



CDP 2013 Investor CDP 2013 Information Request

Module: Introduction

Page: Introduction

0.1

Introduction

Please give a general description and introduction to your organization

Praxair, Inc. (Praxair or the company) was founded in 1907 and became an independent publicly traded company in 1992. Praxair was the first company in the United States to produce oxygen from air using a cryogenic process and continues to be a major technological innovator in the industrial gases industry.

Praxair is the largest industrial gas supplier in North and South America, is rapidly growing in Asia, and has strong, well-established businesses in Europe. Praxair's primary products in its industrial gases business are atmospheric gases (oxygen, nitrogen, argon, rare gases) and process gases (carbon dioxide, helium, hydrogen, electronic gases, specialty gases, acetylene). The company also designs, engineers, and builds equipment that produces industrial gases for internal use and external sale. The company's surface technologies segment, operated through Praxair Surface Technologies, Inc., supplies wear-resistant and high-temperature corrosion-resistant metallic and ceramic coatings and powders. Praxair's sales were \$11,224 million, \$11,252 million, and \$10,116 million for 2012, 2011, and 2010, respectively.

Praxair serves approximately 25 industries as diverse as healthcare and petroleum refining; computer-chip manufacturing and beverage carbonation; fiber-optics and steel making; and aerospace, chemicals and water treatment. In 2012, 94% of sales were generated in four geographic segments (North America, Europe, South America and Asia) primarily from the sale of industrial gases, with the balance generated from the surface technologies segment. Praxair provides a competitive advantage to its customers by continuously developing new products and applications, which allow them to improve their productivity, energy efficiency and environmental performance.

0.2

Reporting Year

Please state the start and end date of the year for which you are reporting data.

The current reporting year is the latest/most recent 12-month period for which data is reported. Enter the dates of this year first.

We request data for more than one reporting period for some emission accounting questions. Please provide data for the three years prior to the current reporting year if you have not provided this information before, or if this is the first time you have answered a CDP information request. (This does not apply if you have been offered and selected the option of answering the shorter questionnaire). If you are going to provide additional years of data, please give the dates of those reporting periods here. Work backwards from the most recent reporting year. Please enter dates in following format: day(DD)/month(MM)/year(YYYY) (i.e. 31/01/2001).

Enter Periods that will be disclosed

Sun 01 Jan 2012 - Mon 31 Dec 2012

0.3

Country list configuration

Please select the countries for which you will be supplying data. This selection will be carried forward to assist you in completing your response

Select country
United States of America
Argentina
Belgium

Select country
Bolivia
Brazil
Canada
Chile
China
Colombia
Costa Rica
France
Germany
India
Italy
Japan
South Korea
Mexico
Netherlands
Paraguay
Peru
Portugal
Russia
Spain
Taiwan
Thailand
United Arab Emirates
United Kingdom
Venezuela
Bahrain
Denmark
Dominican Republic
Puerto Rico
Saudi Arabia
Singapore
Sweden
Uruguay
Norway

0.4

Currency selection

Please select the currency in which you would like to submit your response. All financial information contained in the response should be in this currency.

USD(\$)

0.6

Modules

As part of the request for information on behalf of investors, electric utilities, companies with electric utility activities or assets, companies in the automobile or auto component manufacture sectors, companies in the oil and gas industry and companies in the information technology and telecommunications sectors should complete supplementary questions in addition to the main questionnaire.

If you are in these sectors (according to the Global Industry Classification Standard (GICS)), the corresponding sector modules will not appear below but will automatically appear in the navigation bar when you save this page. If you want to query your classification, please email respond@cdproject.net.

If you have not been presented with a sector module that you consider would be appropriate for your company to answer, please select the module below. If you wish to view the questions first, please see <https://www.cdproject.net/en-US/Programmes/Pages/More-questionnaires.aspx>.

Module: Management [Investor]

Page: 1. Governance

1.1

Where is the highest level of direct responsibility for climate change within your company?

Individual/Sub-set of the Board or other committee appointed by the Board

1.1a

Please identify the position of the individual or name of the committee with this responsibility

The name of the Board Committee is the Committee on Governance and Nominating; they are responsible to "Review periodically the Corporation's guidelines and policies governing the Corporation's response to important broad public policy issues in the areas of corporate social responsibility, corporate citizenship and sustainable development." This includes climate change policy and activity, as well as emerging issues in the sustainability area. The Chair of the Committee is Robert L. Wood.

1.2

Do you provide incentives for the management of climate change issues, including the attainment of targets?

Yes

1.2a

Please complete the table

Who is entitled to benefit from these incentives?	The type of incentives	Incentivized performance indicator
Chief Executive Officer (CEO)	Monetary reward	Examples of incentivized performance indicators include meeting corporate or business or functional or office energy and/or GHG emission reduction targets, which are linked to Praxair's climate change strategy. Good performance in this area can be rewarded by improved variable compensation benefits. Alignment of Executive Compensation Programs with Praxair Business Objectives including Sustainable Development: The 2013 Notice of Meeting and Proxy Statement p 39 notes that the Compensation Committee applied a positive adjustment of 25 percentage points to the variable compensation payout in 2012 in recognition of the Company's favorable performance relative to the non-financial goals. "The Compensation Committee also established those non-financial elements that were considered most important to long term sustainable success and established annual non-financial goals with respect to those elements [including]... strategic positioning of the business for long term performance, ... environmental performance ... and performance in sustainable development." At Praxair, sustainable development performance is measured by achieving sustainable development targets, including our corporate energy and GHG targets. (p.38 of the 2013 Notice of Meeting and Proxy Statement) "Non-Financial Performance: In addition to determining performance against financial measures, the Compensation Committee determined that the Company's performance with respect to the pre-established non-financial goals was favorable, and consequently, should be a strong positive factor in determining performance-based variable compensation. For example, the Compensation Committee noted that the Company ... (iii) was selected for the Dow Jones Sustainability World Index for the tenth year in a row, and increased the operational linkage between productivity and sustainability..." (The 2013 Notice of Meeting and Proxy Statement, page 39).
Corporate executive team	Monetary reward	"Non-Financial Performance. In addition to determining performance against financial measures, the Compensation Committee determined that the Company's performance with respect to the pre-established non-financial goals was favorable, and consequently, should be a strong positive factor in determining performance-based variable compensation.

Who is entitled to benefit from these incentives?	The type of incentives	Incentivized performance indicator
Management group	Monetary reward	<p>For example, the Compensation Committee noted that the Company ... (iii) was selected for the Dow Jones Sustainability World Index for the tenth year in a row, and increased the operational linkage between productivity and sustainability...” (The 2013 Notice of Meeting and Proxy Statement, page 39).</p> <p>Examples of incentivized performance indicators include: <input type="checkbox"/> Meeting corporate or business or functional or office energy and/or GHG emission reduction targets, which are linked to Praxair's climate change strategy. As these are entered into management performance metrics, good performance in this area can be rewarded by improved variable compensation benefits.</p>
All employees	Monetary reward	<p>Examples of incentivized performance indicators include: <input type="checkbox"/> Meeting corporate or business or functional or office energy and/or GHG emission reduction targets, which are linked to Praxair's climate change strategy. These can be rewarded by improved variable compensation benefits and/or a Special Recognition Award (SRA), for employees below the variable compensation level.</p>

Page: 2. Strategy

2.1

Please select the option that best describes your risk management procedures with regard to climate change risks and opportunities

Integrated into multi-disciplinary company wide risk management processes

2.1a

Please provide further details

SCOPE OF PROCESS: Financial and non-financial risks from climate change to Praxair are identified as part of Praxair's annual enterprise risk assessment and continuously through various other departments described below. Included are regulatory/legal risks; operational risks; risk from catastrophic events such as severe weather; environment, health and safety risk; strategic risk; and the risk of not innovating for the market. Praxair's CEO has full accountability for enterprise risk management. Enterprise risk management is distributed across a range of functions under the CEO.

FREQUENCY: A worldwide risk assessment survey is performed annually by the Internal Audit Department.

COMPANY RISK/OPPORTUNITY ASSESSMENT: Responses are collected in an annual survey to facility management worldwide and functional leads, including sustainable development.

ASSET LEVEL RISK/OPPORTUNITY ASSESSMENT: Risks also take into account information from the field. In addition, risks to physical assets are monitored with periodic and at least annual evaluations from external risk assessors. These risk assessments evaluate each facility worldwide over a certain size, its vulnerability to risks from severe weather, and the potential monetary risk. The data is analyzed to help determine the scope and limit of Praxair's catastrophic insurance coverage. Risk maps are also developed to identify areas prone to severe weather events, where Praxair also has assets.

CRITERIA FOR MATERIALITY/ PRIORITIES: Financial risks and non-financial risks are analyzed, including criteria such as legal / regulatory risk; operational risk; risk from catastrophic events such as severe weather; environment, health and safety risk; strategic risk; and the risk of not innovating for the market. The 2012 list of risks identified climate change risk in the areas of (1) rising energy prices; (2) emerging environmental and GHG regulation; (3) risks of catastrophic events such as extreme weather; and (4) the risk of not bringing new technologies to market.

In the risk assessment, all respondents identify risks in their area against an incidence/ severity index. The results are subjected to a range of analyses to establish priority concerns. Risks and opportunities are evaluated based on their potential financial implications (on a scale up to several million dollars), up to the highest consequence, i.e., loss of life, as well as the probability of occurrence.

Those considered most significant are identified and reported at least annually to the executive team and to the Board and then to shareholders in Praxair's Annual Report. Annually, a senior executive is appointed to manage each significant risk identified within the annual risk assessment. The executive is fully responsible for the direct management (including risk mitigation) of the assigned risk. Periodically, the Praxair Board of Directors and CEO may also appoint an executive to explore a new or emerging area of risk.

Praxair concluded in our 2012 Annual Report that catastrophic events are outside the company's control and may have a significant adverse impact on the company's financial results, and that the other climate-related risks are being well managed and present more opportunity than risk to Praxair.

2.2

Is climate change integrated into your business strategy?

Yes

2.2a

Please describe the process and outcomes

i. Influence: Climate Change falls under Sustainable Development (SD). The Vice President, SD, reports regularly to the CEO and annually to the Board. It is the job of the Corporate SD Council to stay apprised of emerging issues and inform executives of material issues. The topic of Climate Change has been addressed in Praxair's Annual Report since 2007. By 2010, sustainability was recognized as a strategic issue and named as one of Praxair's four strategy platforms (with ROC, customer satisfaction and employee engagement). A range of corporate GHG targets were created and cover all material areas of the company, from operations to R&D, the marketplace to employee engagement. Performance against targets is reviewed quarterly by the Executive Office. In 2011, the SD VP was invited to develop a corporate SD strategy that would integrate climate-related initiatives, goals and targets into the business strategies of all Praxair divisions. This was accepted in 2011 and described in Praxair's 2011 and 2012 SD Reports. **The corporate SD strategy is influenced by performance against these goals and targets, as well as risks identified during Praxair's annual risk assessment process, including those risks related to climate change, and opportunities presented by climate change.** The increased attention paid to climate change risks and opportunities, particularly since it has been part of the SD corporate strategy platform, has led to positive changes in employee behavior, operational changes, and improvements to how Praxair communicates its mission both externally and internally.

ii. Aspects: Praxair's climate change strategy has been influenced by final and proposed regulations in the U.S. and around the world that require GHG reporting and/or cap and trade; the identified regulatory, physical and reputational risks; as well as the opportunities driven by climate change to Praxair's business. Our business proposition - and the business opportunity - is that we can offer customers a process to outsource their energy-intensive processes - and therefore their GHG emissions - and do so more efficiently, often with less environmental impact. Climate change therefore provides business opportunity. In addition, Praxair is a significant user of electricity, and our hydrogen (H₂) production results in direct CO₂ emissions, contributing to our climate change impacts and therefore our climate change risks. Praxair has identified its GHG emissions as among the most material issues for us to address in our SD strategy. In addition, this is a very key issue for external stakeholders: We have responded to the CDP since its inception; Praxair's VP of SD has pointed out that interest from external stakeholders like CDP and investors was a key influence on the development of Praxair's SD strategy.

iii. Short-Term Strategy: Praxair defines short-term as within one to five years. The most important component of Praxair's short-term strategy that has been influenced by climate change is the development of 10 new corporate GHG goals in 2010, the achievement of which became part of the CEO variable compensation goals - the company's climate change strategy was now closely tied to our commitments to demonstrate operational GHG intensity improvement and customer carbon productivity. Many of these are annual energy and GHG intensity improvement targets that reinforce our commitment to energy efficiency improvements. This focus has also revealed an opportunity in the short term for COST SAVING. Praxair has invested in developing environmental KPIs to understand environmental and GHG costs in operations. Our productivity organization saves over 5% off our cost stack each year. In 2010 we started to also report the environmental savings from productivity projects. In 2012 this climbed to \$112M saved, and almost 500,000 MT CO₂e saved. We anticipate there will be additional value from these metrics as they allow us to see the relationship between different activities, such as reducing energy and reducing waste.

iv. Long-Term Strategy: Defined as more than five years in the future; we see long-term business opportunity from innovation that takes advantage of opportunities presented by climate change. In 2009, Praxair created measurement systems in operations and in R&D that allow us to explore the GHG costs and benefits of any operational improvement or innovation project. We have a target to measure "eco-innovation" as a contributor to revenue (22% in 2009; 27% in 2012). Climate change has also influenced our long-term risk mitigation practices. In order to mitigate against the potential increase in the price of energy, and as part of operational eco-efficiency, Praxair continues to invest aggressively in energy efficiency. We have a long-term target: From 2009-2020, achieve a minimum energy savings of 1.8 million MWh of electricity and 2.5 million MMBtu of natural gas, delivering anticipated savings in excess of \$600 million and 6 million mt CO₂e by the end of the goal period.

v. Strategic Advantage: The focus on energy efficiency and GHG emissions reductions has made Praxair more resilient against energy cost fluctuations and helps us manage this significant cost. In addition: **EMPLOYEE ENGAGEMENT** has become a strategic issue for Praxair. GHG targets cover everyone: from administrative assistants, truck drivers, facility managers to the CEO. Employee environmental engagement

is a core part of our employee engagement strategy. Praxair is using environmental data and analytics to connect with employee values and the company mission, and to drive results in productivity and eco-efficiency, improve decision making, and gain competitive advantage. We have 6,000 employees and nearly 200 sites participating in Zero Waste, this avoided 30,000 MT waste from landfill in 2012. Employee zero waste activity is being recognized with a Praxair Foundation "match" of \$10 per MT of waste avoided from landfill, to be used to launch a global tree-planting initiative and emphasize climate change mitigation. In 2013 Praxair will collaborate with the Arbor Day Foundation and The Nature Conservancy to plant 250,000 trees in the USA, Mexico, Brazil, and China. Part of the tree-planting activity will be in Belize, to purchase and retire 667 Verified Emissions Reductions Credits (VERs) and to communicate this to employees, as a first step in a program to educate employees about finance mechanisms to reduce carbon emissions. Business leaders at Praxair routinely comment that employee environmental engagement is helping save money, save energy and reduce GHG emissions, reduce other resource consumption, improve safety and operational discipline and environmental innovation.

COMPETITIVE ADVANTAGE: GHG goals are a clear sign of leadership in our sector – evidenced by recognition received from CDP and others.

BUSINESS DEVELOPMENT: Praxair invested in the calculation of the carbon productivity of our major products & applications (hydrogen [H2] for refining and oxygen [O2] in the steel industry), and the validation and communication of this information to our customers. We invested in research on climate change mitigation technologies that include industrial energy efficiency, 2nd generation biofuels and applications for solar cells. This information is very valuable to our customers and differentiates us in our sector.

vi. Business Decisions: With input from the SD organization, and based on our climate change assessment and our new energy and GHG targets, Praxair made a business decision to develop and launch a strategy of “sustainable productivity” in Jan. 2012. Environmental metrics (particularly energy, GHG, water) are used as a new “way in” to productivity thinking for the organization. These SD metrics were added to the productivity mgt. system database; projects are tagged as “SD”, entered with their environmental and cost savings, tracked monthly and reported quarterly to the Executive Office. In parallel, “sustainable productivity” was supported by training (“Lean and Green”) and aligned with the strengthening of our brand communications (“Making our Planet More Productive”). In 2012, Praxair realized \$112 million in cost savings and almost 500,000 MT GHG emissions avoided through our sustainable productivity organization.

2.3

Do you engage in activities that could either directly or indirectly influence policy on climate change through any of the following? (tick all that apply)

- Direct engagement
- Trade associations

2.3a

On what issues have you been engaging directly?

Focus of legislation	Corporate Position	Details of engagement	Proposed solution
Energy efficiency	Support	Praxair actively supports the Shaheen-Portman Senate Bill 1000, the Energy Savings and Industrial Competitiveness Act, currently pending before the U.S. Congress. This bi-partisan bill contains a broad package of low-cost tools that would reduce barriers for businesses, homeowners and consumers in the U.S. looking to adopt off-the-shelf energy efficiency technologies that will help them save money from advances in better insulation, computer-controlled thermostats and more efficient electric motors. Our engagement includes frequent, direct interaction with U.S. government officials to educate policy makers on the importance of energy efficiency and managing resources sustainably, and on the business opportunities presented by increased commitments to energy efficiency.	Praxair supports this legislation with no exceptions. We support the overall objective of the bill, which is to drive energy efficiency in manufacturing.

2.3b Are you on the Board of any trade associations or provide funding beyond membership?

No

2.3h

What processes do you have in place to ensure that all of your direct and indirect activities that influence policy are consistent with your overall climate change strategy?

Praxair maintains a detailed oversight process to make certain our activities are conducted in a legal, ethical and transparent manner. This includes oversight by the chief compliance officer and an annual program review by the Board of Directors. Praxair's Government Relations department reports to the Chief Compliance Officer. In addition, our employees participate in annual training regarding issues related to doing business with the government, complying with anti-trust and competition laws, and the FCPA. Finally, there is coordination with the VP/Chief Sustainability Officer to ensure consistency of public policy advocacy with Praxair's sustainability strategy, including our energy and GHG strategy.

Page: 3. Targets and Initiatives

3.1

Did you have an emissions reduction target that was active (ongoing or reached completion) in the reporting year?

Absolute and intensity targets

3.1a

Please provide details of your absolute target

ID	Scope	% of emissions in scope	% reduction from base year	Base year	Base year emissions (metric tonnes CO2e)	Target year	Comment
Absol	Scope 1	4%	5%	2011	247000	2012	Praxair has a target to reduce GHG emissions from trucking (bulk and packaged gas) by 5% by 2012. This target is based on initiatives to reduce idling, optimize logistics and increase the fuel efficiency of Praxair's trucking operation. This target applies to Praxair drivers worldwide.

3.1b

Please provide details of your intensity target

ID	Scope	% of emissions in scope	% reduction from base year	Metric	Base year	Normalized base year emissions	Target year	Comment
HY	Scope 1	83%	1.2%	metric tonnes CO2e per metric tonne of product	2009	8.27	2012	Praxair has a target to improve GHG intensity from Hydrogen Production by 0.4% per year, through 2020. This will result in a 4% intensity improvement by 2020. Hydrogen is Praxair's principal source of Scope 1 emissions and one of our most

ID	Scope	% of emissions in scope	% reduction from base year	Metric	Base year	Normalized base year emissions	Target year	Comment
TRUCK	Scope 1	3%	4.5%	metric tonnes CO2e per metric tonne of product	2009	.021	2012	significant growth drivers. Praxair established a trucking target in 2009 to improve GHG intensity from our bulk trucking operation 1.5% per year through 2015.
ASU	Scope 2	85%	3%	metric tonnes CO2e per metric tonne of product	2009	7.28	2012	Praxair has a target to improve GHG intensity from Air Separation Units by 1% per year through 2015. ASUs are our largest source of Scope 2 emissions.

3.1c

Please also indicate what change in absolute emissions this intensity target reflects

ID	Direction of change anticipated in absolute Scope 1+2 emissions at target completion?	% change anticipated in absolute Scope 1+2 emissions	Direction of change anticipated in absolute Scope 3 emissions at target completion?	% change anticipated in absolute Scope 3 emissions	Comment
HY	Increase	43			Demand for our hydrogen from our refining customers continues to increase at about 20% per year. Praxair makes hydrogen using steam methane reforming (SMR); 95% of the world's global hydrogen production is produced through SMR, which generates CO2 in a fixed chemical relationship. While Praxair can't reduce absolute emissions, we are committed to making the process more efficient. Absolute emissions have increased by 1.3 million MT since the base year.
TRUCK	Decrease	5			As fuel is a significant cost to Praxair, we maintain a lean logistics operation. While total miles are expected to increase or remain constant, GHG emissions are expected to decrease due to

ID	Direction of change anticipated in absolute Scope 1+2 emissions at target completion?	% change anticipated in absolute Scope 1+2 emissions	Direction of change anticipated in absolute Scope 3 emissions at target completion?	% change anticipated in absolute Scope 3 emissions	Comment
ASU	Increase	30			improvements in fuel efficiency. Absolute emissions have decreased almost 12,000 MT since the base year. Praxair's business model frequently offers customers the ability to outsource energy intensive processes that we can perform more efficiently in terms of cost, energy use and emissions reductions. Energy use is one of Praxair's largest expenses and is rigorously managed both in terms of price and quantity used. Nevertheless, energy use will increase with business growth. Absolute emissions have increased 2.2 million MT since the base year.

3.1d

Please provide details on your progress against this target made in the reporting year

ID	% complete (time)	% complete (emissions)	Comment
Absol	100%	100%	We achieved this target. This is due to fuel consumption data showing higher fuel efficiency from Praxair drivers.
HY	100%	100%	We exceeded our target to achieve a 1.2% per year improvement in GHG intensity since 2009, by achieving 1.9%.
TRUCK	100%	100%	We exceeded our target to achieve a 1.5% per year improvement in GHG intensity since 2009, by achieving 7.2%.
ASU	100%	100%	We exceeded our target to achieve a 1% per year improvement in GHG intensity since 2009, by achieving 5%.

3.2

Does the use of your goods and/or services directly enable GHG emissions to be avoided by a third party?

Yes

3.2a

Please provide details (see guidance)

Praxair is not currently considering originating CERs or ERUs within the framework of CDM or JI.
Praxair's Carbon Productivity
 Praxair has a target to demonstrate and validate customer carbon productivity for selected products. Praxair's second-generation GHG goals and targets include demonstrating and validating the customer carbon productivity of our solutions. Our growth product is hydrogen; our largest and legacy product is oxygen. These were the focus of our first calculations on carbon productivity; we have since added Krypton. Praxair's carbon productivity has been calculated for three signature Praxair products in three markets: Hydrogen (H2) sold to make ultra-low sulfur diesel fuel (ULSD) and used in trucks fitted with diesel

particulate filters; Krypton sold to insulate thermal windows; and Oxygen (O2) sold to optimize combustion in steelmaking. **In 2012 these markets contributed 11% of sales. These applications enabled customers to avoid 34 million metric tons of CO2e in 2012 – an amount that was double all of Praxair's Scope 1+2 emissions.**

Hydrogen: The largest contributor to Praxair's Scope 1 GHG is our hydrogen (H2) production. H2, a crucial growth platform for Praxair, is made from natural gas (CH4) and steam. The combination of CH4 and water (H2O) produces H2 and emits CO2. In addition to enabling the reduction of sulfur from tailpipe emissions, when the ULSD is used in combination with a diesel particulate filter, it eliminates black carbon (BC). In this scenario, BC has a **global warming potential of 2200 (based on an analysis by L. Bruce Hill for the Clean Air Task Force, which also provided us with emission factors to convert diesel fuel consumption into total CO2e emissions with and without diesel particulate filters).** The final claim for benefits from H2 production factored in that 32% of our H2 production is used for ULSD and that 58% of trucks in the USA are fitted with diesel particulate filters (DPFs). Environmental agencies, including a joint 2011 UNEP and World Meteorological Association report: "Integrated Assessment of Black Carbon and Tropospheric Ozone," see the elimination of black carbon as being the crucial short-term strategy to reduce the rate of global warming. In 2012 Praxair's calculations showed that **our hydrogen production generated 4.6 million MT CO2 emissions and caused 21.2 million MT CO2e to be avoided, or nearly five times the carbon dioxide equivalent (CO2e) than was emitted in the production of all Praxair H2.** Some of our assumptions are provided above, but as the methodologies are lengthy, we provide a full description of our methodology, including emission factors, assumptions and global warming potentials, at <http://www.praxair.com/our-company/sustainable-development/green-technologies-and-climate-change/less-carbon-more-green>.

Oxygen: The largest contributor to Praxair's Scope 2 GHG is energy use in our air separation units, and oxygen (O2) is a principal product of air separation. The metals sector accounts for 18% of Praxair sales, including the manufacture of more than 100 million metric tons of steel worldwide. Oxygen is used to enhance blast furnace iron production (reducing coke consumption and increasing furnace productivity), to decarburize steel, and frequently to increase efficiency and lower emissions in other combustion applications throughout the steel mill. **Praxair estimated that using our oxygen in steelmaking avoids almost 11 million metric tons CO2e per year.** Netted out, O2 used to make steel enables almost as much customer CO2e to be avoided as is emitted in all Praxair atmospheric gas production.

3.3

Did you have emissions reduction initiatives that were active within the reporting year (this can include those in the planning and implementation phases)

Yes

3.3a

Please identify the total number of projects at each stage of development, and for those in the implementation stages, the estimated CO2e savings

Stage of development	Number of projects	Total estimated annual CO2e savings in metric tonnes CO2e (only for rows marked *)
Under investigation	0	0
To be implemented*	27	17000
Implementation commenced*	296	33000
Implemented*	1757	462000
Not to be implemented	0	0

3.3b

For those initiatives implemented in the reporting year, please provide details in the table below

Activity type	Description of activity	Estimated annual CO2e savings (metric tonnes CO2e)	Annual monetary savings (unit currency - as specified in Q0.4)	Investment required (unit currency - as specified in Q0.4)	Payback period
Energy efficiency: Building fabric	30 voluntary projects providing permanent reduction in power	2500	450000	4000000	1-3 years

Activity type	Description of activity	Estimated annual CO2e savings (metric tonnes CO2e)	Annual monetary savings (unit currency - as specified in Q0.4)	Investment required (unit currency - as specified in Q0.4)	Payback period
Energy efficiency: Processes	<p>consumption for lighting retrofits, HVAC controls and building power needs. Voluntary; relates to Scope 2 target for ASUs; lifetime = permanent</p> <p>625 voluntary projects providing permanent improvements to energy requirements for turbines, compressors, fans and other primary process equipment, improvement to heat transfer efficiency and control equipment for process efficiency optimization. Voluntary; relates to targets (Scope 1 energy use for hydrogen production, Scope 2 electricity use at ASUs); lifetime = permanent</p>	400000	63000000	70000000	1-3 years
Transportation: fleet	80 voluntary projects providing permanent reduction in gasoline and diesel fuel use or fuel efficiency including route efficiency programs, on-site tank size optimization, trailer tank size optimization and truck modifications such as fairings and skirts for MPG efficiency Voluntary; relates to Scope 1 trucking targets (absolute and intensity); lifetime = permanent	4000	3200000	10000000	1-3 years
Process emissions reductions	51 voluntary projects providing permanent process improvements for CO2 recovery, vent gas reductions, and reduction of dry ice process losses. Voluntary; relates to Scope 1; lifetime = permanent	23000	2900000	4000000	1-3 years
Process emissions reductions	5 voluntary projects providing permanent process efficiency improvements and reductions in filling losses for gas mixtures for LED products in Taiwan and Nitrous Oxide products in Brazil. Voluntary; relates to Scopes 1+2; lifetime = permanent	16	230000	0	<1 year

3.3c

What methods do you use to drive investment in emissions reduction activities?

Method	Comment
Dedicated budget for energy efficiency	As energy is a significant portion of Praxair's cost stack, Praxair pursues energy efficiency rigorously and in several areas. Praxair's sustainable productivity organization measures the environmental savings in our productivity work, or the "Lean and Green". This realized \$112 million of savings in 2012, about 800,000 MWh of electricity, 500,000 million Btus, and almost 500,000 MT CO ₂ e avoided. