

A framework for greenhouse gas reporting

Typico Inc: An illustration of a statement
of greenhouse gas emissions



September 20, 2010

To our clients and friends:

Regulatory and market pressures are forcing more companies to measure, disclose, and reduce greenhouse gas (GHG) emissions. In the absence of consistent rules for reporting emissions, diversity in practice is rapidly emerging. This inconsistency has challenged investors and other capital providers as they seek the information most relevant to them.

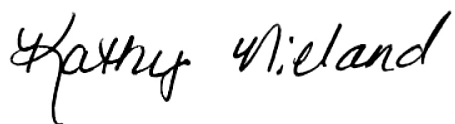
With reliability of reporting at the core of what we do, PwC has been at the forefront of addressing these concerns. We have been working with international standard setters, environmental groups, and clients to contribute to a reporting framework that will meet the needs of regulators, investors, analysts, and business partners.

To help address these demands, the following publication provides a framework for greenhouse gas emissions reporting by setting forth what a "Statement of Greenhouse Gas Emissions" could include. It offers a behind-the-scenes look at the metrics, key performance indicators, and regulatory and market forces that factor into each illustrative section. Finally, we discuss the relevance of the disclosed information, accompanied by examples of how the disclosure could appear.

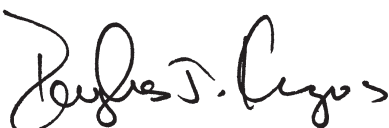
Regardless of the form of emission statements in the future—whether regulator or market-driven—there will be a demand for clear, comparable, reliable data. Companies wishing to produce a GHG emissions report will need to structure their processes, systems, controls and internal reporting to capture and evaluate the appropriate data. GHG emissions reporting will also provide management with information that can be used to mitigate risk, cut costs, and uncover new business opportunities.

PwC is proud to take a leadership role in solving the corporate reporting challenges of the 21st century. GHG emissions information is becoming increasingly relevant to the investor community. As such, we stand ready to help you develop a meaningful dialogue with your stakeholders regarding your GHG emissions reporting.

Sincerely,



Kathy Nieland
US Sustainability & Climate Change Leader



Douglas Kangos
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Introduction

Corporate boards and management teams are facing increased pressure from regulators, shareholders, customers, employees, and local communities to measure, disclose, and reduce greenhouse gas (GHG) emissions.

PwC is committed to helping companies understand these growing demands and respond to them in the most effective and efficient manner possible. By doing so, we believe our clients may enjoy a reputational advantage and uncover significant new product and service opportunities. Moreover, many companies focused on reducing GHG emissions have uncovered supply-chain and energy cost reduction opportunities in addition to other potential savings.

This document does not dwell on the science or politics of GHG emissions. Rather, it is designed to explain the need for such disclosure and illustrate evolving trends in GHG disclosure and reporting practices. These reporting practices are illustrated using a practical case study scenario throughout the document for a company called Typico Inc (Typico).

To produce reliable information to report GHG emissions and to monitor ongoing emissions performance, management will need to identify, assess, and manage climate-related risks and opportunities. Companies will therefore need to determine how to orient their processes, systems, controls and internal reporting requirements to support these activities. With these measures in place, more companies can begin to publish their GHG emissions statement in full on their websites and embed extracts or summaries within their annual reports and regulatory filings with confidence.

Why prepare a greenhouse gas emissions statement?

Regulatory pressure for emissions reduction is increasing for many US companies. Similarly, the US Securities and Exchange Commission (SEC) issued interpretative guidance in early 2010 highlighting climate change disclosures that should be considered by registrants.¹ Additionally, several federal and local programs already require the reporting of GHG emissions information, including:

- The Environmental Protection Agency's (EPA) mandatory GHG reporting rule, which requires "large emitters" to report emissions to the EPA by January 2011
- Current and developing regional cap-and-trade initiatives in the northeastern and western states
- California's Global Warming Solutions Act of 2006 which will require certain facilities in California to reduce GHG emissions to 1990 levels by 2020.

Market pressure is rising as well. Procter & Gamble and Walmart recently announced plans to reduce GHG emissions in their global supply chains. In July 2010, the General Services Administration announced plans to give greater preference to vendors that track and reduce GHG emissions (in compliance with Executive Order 13514, Section 13, released in April 2010). Similarly, an increasing number of request for proposal and questionnaires now require potential vendors to provide GHG emissions information, as well as plans for reduction.

In part, these changes are being driven by shareholders. Since 2000, the Carbon Disclosure Project (CDP) has, on behalf of institutional investors, sent questionnaires to the world's largest corporations requesting information on GHG emissions, including the significant risks and opportunities related to climate change, and actions they are taking to manage them. The CDP 2010

¹ Commission Guidance regarding Disclosure Related to Climate Change, SEC (February 2010). <http://www.sec.gov/rules/interp/2010/33-9106.pdf>.

S&P 500 report, prepared by PwC on behalf of GDP, shows a continued increase in the number of S&P 500 respondents from prior years—up to 70% (348) in 2010 from 56% (280) in 2007. This suggests that the commitment to providing GHG emissions disclosure is increasing in importance. We believe this trend will continue.

What does a typical greenhouse gas emissions statement look like?

Practices are still evolving, so a one-size-fits-all approach or a comprehensive list of disclosures does not exist. In addition, every business is unique, requiring different considerations when reporting meaningful information about GHG emissions and associated business implications. However, while there are no best practices to model, there are good practices many companies are employing and other companies can consider.

How to use this document

To assist companies in developing a disclosure framework and GHG emissions statement, we have created a fictitious GHG emissions statement for a company called “Typico.” Our objective is to propose reasonable and realistic examples of how a GHG emissions statement could be customized to fit your organization’s unique facts and circumstances. In doing so, an important outcome is that the forms and types of processes, systems, controls, and key performance indicators needed to produce relevant and reliable information will become more evident. As a result, companies will be able to develop efficient and scalable processes and practices that meet their particular needs.

The Typico examples focus wholly on GHG emissions and the business impact of climate change from such emissions. There exist various other social and environmental matters and climate effects that are commonly referred to under the caption “climate change and sustainability,” such as water usage, waste and recycling, and employee health and safety. For purposes of this document we have chosen not to provide examples of reporting on these subjects.

GHG emissions statements prepared by US-based companies today have broad similarities to financial statements before the Securities and Exchange Act of 1934. Just as a lack of consistency and conformity led to greater market pressure for enhanced regulation, we are now seeing a similar trend in GHG emissions statements. We expect that, within this decade, accuracy in GHG emissions reporting will take on greater significance. This trend will require companies to develop and implement increasingly sophisticated and accurate programs to track, manage, and report emissions data.

This expansion of corporate GHG emissions statements is consistent with an ongoing shift from reporting solely on financial results to including ever-greater social responsibility and sustainability efforts. Yet comprehensive standards for reporting GHG emissions data have yet to be promulgated by any standard setter or regulatory body. In the absence of such standards, PwC is working with international standard setters, environmental non-governmental organizations, and others to build a GHG emissions reporting framework that will stand the test of time.

The examples provided herein do not purport to be a minimum level. Each company is unique and individual facts and circumstances and evolving reporting and regulatory standards will dictate what is acceptable in any given situation.

Management discussion & analysis

In developing a framework for what should be included in a GHG emissions statement, we considered key performance indicators that could be applied within and across industries and sectors. We also considered the SEC's February 2010 climate change interpretive release, which covers the physical impacts of climate change; indirect impacts from legal, technical, political, and scientific risk factors; and impacts of foreign and international treaties and accords related to climate change. This type of information generally appears in the MD&A section of regulatory filings and a company's annual report rather than in the financial results section of such documents.

MD&A-type disclosure is meant to provide a context within which results can be interpreted. It provides relevant historical and forward-looking information to enable investors to better assess a company's past performance and current situation and, most importantly, its future outlook.

Example: Typico report

The impact of climate change

Climate-related risk cuts across almost every industry and has the potential to affect every corner of the world. Some physical effects may not be felt for a number of years. Other impacts, however, such as increasing regulatory requirements and pressure from business partners and shareholders, are already being felt.

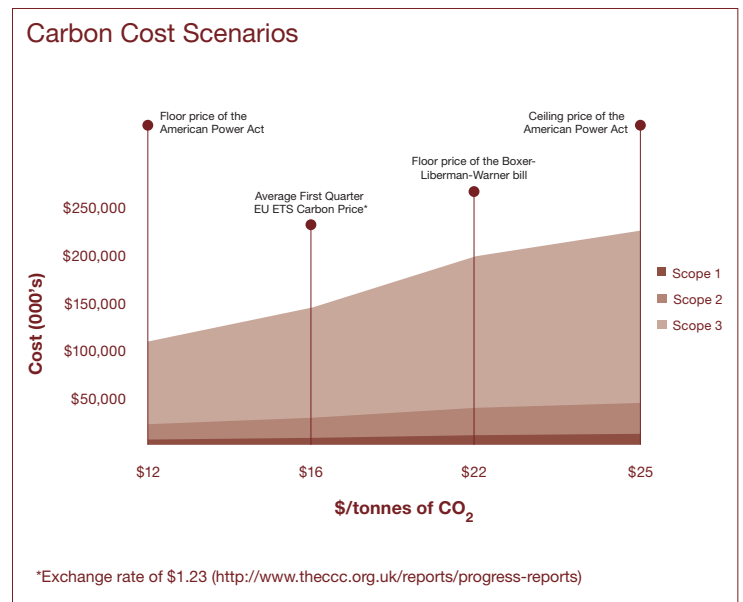
As a global company, Typico is aware of the potential impact that climate change may have on our business strategy and ongoing operations. In response, we are developing long-term plans to mitigate our exposure to these uncertainties, to reduce our carbon footprint, and to take advantage of new opportunities that may arise from climate change.

Physical effects and operational impacts

Climate change is projected to result in a variety of physical effects, including rising sea levels and changes in patterns of temperature, precipitation, as well as extreme weather events. These effects have implications for public health, physical plant and equipment, transportation systems, supply chains, and energy supply and demand. Such changes could lead to business interruptions, increased investment or insurance costs, and periods of instability in some markets and jurisdictions.

US regulatory impact

There are many uncertainties regarding enactment of climate change legislation in the US. The impact of recently proposed legislation and regulation will depend on a number of factors. They include the overall GHG emissions cap level, the degree to which GHG offsets are allowed, and the allocation of emission allowances to specific sources. Another important factor is our ability to recover the costs incurred to comply with any regulatory requirements that are ultimately imposed.



To illustrate the projected financial impact on the Company at various carbon prices, we have graphed four carbon cost scenarios, including those based on legislation recently proposed in the US. We anticipate that Typico will bear the carbon costs associated with its Scope 1 emissions directly.¹ While we do not expect to bear the full cost of increases associated with our Scope 2 and 3 indirect emissions, we anticipate that the cost of carbon will increase costs in our supply chain and may decrease the profit margins of our product sales, as discussed further below.

¹ Scope 1 emissions are those over which we have direct control; see footnotes for further discussion regarding Scope emissions.

