Those companies today that do measure and report their Scope 3 emissions tend to pick which activities to include in a piecemeal way (eg air travel but not employee commute), based on the ease of data capture, relevance to brand, or degree of control. This means that, despite the advancements in carbon disclosure, investors and others are forced to compare apples to oranges. While the numerator may look comparable, the hidden denominator (or boundary) varies drastically between companies.' Emma Stewart, Environmental Leader, 26 February 2009

The dilemma is that you can't start evaluating the nature, extent and value of GHG-associated risks and opportunities until you begin measuring your emissions. If businesses are going to show leadership they must clearly have the high-quality information needed to motivate the type and scale of action that will show that leadership. What this means is an investment in credible and complete carbon accounting.

The first step to credible and complete carbon accounting is identifying and classifying GHG emissions. It is now accepted practice to classify GHG emissions as either direct emissions or indirect emissions.

Direct emissions come from sources owned or controlled by an organisation – including emissions from boilers, furnaces and production processes.

Indirect emissions are divided into two classes – those from purchased electricity and those from all other sources. These three different classes are referred to as Scope 1, 2 and 3 emissions. Credible information on Scope 1 and Scope 2 emissions allow a company to better understand what is happening inside its fences. It provides information on what is happening at the plant or factory as well as how much electricity is being bought to keep the plant or factory operating.

Scope 3 emissions look at emissions across the full value chain. Measuring Scope 3 emissions provides the information needed to understand climate-related risks and opportunities upstream and downstream from operations, beyond operational boundaries and in the products and services developed and sold.

GHG EMISSIONS TYPES

SCOPE 1: DIRECT GHG EMISSIONS

Direct GHG emissions occur from sources that are owned or controlled by the company.

SCOPE 2: ELECTRICITY INDIRECT GHG EMISSIONS

GHG emissions from the generation of purchased electricity consumed by the company. Purchased electricity is defined as electricity that is purchased or otherwise brought into the organisational boundary of the company. Scope 2 emissions physically occur at the facility where electricity is generated.

SCOPE 3: OTHER INDIRECT GHG EMISSIONS

All other indirect emissions. Scope 3 emissions are a consequence of the activities of the company, but occur from sources not owned or controlled by the company.

Scope 3 information that encompasses the full value chain may well challenge companies to look at what they are doing and not just how they are doing it.

The value of this information, given the remaining methodological challenges, is most useful for what it reveals about the trends and scale of indirect carbon emissions. Leading companies have recognised this and are using Scope 3 information in reaching far more wide-reaching strategic decisions.

It may result in the decision to develop new products and services rather than simply more efficient ways to deliver existing products and services. It may result in the decision to substitute materials that are less carbon intensive. It may result in significant changes in the supply chain and new criteria for evaluating supply chain performance. It may result in new investments in low-carbon transport and waste management solutions. It will result in change.

ACCOUNTING AND REPORTING

Over the past 10 years the accounting and reporting of Scope 1 and Scope 2 emissions has improved dramatically. This has been driven in part by regulatory requirements but also by the increasing recognition of the risks and opportunities associated with these GHG emissions. And while there remains some concern over the lack of harmonisation among regulatory and voluntary accounting and reporting requirements (a recent review by PwC for the Carbon Disclosure Standards Board identified 108 different reporting regimes), much has been achieved in the quest to develop credible and usable GHG accounting and reporting methodologies and standards.^{2 3}

Unfortunately, none of the many regulatory or voluntary accounting and reporting programmes require Scope 3 accounting and reporting. At best they make it optional and the reasons for this are understandable.

² *High-Impact Sectors: The Challenge of Reporting on Climate Change*, ACCA and GRI December, 2009

³ *Carbon Accounting, Accountancy Futures*, Edition 01, ACCA, 2010

First, there is the fear of double counting. This may occur when the accounts submitted by individual organisations are being aggregated to develop national or regional accounts. There is a clear risk of double counting when the Scope 3 emissions for one organisation may be the Scope 1 emissions of another.

Second, there are methodological difficulties. What categories of indirect emissions should be included? How do you draw the boundaries? Should lifecycle methodologies be adopted, and if so which ones?

Third, there are evidence gathering and quality difficulties. If nobody is actually keeping this kind of data where do you start? Are estimates acceptable, and if so what estimation methodologies are acceptable? Are proxy indicators acceptable? What level of uncertainty is acceptable?

Many accounting and reporting programmes and requirements now reference a few key standards (see the Appendix for more detail), including the:

- ISO 14064 series
- WBCSD/WRI GHG protocol and supplements
- CDSB reporting framework.

Perhaps the best-known public accounting and reporting programme and therefore the best public source of comparable GHG information is The Carbon Disclosure Project (CDP).

The CDP gathers comprehensive data annually from large corporations and now receives information from over 2,500 companies. From this information it is clear that major corporations are now accounting and reporting on Scope 1 and 2 emissions but not on Scope 3 emissions.

In 2009, 409 (82%) of the Global 500 responded to CDP's request for information. However, only 209 (42%) provided any information on their Scope 3 emissions. On the surface this may not sound too bad. It appears that about half of those responding are also providing Scope 3 information. However, if you look more deeply it quickly becomes evident that some of this Scope 3 reporting is of limited value. This is clearly evident in the CDP data. CDP splits Scope 3 accounting and reporting into five classes:

- employee business travel
- external distribution and logistics
- the use and disposal of the company's products and services
- the company's supply chain
- other.

THE CARBON DISCLOSURE PROJECT

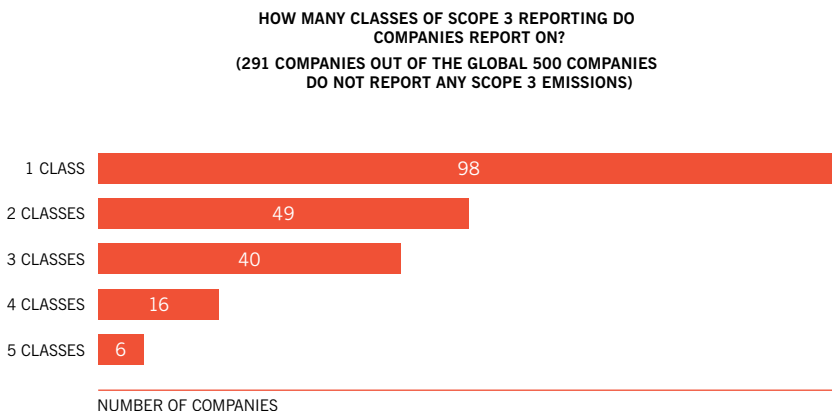
The Carbon Disclosure Project (CDP) was launched in 2000 to collect and distribute high-quality information to motivate investors, corporations and governments to take action to prevent dangerous climate change.

2,500 organisations in some 60 countries around the world now measure and disclose their greenhouse gas emissions and climate change strategies through CDP. This data is made available for use by a wide audience including institutional investors, corporations, policymakers and their advisors, public sector organisations, government bodies, academics and the public. CDP acts on behalf of 475 institutional investors, holding \$55 trillion in assets under management and some 60 purchasing organisations.

CHART 1: CDP SCOPE 3 REPORTING

Number of classes reported on	Number reporting	% of global 500
5	6	1.2
4	16	3.2
3	40	8
2	49	9.8
1	98	19.6
Total reporting on Scope 3	209	41.8
Total reporting at useful level (three or more classes)	62	12.4

CHART 2: CDP SCOPE 3 REPORTING: NUMBER OF CLASSES REPORTED



Of the 209 companies that reported Scope 3 emissions, 98 of them reported on only one of these five classes of emission. Another 49 reported on two classes. That leaves only 62 (12.4%) of the 500 companies reporting on three or more of the five classes and therefore providing information that comes anywhere close to being complete. In fact, only 6 or 1.2% of the Global 500 companies reported on all five CDP classes of Scope 3 emissions.

In addition to soliciting and making available information on GHG emissions, CDP also scores the quality of the information submitted by companies. They publish this as the Carbon Disclosure Leadership Index (CDLI). Since full disclosure of carbon emissions is the purpose of CDP, one would expect that those who score highest on this index would also be those who disclose Scope 3 emissions most fully.

While the percentage of the top 14 rated companies reporting on Scope 3 emissions is higher than the percentage for the Global 500 (13 of the 14 top companies, or 92% as opposed to 209 or 42% of the Global 500), disclosure among this elite group is not as uniformly complete.

As Chart 5 shows, only two of the top 14 report on all five classes. Two more report on four, three more report on three, three more report on two and three more report on one. That means that seven (50%) of the top 14 provide adequate Scope 3 information, which is much better than the 62 (12.4%) for the full global 500, and is a good indication of why they are at the top of the table.

But perhaps more interesting is that the 4th best reporting company, Wal-Mart, did not report Scope 3 data. If the purpose of the CDP is 'to collect and distribute high-quality information to motivate investors, corporations and governments to take action to prevent dangerous climate change'⁴ we then need to understand what has Wal-Mart done to earn a 4th place ranking out of 500?

It is clear that Scope 3 emissions are the carbon we are not counting. So why does it matter that only 12.4% of the global 500 are reporting any useful Scope 3 information?

Researchers at Carnegie Mellon University said in a 2008 report that two-thirds of US industries would overlook 75 percent of GHG emissions if they neglect reporting on tier three emissions.

CHART 3: CDP 2009 SCOPE 3 REPORTING: OVERVIEW

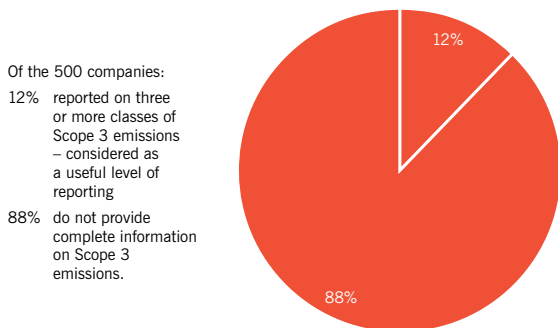


CHART 4: CDP 2009 SCOPE 3 REPORTING: THOSE WHO DO REPORT

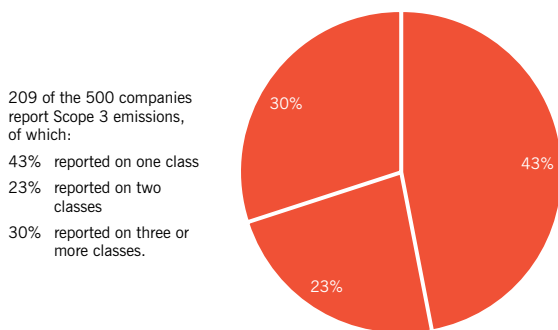


CHART 5: TOP 14 SCORERS IN THE 2009 CDP

Company	CDP score	Scope 3 classes reported
Bayer	95	5
BASF	94	4
HSBC	92	2
Wal-Mart	89	0
Chevron	88	2
Cisco	88	1
PG&E	88	1
Public Service	88	3
Spectra	88	1
Bank of Montreal	87	3
Boeing	87	2
Carnival	87	3
Rio Tinto	87	5
Samsung	87	4

4 CDP CDLI, 2009

McKinsey, looking only at the supply chain side, has stated that ‘for consumer goods makers, high-tech players, and other manufacturers, between 40 and 60 percent of a company’s carbon footprint resides upstream in its supply chain – from raw materials, transport, and packaging to the energy consumed in manufacturing processes. For retailers, the figure can be 80 percent⁵.’

If business is going to show carbon leadership, it is going to have to understand and develop innovative strategic responses to a complete carbon emissions profile. Focusing only on Scope 1 and Scope 2, which typically includes only what is inside the factory fence, is no longer going to be enough. The companies that succeed in the low-carbon economy will be those with the information they need to move ahead of their competitors.

The opposite of this also holds in that a lack of good Scope 3 emissions accounting may well represent a significant block to innovation for many companies. The fact that only six of the Global 500 companies reported on all five of the CDPs Scope 3 emissions classes indicates that the field is wide open. There is lots of opportunity for market-leading innovation.

And here there is a role for accountants. Accountants do not simply produce reliable information and report on it. They must also analyse and understand the importance of that information so that it is included in strategic and operational decision making.

GHG EMISSIONS IN RELATION TO THE VALUE CHAIN

It is useful to consider the different classes of GHG emissions in relation to the value chain (see chart 6).

Scope 1 emissions typically occur in this middle or operational part of the value chain.

Scope 2 emissions typically occur in the supply chain. But Scope 2 emissions only represent a small part of supply chain emissions. The larger part of supply chain emissions are Scope 3.

Scope 3 emissions occur across all parts of the value chain and are especially prevalent upstream and downstream.

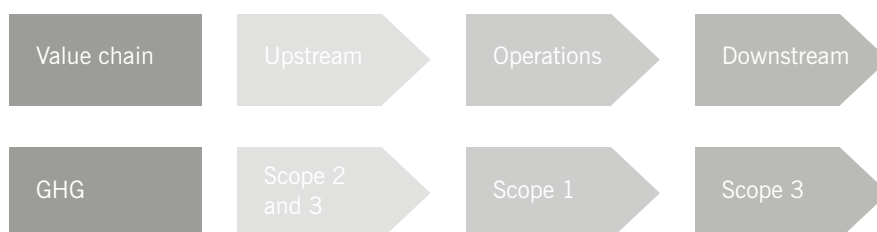
The companies that have not scored well on the CD Leaders’ Index and that have not reported on Scope 3 emissions have essentially reported on and have strategies only for the middle part of the value chain, that is, operations within their fences. They have not looked at emissions upstream or downstream. If we accept that these upstream and downstream emissions represent upwards of 75% of an organisation’s carbon emissions then we must question how this lack of information has affected their strategic and operational decision making and innovation.

But while we must question it we must also acknowledge the reasons why many companies choose not to account for Scope 3 emissions. First there are the methodological challenges mentioned earlier. These methodological challenges contribute to the resource issue. It costs money to gather and analyse information that is difficult to gather and analyse. And if the benefit of gathering that information is not immediately obvious it can be difficult to justify the investment.

Companies may also consider the sector they are in, their geographical location, and the maturity of understanding in their sector and region in relation to the opportunity for using Scope 3 information as a way to develop competitive advantage.

It is also true that different types of companies and different sectors have very different levels of involvement in and influence over different parts of the value chain. A company that produces chocolate has high upstream impact but relatively low downstream impact. You buy a chocolate bar, you eat it, the life of the product is over. On the other hand, a company that produces washing powder has a much different downstream profile. A significant source of energy use associated with the product occurs when the consumer uses it at home. Some companies may logically choose to invest in those areas – operations, upstream or downstream – where their impact is highest.

CHART 6: GHG EMISSIONS IN RELATION TO THE VALUE CHAIN



5 McKinsey Quarterly 1 July 2008

ExxonMobil, for example, did not report on Scope 3 and scored 62 on the CD Leaders' Index. Their position is that they have little influence or control over the use of their products downstream. Spectra Energy on the other hand, a young Canadian Oil and Gas company that is much more directly involved in downstream activities, did report on Scope 3 emissions and scored 88 on the CD Leaders' Index.

Wal-Mart scored 88 on the CD Leaders' Index without reporting Scope 3 emissions data. They have, however, reported on Scope 3 research that they have done. As a consequence, they have begun to include Scope 3 concerns in their upstream supply chain strategy development and decision making. And this they did report on.

Bayer leads the CD Leaders' Index with a score of 95. We would expect them to be exemplary. And in many ways they are. They report on all CDP classes of Scope 3 emissions and have a core strategy that is heavily influenced by their understanding of carbon emissions. These companies represent different approaches to carbon strategy. The difference in each approach is associated with the way in which they understand and approach Scope 3 emissions.

The first approach, the Control Approach, focuses on improved operational efficiency in areas that it has control over. This approach focuses on technological innovation within operations, where they feel they can generate the most value.

The second approach, the Influence Approach, acknowledges the importance of Scope 3 information as a guide to areas for improvement where there are high levels of influence, such as the supply chain. Improvements focus on technology and improved efficiency but also include innovations in materials, processes, products and ways of doing business.

The third approach, the Engaged Approach, requires engagement across the full value chain. It brings an understanding of Scope 3 emissions into all decision making. It requires the identification of opportunities for innovation and taking advantage of business opportunities in a carbon-constrained economy to benefit significantly from understanding Scope 3 emissions, not just within their own operations but across the full value chain in the sectors in which it operates.

The Control Approach

The Control Approach focuses on the middle part of the value chain and therefore focuses on looking for ways to improve operational efficiency. Improved efficiency is a necessary condition for achieving the progress we need to make against climate change, but is it a sufficient one?

A recent research study by McKinsey⁶ looked at what actions would be needed to get to 450ppm or no more than a 2°C change – the threshold we need to achieve in order to avoid catastrophic climate change.

It considers over 200 greenhouse gas abatement opportunities across 10 sectors in 21 world regions. And it concludes that it is just possible to achieve the threshold if we start now and if everybody does all of them. But even for this to happen, the remaining 4% of action must come from ill-defined behaviour change and not operational efficiencies.

McKinsey concludes that: ‘Capturing enough of this potential to stay below the two degrees Celsius threshold will be highly challenging however. Our research finds not only that all regions and sectors would have to capture close to the full potential for abatement that is available to them; even deep emissions cuts in some sectors will not be sufficient. Action also needs to be timely. A 10-year delay in taking abatement action would make it virtually impossible to keep global warming below two degrees Celsius’.

The report also concludes that the level of investment required, approximately five to six percent BAU investment in fixed assets, is possible.

However, given the demonstrated lack of political leadership, as demonstrated at COP 15 in Copenhagen in December 2009, this level of coordinated investment and collaborative change is unlikely to happen. There is no evidence that this scenario can be achieved. Waiting 10 years to start will make their scenario highly improbable. Having no internationally agreed policy and no regulatory mechanisms to enforce action across the board will make it impossible.

Had Copenhagen worked, depending only on efficiency measures was a doubtful strategy. Post Copenhagen, focusing only on efficiency measures is a trap that will potentially keep us from achieving the level of change required.

At the moment many companies – like ExxonMobil – continue to focus primarily on looking for greater operational efficiencies and technological fixes within their fences. This is necessary, but is it sufficient?

ExxonMobil is a very successful company with an excellent record of technological innovation. It sets the industry benchmark for operational efficiency. After choosing not to participate in the CDP for a number of years, when it did decide to do so, it did so comprehensively, providing very credible data. And yet, in spite of providing a lengthy and detailed Carbon Disclosure report, it has only scored 62 on the CDP Leaders’ Index.

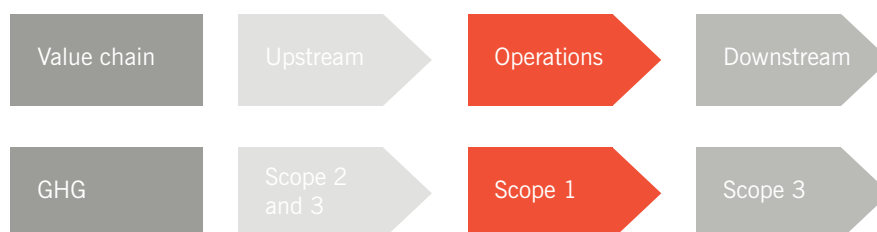
ExxonMobil does not report Scope 3 emissions. Its position is that Scope 3 reporting should be a conditional question.

ExxonMobil 2009 CDP accounting and reporting

Scope 1	131,000,000
Scope 2	14,000,000
Scope 3	0
Total Scope 1 & 2	145,000,000

ExxonMobil plays to its existing strengths and focuses on operations and technology. It does recognise a range of risks associated with GHG emissions. However, many of these are regulatory and political.

CHART 7: THE CONTROL APPROACH



6 Pathways to a Low-Carbon Economy: Version 2 of the Global Greenhouse Gas Abatement Cost Curve, McKinsey & Company, 2009

In addition they look at two types of environmental risk. First, the potential risk to their operations caused by changes in climate. Second, the risks to society and ecosystems.

The environmental risks to operations that they identify are limited to severe weather events that may disrupt supplies or interrupt the operations of ExxonMobil facilities. Their approach to managing these risks is the business as usual strategy that they have been following for years. Innovation is management systems and technology-based and has little to do with their business model, the products they produce, or how they are used – the upstream and downstream parts of the value chain.

Exxon is very good at what it does. It has systematically worked to improve efficiency and environmental performance throughout its facilities worldwide. Since 2000, it has identified ways to improve energy efficiency at its refineries and chemical plants by 15 to 20 percent. It has invested more than \$5 billion in natural gas utilisation and commercialisation projects that will help reduce the routine flaring of natural gas that is a by-product of oil production.

ExxonMobil also recognises that risks to society and ecosystems could be significant. They do accept that any approach to meeting the world's growing energy needs will incorporate strategies to address the risk of climate change. They recognise that there are two things that need to be done: to stabilise emissions at a level that will reduce the risk of severe climate change, and to invest in adaptation strategies – those strategies that will allow us to respond effectively to climate changes.

Exxon's strategy is based on their view that oil and gas will be part of the energy mix for a long time to come – even as its share of the energy market declines. Their strategy is to be the leading player in a declining market. For ExxonMobil, the conclusion behind their existing strategy is that Scope 3 emissions information is not material.

The Influence Approach

Scope 3 emissions look at emissions across the full value chain – upstream and downstream. This can be a daunting and potentially expensive task. So it is natural to ask: 'where can I get the best leverage, quickly?' For many companies this means looking upstream at the supply chain where, because of financially based business relations, they have significant influence.

Chart 8 on page 14 illustrates the Influence Approach, acknowledging the importance of Scope 3 information as a guide to areas for improvement where there are high levels of influence, such as the supply chain. Improvements focus on technology and improved efficiency but also include innovations in materials, processes, products and ways of doing business.

Many companies also have a long history of working with suppliers to achieve improvements in a wide range of areas. So there are existing relationships and mechanisms in place that lend themselves to jointly addressing GHG emissions. In fact, much work on sustainability or CSR issues in general has, over the past 20 years, focused on supply chain performance. There is a deep understanding of supply chain dynamics and mechanisms and systems.

Choosing to focus upstream also has an unquestionable multiplier effect. This is especially important when the task ahead of us is so great and the need to go to scale so urgent. Wal-Mart for example has more than 100,000 suppliers. The immediate impact of influencing the actions of this many other companies can be enormous.

Wal-Mart's ranking in CDP 2009 raises questions since they have not reported on Scope 3 emissions. At 89, Wal-Mart had the 4th highest score of the Global 500 and yet it did not report any Scope 3 emissions data.

The explanation comes through an analysis of their work on GHG emissions in their supply chain. They have reported significant activity with their supply chain. One would expect that in order to make the decision to invest in this way they would have supporting data and analyses. They may well have. But they have chosen not to report it at this time.

They are making decisions about upstream GHG-associated risks and opportunities as if they had Scope 3 data and yet, if they have it, they have chosen not to report it. The table below outlines what Wal-Mart has accounted for and reported on.

Wal-Mart 2009 CDP accounting and reporting

Scope 1	5,566,006
Scope 2	15,500,950
Scope 3	0
Total Scope 1 & 2	21,066,956

Although Wal-Mart has not reported on its Scope 3 emissions it has qualified this. It states that it recognises the importance of supply chain carbon management and has been engaging its suppliers on sustainability since 2005. It further states that although the company is not reporting supply chain emissions for 2008, using preliminary macro-economic assessments, it believes that its supply chain is likely to have an annual carbon footprint that is at least 100 times greater than its total Scope 1 and 2 emissions.

Wal-Mart recognises the significance of Scope 3 emissions. It has studied them in some detail but does not yet feel it is in a position to report credible data. It is, however, willing to state an estimate of the scale of the emissions. This is very important because this information has begun to influence the decisions it makes. Wal-Mart's strategy is using its market position to influence the product innovation and better environmental performance up and down its supply system.

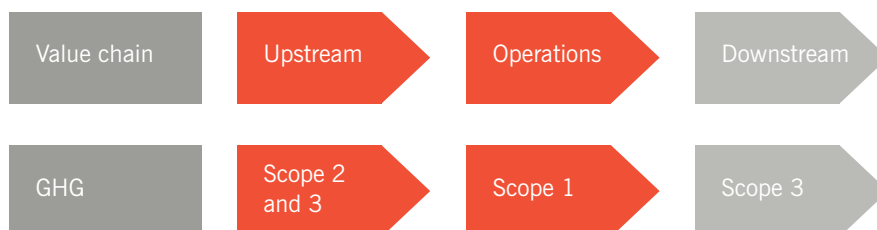
Wal-Mart also states that in future it will account for and report on Scope 3 emissions for the up and downstream components of its business, since they are, as they say, critical elements of the retail value chain and represent additional opportunities to manage carbon emissions.

This strategy of concentrating on the supply chain has resulted in a number of successes.

Wal-Mart first began following this pathway when it began to look at packaging. It was motivated by the need to reduce cost and reducing packaging was a way to reduce cost. In the process it found it was easier to talk about sustainability than about cost reductions. There were sustainability benefits as well as cost benefits. It had found a market driver and began to look for more sustainability benefits.

Much of the strategy is focused on improved efficiency within its supply chain. To an extent this simply pushes the improved efficiency strategy down the chain. Is it really a strategy that addresses the fundamental changes demanded by the low-carbon economy? At the beginning, perhaps not. But the process that Wal-Mart has initiated in its supply chain appears to have created a sense of partnership that has now moved into more interesting areas of product suitability and design. As lifecycle analysis begins to penetrate this process of product analysis we can hope to see more significant innovation.

CHART 8: THE INFLUENCE APPROACH



The Engaged Approach

Looking upstream and using influence where it exists is better than only looking at operations and those things you can control, but it is still only part of the picture. A company that seeks to fully understand its impact will begin to engage downstream.

How a company looks both upstream and downstream is illustrated in Chart 9. A company will look at how its products are used and how they are disposed of. In short, it will look at its full lifecycle. This is where significant innovation and new opportunity begins to appear.

Focusing upstream on your suppliers can simply be a process of transferring operational efficiencies from your factory to your suppliers' factories. But when you begin to look more closely at how products are used, how long they are used for, what energy and other resources are required for their continued use, how they are disposed of and the impact of the materials they contain at the time of disposal, you begin to get a truer and fuller picture of the impact of your organisation and its products and services. This fuller picture will typically make significant opportunities for impact-reducing innovations apparent. And very often these innovations are step changes and not incremental changes such as those typically achieved through efficiency gains.

Earlier in this report we discussed ExxonMobil. It is an extractive industry and part of the old economy. But we should not accept that these older sectors of the economy cannot innovate as well. Spectra Energy is a young Canadian Oil and Gas company that operates very differently than ExxonMobil. It scored 88 on the Carbon Disclosure Leaders' Index. It is a different type of energy company.

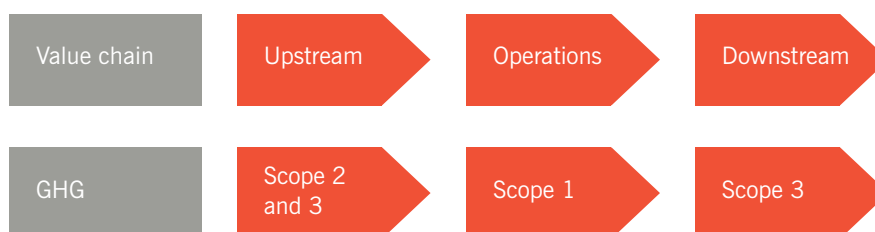
Spectra has begun to account for and report on its Scope 3 emissions and plans to do this more systematically in the future. Its future strategy is to fully define Scope 3 emissions associated with Spectra Energy. It will:

- identify and prioritise key Scope 3 emission areas – where the scale of emissions is material, areas of Scope 3 emissions that are important to the business (for example consumption of natural gas by customers), areas of emissions that are important to customers and other stakeholders
- identify where access to information is available, and begin calculation of emissions (eg demand-side management, employee travel)
- identify areas where information is required, formulate an action plan and timeline to gather information
- evaluate areas where there is potential to influence emission reductions.

Spectra's strategy is very different to ExxonMobil's. In the context of the energy sector as a whole and not just from the point of view of exploiting the opportunities associated with oil and gas, it has built a strategy and business model that actively pursues downstream opportunities. It addresses consumer demand risks by investing in and providing innovative energy services that complement its core operations, generate supplemental sources of revenue, and help make customers more competitive while reducing greenhouse gas emissions. And it is improving its understanding of how its existing skills and facilities can contribute to the success of its customers in three main areas:

- providing demand-side management programmes that help retail, commercial and industrial customers use energy more efficiently
- selling operating services and supplying waste heat from existing facilities to customers so they can generate and sell near zero-emission electricity
- capturing and sequestering naturally occurring carbon dioxide contained in customers' natural gas, enabling them to sell gas that could not be sold unprocessed.

CHART 9: THE ENGAGED APPROACH



Bayer is right at the top of the CD Leaders' Index with a score of 95. This successful company has reported on all CDP areas of Scope 3 emissions and has built the reduction of carbon emissions into the very core of its business strategy. Bayer goes well beyond risk identification and mitigation. To a large extent its strategy is built on climate-related opportunities. It knows what the numbers are and have a sound foundation for innovation and strategic decision making.

Bayer 2009 CDP accounting and reporting

Scope 1	4,000,000
Scope 2	3,570,000
Scope 3	21,900,000
Total Scope 1 & 2	7,570,000
Scope 3 as % of total	74.3

These numbers are consistent with the example of typical emissions published in the Scope 3 supplement to the GHG protocol published by WBCSD and WRI (see Appendix B). Close to 75% of emissions are Scope 3 (see Chart 10).

In its CDP report, Bayer has stated that it: 'considers climate change one of today's megatrends. The identification of opportunities arising from this trend is an integral part of Bayer's strategy process. Climate change-related opportunities are identified and substantiated at the subgroup and business unit level and then assessed from the perspective of the Bayer Group as a whole. In parallel, the Bayer Climate Programme Steering Committee identifies business opportunities and connects different subgroups and business units in case of opportunities that apply to several organisational units in the Bayer group. The Bayer Climate Programme Steering Committee is led by Dr Wolfgang Plischke, the member of the Board of Management responsible for Innovation, Technology and Environment.'

Bayer has made a huge investment in carbon-related R&D. It has set aside €1bn in its budget for investment in climate-related R&D and other projects between 2008 and 2010.

Bayer has positioned itself over the past few years as a 'climate solution provider', while at the same time delivering a contribution to the reduction of GHG emissions. The climate change-related business opportunities have particularly been identified in Bayer subgroups and service companies: Bayer Material Science, Bayer Crop Science and Bayer Technology Services are able to benefit the most from the mitigation and adaptation requirements that arise in the market.

Across all GHG-emitting sectors (buildings, transport, power, industry and agriculture/forestry), Bayer provides 'climate solutions' that reduce GHG emissions and thus help to mitigate the impact of climate change. For example, about 20% of Bayer Material Science revenue comes from climate change-related business (ie about €2bn in 2008).

The building sector contributes 21% to global GHG emissions (including energy supplied by power sector). Bayer has developed 'climate solutions' bundled in Bayer's project 'EcoCommercial Building' (ECB), which is a global concept for climate-friendly commercial and industrial buildings.

The transport sector contributes 14% to global GHG emissions. With its products, Bayer addresses two major abatement levers in the transport sector: 'lightweighting' and biofuels. Bayer products include: lightweighting materials in car manufacturing, plant protection products for energy crops, and high-yielding varieties for the production of biofuels.

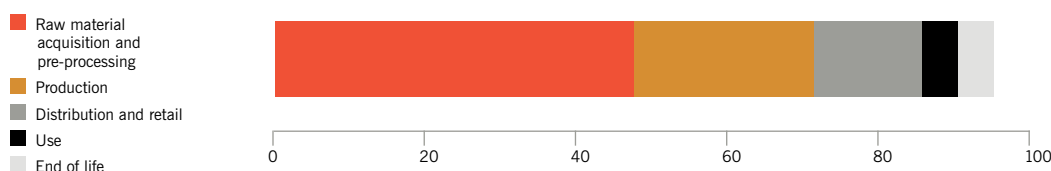
The industry sector contributes 34% to global GHG emissions. Bayer offers products that reduce emissions of production processes (eg ultraviolet coatings) and that contribute towards a 'greener' supply chain (eg natural oil polyols).

The power sector contributes 24% to global GHG emissions. Bayer is actively supporting the expansion of renewable energies, including the development of carbon nanotubes for wind power and polyurethanes for photovoltaic modules and mounting systems.

The agriculture/forestry sector contributes 31% to global GHG emissions. Bayer is currently working on new products and services in the fields of stress tolerance and carbon sequestration.

Beyond these examples, Bayer has a pipeline of products at different stages of development, all providing solutions to help customers increase their energy efficiency or reduce their carbon footprint.

CHART 10: EXAMPLE GHG EMISSIONS ACROSS A PRODUCT'S LIFECYCLE



When we combine the lack of political leadership with the clear evidence provided by McKinsey that the technological fix is not going to get us where we need to go it is clear that business must take the lead in inventing the low-carbon economy and that a credible and complete carbon accounting that includes a full Scope 3 inventory is an essential ingredient in the business decision making and innovation process. It is equally clear that the people with the skills to account for and analyse carbon emissions have an important role to play.

A low-carbon economy (also called a 'green economy') is an economy that has a minimal output of GHG emissions. The aim of a low-carbon economy is to integrate all aspects, from manufacturing, agriculture, transportation and power-generation, around processes and approaches that use and produce energy and materials with little GHG emission. The low-carbon economy typically has a number of principles underlying it⁷:

- All waste should be minimised – reduce, reuse, recycle.
- Energy should be produced using no or low-carbon energy sources and methods – renewable and alternative energy sources, fuels and sequestration.
- All resources (in particular energy) should be used efficiently – more efficient energy conversion devices, combined heat and power.
- Wherever practical, local needs should be served by local production – food, materials, energy.
- There is high awareness and compliance with environmental and social responsibility initiatives – industry, commerce and individuals.

The UN Green Economy Initiative (GEI) – designed to assist governments in 'greening' their economies by reshaping and refocusing policies, investments and spending says that:

'A Green Economy is characterised by substantially increased investments in economic sectors that build on and enhance the earth's natural capital or reduce ecological scarcities and environmental risks. These sectors include renewable energy, low-carbon transport, energy-efficient buildings, clean technologies, improved waste management, improved freshwater provision, sustainable agriculture and forest management, and sustainable fisheries. These investments are driven by or supported by national policy reforms and the development of international policy and market infrastructure.'

What is needed is the: 'reconfiguration of businesses, infrastructure and institutions, and the adoption of sustainable consumption and production processes. Such reconfiguration leads to a higher share of green sectors contributing to GDP, greener jobs, lower energy and resource-intensive production, lower waste and pollution, and significantly lower greenhouse gas emissions. It can also assist in the reduction of persistent poverty through targeted wealth transfers, new employment, as well as improvements in access and the flow of ecosystem goods and services to the bottom of the economic pyramid.'⁸

In an article in the *Guardian* on 2 July 2009, Tom Delay, CEO of Carbon Trust summed up the challenge well when he wrote that: 'This year is the 300th anniversary of the first industrial revolution which brought in the age of fossil fuels. In 1709 Abraham Darby successfully smelted iron with coke near Ironbridge, an innovation which led to iron-making on a massive scale, changing the lives of millions of people and helping to create the modern industrial world.'

'We now face a similar game changing challenge. We need to unleash a new revolution that fast tracks the deployment of a new set of technologies – low-carbon ones. This requires a faster acceleration in innovation and technological development than we witnessed 300 years ago. This new low-carbon economy is poised to be the mother of all markets and will be as transformative in its impact as the first industrial revolution. It offers a huge commercial opportunity.'

An understanding of Scope 3 emissions is essential to this new revolution. We need to invent not just the technology but the business models that will get us there. Bruno Berthon, managing director of Accenture's Sustainability Services Group, recently suggested some potential new business models in an article in *Business Week*⁹. He has suggested that four interesting business models are being explored, and that a low-carbon future probably requires a combination all of them.

The clean energy model

Replacing fossil fuels with clean energy at a scale that supports economic growth. Combined with more energy efficiency, this model will certainly contribute to the journey towards low-carbon heaven, but will hardly be sufficient.

The ecological industry model

Reinventing industry based on a set of low-carbon constraints, through a combination of energy efficiency and product/process innovation. This model is capable of integrating renewable energy into the design of new industrial capacity.

7 www.lowcarboneyconomy.com/LCE/AboutALowCarbonEconomy

8 Green Economy Report: A Preview, UNEP, 2010

9 www.businessweek.com/careers/managementiq/archives/2009/12/new_business_mo.html

The services model

A services economy, where ownership of the product ideal is replaced by a combination of new uses and service offerings: car sharing for example or industrial models sell a service without the product, like a decontamination process instead of chemical solvents.

The functional model

Where the function is what matters and can be fulfilled as long as it provides the intended needs: from functional foods to virtual travel, from digital communities to functional clothing. It aims to provide the same sensations and fulfil the same consumer needs without the recourse to a physical structure or media.

What is particularly interesting about the last three models is that they propose a joint transformation of the supply and demand side instead of a cleaner 'business as usual' state in the first instance.

The clean energy model is what I have referred to as the efficiency approach. It is necessary but not sufficient. At the end of the day it is simply a cleaner version of business as usual. To develop business models that also address the need for change on the supply and demand side – in other words across the value chain – you need the Scope 3 information that can support that transformation.

Joining the low-carbon economy doesn't happen by chance. It happens only when you have the right information to make the right decisions.

Scope 3 is really about innovation and the future. It is about business remodelling rather than improved efficiency. It is not about doing what you do better, it is about understanding what and how to do things differently. Scope 1 and Scope 2 are about better. Scope 3 is about different. And that is because by looking at the full value chain it challenges you in relation to a much broader context. We need Scope 3 reporting if we are going to get beyond the efficiency drive to business remodelling.

RECOMMENDATIONS

For governments and standards setters

Governments, intergovernmental agencies and other standards and policy setters should consider making Scope 3 mandatory.

Standards setters and others who contribute to public policy should consider making Scope 3 reporting mandatory rather than voluntary as it currently is in most schemes.

For business

Business should begin to account for and report on Scope 3 emissions. Scope 3 information and analysis should begin to be included in strategy development and in operational decisions and actions.

Scope 3 information and analysis should begin to be brought into the investment appraisal process.

PRACTICAL GUIDANCE

Companies, investors and other stakeholders have called for standard approaches to accounting and reporting of Scope 3 emissions due to the wide variety of emissions sources, calculation methods and lack of consistency of approach in Scope 3 accounting.

The primary voluntary accounting and reporting standards are the:

- ISO 14064 series
- WBCSD/WRI GHG protocol
- CBSD reporting framework.

In addition, the Carbon Disclosure Project (CDP) provides guidance on how to report on Scope 3 emissions in order to respond to its annual questionnaire.

In all of these, accounting for and reporting on Scope 3 emissions is optional.

ISO 14064

The ISO 14064 standards for greenhouse gas accounting and verification published on 1 March 2006 by ISO (International Organization for Standardization) provide government and industry with an integrated set of tools for programmes aimed at reducing greenhouse gas emissions, as well as for emissions trading.

ISO 14064 comprises three standards, respectively detailing specifications and guidance for the organisational and project levels, and for validation and verification. They can be used independently, or as an integrated set of tools to meet the varied needs of GHG accounting and verification. They are:

- ISO 14064-1:2006, Greenhouse gases – Part 1: Specification with guidance at the organization level for the quantification and reporting of greenhouse gas emissions and removals.
- ISO 14064-2:2006, Greenhouse gases – Part 2: Specification with guidance at the project level for the quantification, monitoring and reporting of greenhouse gas emission reductions and removal enhancements.
- ISO 14064-3:2006, Greenhouse gases – Part 3: Specification with guidance for the validation and verification of greenhouse gas assertions.

ISO 14064-1 provides no guidance on the categories for Scope 3 accounting and reporting.

www.iso.org/iso

GHG PROTOCOL

The World Business Council for Sustainable Development (WBCSD) and the World Resources Institute (WRI) have pioneered the development of GHG accounting and reporting standards. In their GHG protocol they identify a number of reasons for developing a GHG inventory:

- to manage GHG risks and identify opportunities
- to enable public reporting and participation in GHG programmes (voluntary, mandatory, registries, eco-labelling, GHG certifications)
- to enable participation in GHG markets (cap and trade programmes, carbon taxes).

The commitment to report publicly and participation in GHG markets are mechanisms to help motivate companies to understand and improve performance. But the most important thing for the ongoing success of the company is understanding the risks and opportunities associated with their GHG emissions.

The most comprehensive guidance on Scope 3 accounting and reporting is a new document developed by WBCSD and WRI as a complement to the GHG protocol: Scope 3 Accounting and Reporting Standard: Supplement to the GHG Protocol Corporate Accounting and Reporting Standard.

This document provides for the first time a detailed presentation of Scope 3 accounting and reporting. It covers all the aspects of accounting and reporting that are covered for Scope 1 and Scope 2 in the GHG Protocol as well as providing a comprehensive categorisation of Scope 3 emission types and detailed guidance on how to account and report on each category. The categories are:

Indirect emissions from purchased products (upstream)

1. Purchased goods and services (cradle-to-gate emissions) (not otherwise included in categories 2 to 10)
2. Energy-related emissions (not included in Scope 2)
3. Capital equipment
4. Transportation and distribution
5. Waste generated in operations
6. Business travel
7. Franchises (not included in Scope 1 or 2) – reported by franchisee
8. Leased assets (not included in Scope 1 or 2) – reported by Lessee
9. Investments (not included in Scope 1 or 2)
10. Other

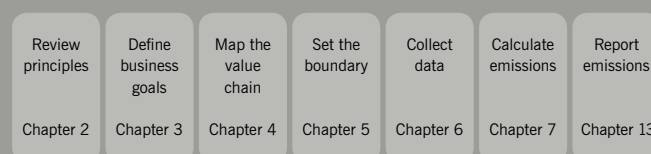
Indirect emissions from sold products (downstream)

1. Franchises (not included in Scope 1 or 2 – reported by franchisor)
2. Leased assets (not included in Scope 1 or 2 – reported by lessor)
3. Distribution of sold products
4. Use of sold products
5. Disposal of sold products at the end of life
6. Other

Other indirect emissions

1. Employee commuting
2. Other

This new Scope 3 standard provides accounting and reporting guidance according to the following process:



This new standard makes it possible to account and report on Scope 3 emissions in a comprehensive, consistent and comparable manner. However, while it addresses the difficulties of information gathering and the uncertainties associated with Scope 3 data, it does not provide definitive solutions to these issues.

BAYER

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Bayer goes well beyond risk identification and mitigation. To a large extent, its strategy is built on climate-related opportunities. It knows what the numbers are and has a sound foundation for innovation and strategic decision making.

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Total with Scope 3	29,470,000
Scope 3 as % of total	74.3%

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In its CDP report, Bayer has stated: 'Bayer considers climate change one of today's megatrends. The identification of opportunities arising from this trend is an integral part of Bayer's strategy process. Climate-change-related opportunities are identified and substantiated at the subgroup and business unit level and then assessed from the perspective of the Bayer Group as a whole. In parallel, the Bayer Climate Programme Steering Committee identifies business opportunities and connects different subgroups and business units in case of opportunities that apply to several organisational units in the Bayer group. The Bayer Climate Programme Steering Committee is led by Dr Wolfgang Plischke, the member of the Board of Management responsible for Innovation, Technology and Environment.'

Bayer has made a huge investment in carbon-related R&D. It has set aside €1bn in its budget for investment in climate-related R&D and other projects between 2008 and 2010.

While Bayer has been very successful in the reduction of its production-related Scope 1 and 2 GHG emissions and will continue on this path under the umbrella of its Bayer Climate Programme, Bayer recognises the risks that could result from GHG emissions beyond the scope of its own operations. It is also continuously looking for ways to reduce Scope 3 emissions.

It makes efforts to reduce business travel where feasible, in particular flights by substituting business travel if possible with phone calls, video, or internet conferencing. With its 'EcoFleet' initiative, Bayer has launched a campaign to significantly reduce CO₂ emissions caused by company vehicles, ensured by a group-wide Bayer car policy.

For cost and environmental reasons, Bayer focuses on energy efficiency in both external and internal distribution/logistics, by transporting bulk material by pipeline, water or rail when feasible. These means of transport are economical and cause relatively low GHG emissions.

The emissions within Bayer's supply chain are caused by the extraction, production and transportation of materials/goods before they are supplied to Bayer. Feedstock based on crude oil as well as natural gas and coal for electricity and steam generation contribute by far the largest share to Bayer's total supply chain emissions.

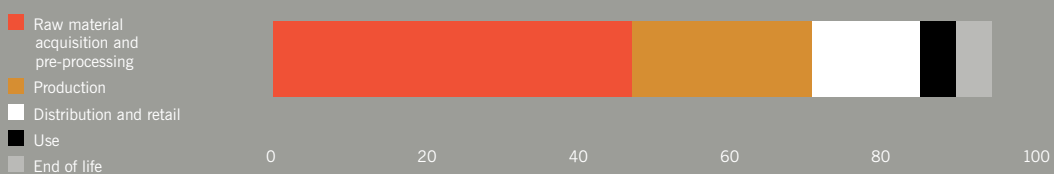
Beyond the regular monitoring of emissions using BaySIS, Bayer has developed the 'Bayer Climate Check'. With this tool, it has become possible for the first time to evaluate not only the production plant itself but also all the raw materials and energy needed for production together with logistics up to the factory gate.

The Bayer Climate Check is complemented by Bayer's innovative energy management system STRUCTese that Bayer developed in 2008 and is currently rolling out at all major production sites. STRUCTese is a real-time controlling instrument that creates transparency on energy losses, enables a performance dialogue on energy consumption on all levels within the company and therefore ensures a focus on increasing energy efficiency.

Bayer has positioned itself over the past few years as a 'climate solution provider', while at the same time delivering a contribution to the reduction of GHG emissions. The climate-change-related business opportunities have particularly been identified in Bayer subgroups and service companies: Bayer Material Science, Bayer Crop Science and Bayer Technology Services are able to benefit the most from the mitigation and adaptation requirements that arise in the market.

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CHART 11: EXAMPLE GHG EMISSIONS ACROSS A PRODUCT'S LIFECYCLE



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