Keys to effective climate change risk assessment

GHG emissions statements can provide a useful internal management tool for mitigating risk, cutting costs, and uncovering new business opportunities, especially when the results are incorporated into the company's overall risk assessment process. These GHG emissions statements can best serve this purpose when they are comprehensive and take a long-term view in exploring potential climate-related risks and opportunities. This insight usually leads companies to establish a long-range plan for reducing their carbon footprint. Moreover, they begin to explore opportunities being created by the carbon-reduction trend.

Example: Typico report

As with other risk mitigation initiatives, evaluating the impact of climate change will require Typico to draw upon a wide range of expertise. These sources may include environmental subject-matter experts to reduce our geographic vulnerability and GHG emissions. We may also engage third parties to assess and monitor initiatives and compliance with existing and future US and international GHG reporting requirements.

Typico believes business opportunities may arise from effective management of these risks, including the development of new products and services. The table below summarizes our most significant risks and opportunities related to climate change, which were identified during our enterprise risk management process.

For an analysis of risk factors affecting Typico, please see our Annual Report on our website.

Strategic objective	Business response
Significantly reduce Typico's own impact on the climate	<p>In light of current regulation abroad and emerging regulations in the US, Typico has made the following commitment to climate change mitigation:</p> <ul style="list-style-type: none"> • Reduce our absolute GHG emissions by 26% by 2012 from a 2007 base year • Demonstrate a net financial benefit to the business from emissions reductions activities by 2012 <p>Progress against our long-term targets is monitored on an annual basis</p>
Adapt our business to the consequences of climate change, including taking full advantage of the opportunities presented	<ul style="list-style-type: none"> • Increase the share of eco products¹ in our portfolio to 30%, and related sales to 40%, from 17% and 20% respectively, by 2012 • Roll out our current resource optimization pilot project to the rest of the Company by 2012

¹ Eco products are Typico products that have been identified as being highly rated for energy efficiency in their market segment, or products that have specific carbon mitigation potential (e.g., our products which employ fuel cell technology).

Example: Typico report

The most immediate climate change risks are perceived to be existing and pending cap and trade regulation, mandatory technology requirements, and changing consumer tastes.

Risks and opportunities

Risks	Responses
<p>Compliance with EPA GHG emissions reporting</p> <p>The EPA mandatory GHG reporting rule (EPA MRR) requires the Company to report 2010 GHG emissions for certain facilities beginning in 2011.</p>	<p>Leveraging the systems and processes already in place in the UK for EU ETS compliance, we have implemented processes and controls at our four facilities that are impacted by the EPA MRR.</p>
<p>Extreme weather events</p> <p>Extreme weather events already impact our business. It is difficult to estimate the precise extent that these events will occur in the coming years.</p>	<p>More frequent extreme weather events increase the risk of flooding for sites located in low-lying areas. Storms and floods experienced in the US in 2005 resulted in losses of approximately \$25 million in destruction of property and lost working time at one of our facilities. We maintain comprehensive insurance programs to help minimize our exposure, and anticipate that our total insurance costs could rise by 8% (\$1.2 million) by 2020.</p>
<p>Pending cap and trade schemes</p> <p>Existing European cap and trade programs do—and those being considered in the US would—affect our business in regions where we have significant operations.</p>	<p>We devote significant resources to monitor, understand and plan for the implications of potential US cap and trade regulation, including the California Air Resources Board program, effective in 2011, and are taking into account the projected future cost associated with compliance.</p>
<p>Mandatory technology requirements</p> <p>Compliance with emerging energy efficiency standards and labeling requirements for energy using products will result in additional costs on our business.</p>	<p>Mandatory technology requirements could have a major impact on our business, including potential penalties for non-compliance and loss of competitiveness for our less energy efficient products. We are exploring adoption of energy efficiency and labelling practices in the US similar to those followed by our European operations, and are developing our range of eco products to help improve our competitiveness.</p>
<p>Customer initiatives to reduce emissions from their supply chain and changing consumer preferences</p> <p>New requirements by a major customer may accelerate the Company's timeline for growing our eco-product line, impacting our cash flow projections.</p>	<p>As a significant supplier to Walmart, we are working with the retailer on its global supply chain emissions reduction program. While this initiative could have a substantial impact on our business, we anticipate our strategy to reduce sales of certain older products, to less than 2% of total sales while investing in our eco-product line, will help us align with Walmart's program objectives.</p>
<p>Changing consumer tastes</p> <p>Consumers are showing increased awareness of environmental issues, which poses a risk to the competitiveness of some of our products.</p>	<p>We see a marked decline in certain older, less energy efficient products, such as sales of our oven range, which declined by 13% from the prior year. We expect that up to 30% of our product portfolio may be impacted to some extent by this trend.</p>

Opportunity	Responses
Increased demand for the most energy efficient products in market segments.	We have observed sales growth of 4% a year since 2008 in our eco products; sales of other products in general have been flat over the same period.
Increased demand for products that facilitate GHG avoidance.	As yet these products have not outperformed other segments of our portfolio; however we anticipate that future regulatory changes and increased customer awareness may significantly increase demand.
Increased demand for products that help companies and individuals adapt to climate change.	These products form a limited part of our portfolio at present. If adaptation becomes the focus and temperature change progresses rapidly then this may become a significant growth area.
Cost savings as a result of emissions reduction initiatives.	The majority of emission reduction measures we have taken to date have resulted in net cost reductions and we anticipate that future measures should be equally cost effective.



Key performance indicators

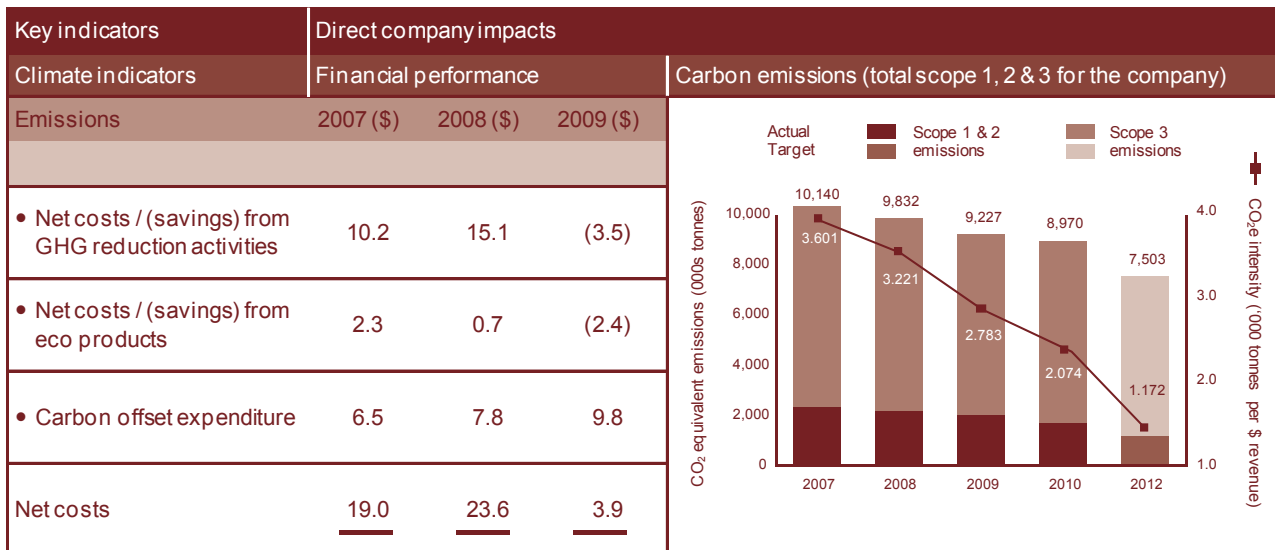
The ability to obtain useful GHG emissions data rests squarely on choosing the right metrics. Global standards are still evolving, so benchmarks widely used in one sector may be less applicable in another sector, or may vary from company to company. In general, however, key performance indicators (KPIs) should align with your organization's strategic and performance objectives. Results should be measurable and clearly indicate the relationship between performance and direct financial impact on the company.

While comprehensive lists of potentially relevant KPIs have been developed by the Global Reporting Initiative (GRI) and other organizations, companies should consider whether publicly available lists offer the appropriate KPIs that will enable management to meet multiple reporting objectives. The Institute for Responsible Investment, for example, has identified about one dozen KPIs that can be used to compare results across industries.¹ However, most companies will be more interested in KPIs that are specific to their industry and take into consideration the company's specific facts and circumstances.

PwC works with companies to assist with identifying KPIs relevant to the company and its stakeholders, including the selection and implementation of an appropriate reporting process. To ensure appropriate KPI selection, we have in some cases sent questionnaires to global subsidiaries and interviewed key executives. The result of this effort would appear similar to the report shown below. It provides management with an at-a-glance operational reporting and management tool for tracking GHG emissions, including costs and savings reductions.

¹ From Transparency to Performance: Industry-based Sustainability Reporting on Key Issues, June 2010.

Example: Typico report



Corporate governance and performance

In 2003, the RiskMetrics Group, in consultation with Ceres and the Investor Network on Climate Risk, launched the Climate Change Governance Framework, a yearly survey of corporate climate change leadership. Over the years they have found that companies integrating climate change into their board and executive structures, as well as their public reporting, have been more successful at maintaining the long-term commitment and comprehensive approaches needed to effectively address climate change risks and opportunities.¹

Overall, their reports generally recommend that investors look for three key markers when reviewing corporate commitment to climate change:

- The board and its senior executives are working to address climate issues
- The Chief Executive Officer (CEO) has identified climate change as a short- and long-term priority
- Management is establishing practical policies for dealing with climate risk and opportunity.

¹ Corporate Governance and Climate Change: Consumer and Technology Companies, December 2008.

EXAMPLE: Typico report

Governance

Sustainability and climate change considerations are integrated into our core corporate strategy, and the Company's Chief Executive Officer is ultimately responsible for overseeing the integration into our business operations.

The Company's Corporate Responsibility (CR) Team, which includes representatives from each major business unit, is responsible for ensuring that climate-related priorities are integrated throughout the organization. The CR Team is responsible for i) advising the Corporate Strategy Team on emerging developments and issues that may affect the carbon and sustainability aspects of our strategy and ii) monitoring and advising business units on implementation of the corporate strategy.

Our policy is to only reward actions that are aligned to our strategy and targets. Climate change and sustainability are significant parts of our strategy and are included in the performance assessment for executive management, alongside financial and operational performance measures.

Performance

Carbon emission reductions

Following discussions with our transportation partner, revised estimates of transport miles for purchased goods led to an increase in reported emissions by 95,000 tCO₂e. Through engagement with this partner, we have been able to streamline distribution systems and anticipate significant carbon savings in the future.

The acquisition of Poplar Products at the start of 2010 added a total of 1.3 million tCO₂e of emissions. Specific conversion factors are now available for our transport fleet of plug-in hybrid vans operating across the US and parts of Europe, reducing reported emissions by 80,000 tCO₂e during the year.

Although organic growth was expected to result in an increase in emissions of an estimated 376,000 tCO₂e this year, our carbon reduction projects have delivered carbon emissions reductions of approximately 1.9 million tCO₂e. These reductions have mainly been due to the energy efficiency investments we have made to our manufacturing facilities over the past year, and the continuous streamlining of our distribution to a central-hub system.

2010	Net cost saving (\$m)	Carbon emissions reduction (million tCO ₂ e/year)
Improved energy efficiency of manufacturing facilities	1.2	1.3
Streamlining distribution system	1.9	0.5
Other	0.4	0.1
Total	3.5	1.9

Financial performance

Performance against our financial objectives for 2010 has shown good progress, with both our reduction activities and GHG-efficient products generating positive cash flows to the business for the first time. Emission reduction activities, eco products, and expenditures on carbon offsets have resulted in a net cost to the business of \$3.9 million in 2010 and \$23.6 million in 2009.

Further cost savings, from current and planned emission reduction activities, combined with close management of future exposure to volatility in the voluntary carbon markets, will help deliver our goal to achieve a net financial benefit to the business by 2012.

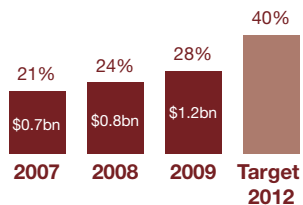
Eco products

Our range of eco products that deliver significantly improved energy efficiency to our customers, launched in 2007, has seen strong sales growth. Eco products have contributed a net benefit of \$2.4 million in pre-tax income in 2010.

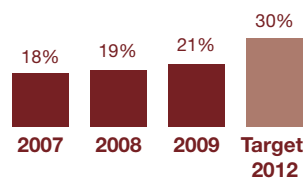
We anticipate increased consumer demand to drive growth of 8–10% per year in this new market for the next three years; we would expect our strong consumer offering and brand to ensure that Typico maintains a significant market share.

Eco products now constitute 21% of our product portfolio, and 28% of sales—on track to meet our targets of 30% and 40% respectively by 2012.

Eco products as volume of sales



Eco products as volume of portfolio



GHG reduction activities

The capital expenditures invested in our first energy efficiency projects at our three manufacturing facilities in UK (12% of total manufacturing facilities) delivered 0.4 million tCO₂e and \$1.2 million savings in 2010. In addition, the streamlining of our distribution system delivered net cost savings for the first time this year of \$1.9 million. Other reduction activities delivered net cost savings of \$0.4 million in the year.

Renewable electricity

GHG emissions associated with renewable electricity purchased in the US are included within the reported Scope 2 emissions by converting the electricity used to GHG emissions using standard grid factors, in line with current EPA requirements. These emissions are then deducted when reporting net emissions.

Carbon offsetting

The Company has chosen to offset all reported Scope 1 and Scope 2 emissions for each reporting year.

The group purchases and retires Voluntary Carbon Standard (VCS) verified Voluntary Carbon Units (VCUs) from emission reduction projects in India and Brazil that cover a range of technologies, including renewable energy and energy efficiency measures. Our policy precludes the purchase of large-scale hydro and industrial gas abatement projects.

	2010	2009	Target 2012
Renewable electricity purchased (kWh)	(1.2)	(8.9)	-
Renewable electricity sold to grid (kWh)	(94.6)	(50.0)	(103.4)
Voluntary carbon offsets ('000 tonnes CO ₂ e)	(1,725)	(1,907)	(1,402)

Statement of GHG Emissions

The statement of greenhouse gas emissions provides investors and other capital providers with the information needed to understand the company's contribution to global GHG emissions. This statement is generally based on the World Resource Institute's Greenhouse Gas Protocol (GHG Protocol), the most widely used international tool for aggregating GHG emissions data.

The GHG Protocol defines three "scopes" for reporting GHG emissions.

- Scope 1 emissions are those in which a company has direct control via ownership of activities, such as emissions from combustion in owned or controlled boilers, furnaces, vehicles, etc., as well as emissions from chemical production in owned or controlled process equipment.
- Scope 2 are indirect emissions attributable to purchased electricity, heat or steam. Purchased electricity is defined as electricity that is purchased or otherwise brought into the organizational boundary of the company.
- Scope 3 are all other indirect emissions and are a consequence of the activities of the company, but occur from sources not owned or controlled by the company.

The following statement provides a basis for presentation of an example GHG emissions statement. Its general purpose is to provide an illustration that would allow comparability with a company's prior GHG emissions statements and with the GHG emissions statements of other entities. The statement below depicts the following information:

- Periods covered; base year; relevant regulation globally with emphasis on the US; reporting method followed
- Greenhouse gases covered and methods of measure; organizational boundaries; conversion factors; method/approach to any adjustments to base year
- Reference to materiality; any nuances relative to scope inclusion (i.e., treatment of renewables; Scope 3 to extent complementary to what was covered in MD&A)
- Participation in any offset programs
- Presentation of emission sources relevant to business: by scope; by gas; by segment; continuing versus discontinued operations.

Example: Typico statement

Statement of greenhouse gas emissions

Summary of GHG emissions for the years ended December 31, 2010 and 2009¹

CO ₂ e emissions (‘000 tonnes)			Adjusted base year	Target	Percentage change	
	2010	2009	2007	2012	2009/2010	2007/2010
Scope 1	432	521	645	364	-17%	-33%
Scope 2	1,293	1,386	1,494	1,038	-7%	-13%
Total Scope 1 and 2 emissions	1,725	1,907	2,139	1,402	-10%	-19%
Scope 3	7,245	7,320	8,001	6,101	-1%	-9%
Total emissions	8,970	9,227	10,140	7,503	-3%	-12%

Greenhouse gas emissions intensity (CO ₂ e ‘000 tonnes/\$M revenue)			Adjusted base year	Target
	2010	2009	2007	2012
Scope 1	0.100	0.157	0.229	0.057
Scope 2	0.299	0.418	0.531	0.162
Scope 3	1.675	2.208	2.841	0.953
Total	2.074	2.783	3.601	1.172

¹ An assurance engagement might not cover certain elements of the GHG emissions statement, such as the base year information, target information, or percentage changes presented. See page 17 for discussion regarding assurance.

Notes to GHG emissions statement

Note 1: Greenhouse gas reporting policies

These greenhouse gas (GHG) emissions disclosures have been prepared based on a reporting year of January 1 to December 31. This is the same as the Company's financial reporting period.

The GHG emissions information has been prepared with reference to the World Resources Institute/World Business Council for Sustainable Development Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard, Revised Edition (the GHG Protocol).

A summary of the key disclosure policies is set out below, together with an explanation of where changes have been made from policies in the previous year. The complete set of our GHG reporting policies can be found at www.typicoinc.com.

Greenhouse gases

All GHG emissions figures are in tonnes of carbon dioxide equivalents (CO₂e) and include three of the six greenhouse gases covered by the Kyoto Protocol—carbon dioxide (CO₂), methane (CH₄), and nitrous oxide (N₂O). Perfluorocarbons (PFCs), hydrofluorocarbons (HFCs), and sulphur hexafluoride (SF₆) emissions have been omitted from our reporting as they are not a material source of greenhouse gases for the business.

Organizational boundary

Direct GHG emissions and indirect GHG emissions from electricity have been reported from entities where the Company has financial control (as defined by the GHG Protocol). 100% of emissions for entities within the organizational boundary have been reported. Typico's share of joint venture emissions is included based upon its equity share of the joint venture for financial reporting purposes.

Specifically excluded from the organizational boundary are investments carried at cost. Where material, emissions from these operations have been included within Scope 3 emissions reporting.

Operational boundary

All Scope 1 (direct GHG emissions) and Scope 2 (indirect GHG emissions excluding Scope 3) have been reported for operations within the organizational boundary.

Where appropriate, emissions from shared offices or warehouse space are determined on the basis of the leased floor area.

A list of Scope 3 emissions is set out in Note 2, along with a description of other significant Scope 3 emissions currently excluded from the Company's reporting and material assumptions made.

Emissions from entities acquired during the year are included from the date of acquisition and emissions from entities disposed of during the year are included up to the date of disposal.

Geographic scope

GHG emissions that fall within the organizational and operational boundaries have been reported for all global operations.

Emission factors

The carbon dioxide emissions associated with the activities noted above have been determined on the basis of measured or estimated energy and fuel use, multiplied by relevant carbon emission factors.

Where possible fuel or energy use is based on direct measurement, purchase invoices or actual mileage data, in other cases it has been necessary to make estimates. Specific estimates have been made including in relation to public transportation based on expenditure and using standard tariff information.

Published national emission factors were used to calculate emissions from operations. In the absence of any such national data, the International Energy Administration (IEA) factors have been used for the calculation of GHG emissions.

Emissions source:	Emission factor employed:
US	US EPA, 2007
UK	DEFRA, 2007
China	China's Regional Grid Baseline Emission Factors, 2007
Other	IEA, 2009

Base year GHG emissions

The GHG base year applies to Scope 1, Scope 2, and Scope 3 emissions as set out above and has been prepared in accordance with the GHG reporting policies set out here. The base year GHG emissions are adjusted when new sources of Scope 3 emissions are reported.

The base year GHG emissions were set as of 2007 as this was the first year the organization reported detailed greenhouse gas emissions. The appropriateness of the base year GHG emissions are reviewed on an annual basis.

The base year GHG emissions are adjusted to reflect acquisitions and divestitures that result in a change of more than 5% and for any significant changes in reporting policy.

Prior year revisions

Certain prior year figures have been revised to conform with the reporting policies set for the current year. Where estimates are made, those estimates and their basis are provided as a footnote. Where significant adjustments have been made, a note detailing the adjustments is provided.

Materiality

Emissions from the following sources have not been reported as they contribute, in aggregate, less than 5% to overall Scope 1 and Scope 2 emissions:

- Refrigeration gas losses
- Fuel use from back-up generators



Note 2: Emissions source

Emission source (CO ₂ e '000 tonnes)	Performance		Adjusted base year	Target
	2010	2009	2007	2012
Scope 1				
Gas consumption— manufacturing	146	187	243	128
Gas consumption— other	98	145	190	98
Logistical transport	188	189	212	138
Total Scope 1 emissions	432	521	645	364
Scope 2				
Purchased electricity	1,293	1,386	1,494	1,038
Total Scope 2 emissions	1,293	1,386	1,494	1,038
Scope 3				
Distribution of finished goods	987	1,159	656	999
Transportation of purchased goods	3,795	3,978	4,221	3,071
Transportation of waste	84	93	140	72
Disposal of waste generated in operations	245	264	336	274
Employee commuting	645	698	1,001	687
Business travel	1,489	1,128	1,647	998
Total Scope 3 emissions	7,245	7,320	8,001	6,101
Total company emissions	8,970	9,227	10,140	7,503

Scope 3 emissions associated with embodied carbon in purchased goods, use of products and the outsourced production of packaging are currently excluded from the Company's reporting. This activity is likely to contribute significant Scope 3 emissions. The Company is working with its suppliers and customer representatives to collect the information necessary to report these emissions in the future.

Note 3: Emissions by greenhouse gas

(CO ₂ e '000 tonnes)	Carbon dioxide	Methane	Nitrous oxide	Total emissions
2010				
Scope 1	328	45	59	432
Scope 2	1,293	-	-	1,293
Scope 3	5,799	821	625	7,245
Total	7,420	866	684	8,970
2009				
Scope 1	372	56	93	521
Scope 2	1,386	-	-	1,386
Scope 3	5,756	924	640	7,320
Total	7,514	980	733	9,227

Note 4: Emissions disclosures by geography and business

(CO ₂ e '000 tonnes)	2010				2009			
	Scope 1	Scope 2	Scope 3	Total	Scope 1	Scope 2	Scope 3	Total
Geographical analysis								
US	382	896	5,468	6,746	423	957	5,455	6,835
China	22	170	1,106	1,298	60	175	1,022	1,257
UK	21	193	543	757	35	198	641	874
Other	7	34	128	169	3	56	202	261
Total emissions	432	1,293	7,245	8,970	521	1,386	7,320	9,227
Business analysis								
Industrial manufacturing products	284	546	5,422	6,252	301	599	5,445	6,345
Consumer products	43	543	1,198	1,784	74	601	1,104	1,779
Distribution services								
– Company	61	80	124	265	80	99	111	290
– Franchise	44	124	501	669	66	87	660	813
Total emissions	432	1,293	7,245	8,970	521	1,386	7,320	9,227

Note 5: Acquisitions and divestitures

	(CO ₂ e '000 tonnes)	2010			2009	
		Existing ¹	Acquired	Sub total	Divestitures	Total
2010 emissions	Scope 1	332	50	382	50	432
	Scope 2	843	350	1,193	100	1,293
	Sub total	1,175	400	1,575	150	1,725
	Scope 3	5,845	900	6,745	500	7,245
	Total	7,020	1,300	8,320	650	8,970
2007 Adjusted base year emissions	Scope 1	433	207	640	5	645
	Scope 2	1,094	300	1,394	100	1,494
	Sub total	1,527	507	2,034	105	2,139
	Scope 3	5,701	1,500	7,201	800	8,001
	Total	7,228	2,007	9,235	905	10,140
2012 Target emissions	Scope 1	264	85	349	15	364
	Scope 2	738	100	838	200	1,038
	Sub total	1,002	185	1,187	215	1,402
	Scope 3	4,101	1,500	5,601	500	6,101
	Total	5,103	1,685	6,788	715	7,503

¹ Existing operations includes a net prior year adjustment on Scope 3 emissions of 15,000 tCO₂e. This is a combination of more accurate conversion factors for our transport fleet (-80,000 tCO₂e) and revised estimates of transport miles (+95,000 tCO₂e).

Independent assurance

Independent assurance builds and enhances trust in a company's emissions information. For this reason, a growing number of companies are voluntarily seeking or obtaining independent assurance over their emissions reporting from independent accountants, such as PwC, or other "verifiers."

We find that "assurance" can mean different things to different people. For example, it can refer to work performed by internal audit, "assurance readiness" work, positive or negative assurance through attestation examination or review engagements, or "verification." In addition, while the overall conclusion may look the same among different reports, it does not necessarily mean that the conclusion has the same meaning or that the same nature and extent of work was performed.

Further, some service providers adhere to strict accreditation standards that translate into common practices among their peers, while others are not required to do so, depending upon whether the statement is obtained from a consultant, engineer or certified accountant. Over time, we expect that sophisticated investors will come to expect a level of assurance provided under a consistent set of standards similar to what is provided in current financial reporting by independent accountants.

Along these lines, it is important to clarify the difference between "assurance" and "verification." Assurance is a conclusion about the outcome of an evaluation or measurement of a subject matter against criteria, which is globally recognized as work performed by independent accountants under their professional standards. Verification is the assessment of the accuracy and completeness of reported GHG information and conformity of this information to pre-established GHG accounting and reporting principles, often performed by a person who has earned a designation from a professional body but is not an independent accountant.

Many companies undergo an initial "assurance readiness" process to establish whether the appropriate processes, systems, controls and internal reporting are in place within the company to facilitate carbon reporting. This work is commonly performed by independent accountants. This "readiness" engagement often helps to prepare a company for independent third-party assurance, which provides comfort to users and management.

In a US assurance engagement, PwC provides an independent conclusion by assessing assertions made and information provided by management. This is performed by considering criteria, gathering evidence and reaching conclusions on the fair presentation of information, according to standards for either an attestation examination or an attestation review established by the American Institute of Certified Public Accountants (AICPA). Globally, we generally perform this work under assurance standards promulgated by the International Auditing and Assurance Standards Board (IAASB).

We are also involved in global efforts to develop an international subject matter-specific framework for assurance over GHG emissions. PwC, for example, serves on the task force developing International Standards on Assurance Engagements (ISAE) 3410, intended to offer international assurance standards to provide assurance over GHG emissions. PwC supports the development of such a framework.

Components of an independent accountant's report on a statement of greenhouse gas emissions

Information subject to assurance

- Extent of assurance (i.e., positive or "reasonable" assurance in an attestation examination, or limited or "negative" assurance in an attestation review engagement) undertaken
- Identification of the GHG statement
- Information and periods covered

PwC would describe that we have undertaken an attestation examination or review engagement of the accompanying Statement of GHG Emissions of Typico for the year ended December 31, 2010. Our engagement might not cover certain elements of the GHG emissions statement, such as the base year information, target information, or percentage changes presented, and our report would state that we did not perform any evidence gathering procedures with respect to such information and accordingly express no opinion or any form of assurance on it.

Typico's responsibility for the Statement of GHG Emissions

The company would state its responsibility for the preparation of the Statement of GHG Emissions in accordance with the applicable criteria¹, applied as explained in a note(s) to the Statement of GHG Emissions. This responsibility includes the design, implementation and maintenance of internal control relevant to the preparation of a GHG emissions statement free from material misstatement.

Independent accountant responsibilities

PwC's responsibility is to express a conclusion on the information subject to assurance based on the evidence we have obtained. We would conduct our engagement in accordance with attestation examination or review standards promulgated by the AICPA. We would consider other subject matter standards as they become available, such as International Standard on Assurance Engagements 3410, "Assurance on a Greenhouse Gas Statement," which is currently being drafted by the IAASB.

An assurance engagement with respect to a GHG emissions statement involves performing procedures to obtain evidence about the quantification of emissions, and about the other information disclosed as part of the GHG statement subject to assurance. The procedures selected depend on our judgment, including the assessment of the risks of material misstatement in the information subject to assurance.

In making those risk assessments, we would consider internal controls relevant to Typico's preparation of the GHG emissions statement. Our engagement would also include:

- Assessing the suitability in the circumstances of Typico's use of applicable criteria, as the basis for preparing the GHG statement;
- Evaluating the appropriateness of quantification methods and reporting policies used and the reasonableness of estimates made by Typico; and
- Evaluating the overall presentation of the GHG statement.

A limited assurance engagement with respect to a GHG emissions statement involves primarily inquiry and analytics and is less in scope than an examination engagement.

Conclusion

In an examination engagement, we would express a conclusion stating whether the information subject to assurance is prepared, in all material respects, in accordance with the applicable criteria applied as explained in the notes to Typico's Statement of GHG Emissions.

In a limited assurance engagement, our conclusion would state whether anything came to our attention that caused us to believe that the information in the GHG emissions statement that is subject to assurance is not fairly stated, in all material respects, based on the applicable criteria applied as explained in the notes to Typico's Statement of GHG Emissions.

Other matters

Our report might describe other matters, such as:

- Typico's explanation of any uncertainties affecting the quantification of emissions, including:
 - Use of mathematical models to calculate emissions
 - Inability of models to precisely characterize the relationships between various inputs and the resulting emissions
 - Impracticality of reporting all Scope 3 emissions
 - The effect of these uncertainties, and the actions taken by the company to reduce them
- The data used to prepare the GHG emissions statement is subject to inherent limitations given the nature and the methods used for determining such information. The selection of different but acceptable measurement techniques can result in materially different measurements. The precision of different measurement techniques may also vary. Furthermore, the nature and methods used to determine such data, as well as the measurement criteria and the precision thereof, may change over time.

¹ An example of applicable criteria would be the GHG Protocol, supplemented by company-specific methodology and policy.

Forward-looking statements

Future business performance projections are considered highly important to management and investors. However, management should ensure that existing safe-harbor guidelines are applied to any discussion of GHG emissions projections.

EXAMPLE: Typico report

Future Outlook

We have reviewed our targets and have found that they remain appropriate for our business and industry. They will continue to drive our KPIs and associated management compensation. Although our targets for 2012 are still a significant challenge, we remain fully committed to meeting them.

We are now seeing net financial gains being delivered to the business through our climate change initiatives, and we believe there are still substantial areas of our business which can deliver significant value as we respond to the challenge of climate change.

We will continue to look for opportunities to improve the efficiency of our manufacturing facilities and to further streamline our distribution system. In addition, we have identified the following as key additional focus areas up to 2012 to help us deliver on our objectives:

- We will be undertaking energy audits in our key warehousing facilities services to identify cost efficient opportunities to lower their carbon footprint; and,
- We will be working with our transportation partners to explore the use of alternative fuels.

The target information is based on estimates and assumptions that are subject to significant inherent uncertainties, which may be difficult to predict and may be beyond the control of Typico. As with most forward looking information, there can be no assurance that targets will be realized.



Meeting the corporate reporting challenges of the 21st century

Our Sustainability and Climate Change practice delivers a wide range of industry-focused services and capabilities, and covers opportunities around strategy and sustainability programs, implementation, change management, training, reporting, pre-assurance/assurance and tax.

Our professionals chair the WRI GHG Protocol working group on Scope 3 emissions, and we are the technical advisor and report writer for the Carbon Disclosure Project; members of the Carbon Disclosure Standards Board; members of the board of the Carbon Markets and Investors Association; and members of the IAASB task force on GHG emissions attestation. More generally, we are advising governments on GHG assurance standards in the UK, Canada, Australia and the US.

PwC has extensive experience assisting organizations in their compliance with regulatory reporting requirements of GHG emissions, both in the US and abroad. With more than 800 people in over 30 countries across our network, we offer deep experience in advising, auditing and providing assurance, with the right blend of technical and information technology experience to help address GHG emissions reporting requirements. We serve companies in the industrial products, retail and consumer, energy and mining, financial services, utilities, automotive, technology, pharmaceutical and entertainment, media and communications industries.

Our clients recognize challenges facing their organizations as it relates to either sustainability or carbon issues and look to us to assist them in identifying the risks as well as possible opportunities. When approaching client issues, we bring a unique perspective through deep expertise and knowledge of the issues, current perspectives on legislation and related impact, and a point of view on how companies can seize the opportunity to be in the forefront compared to their peers.

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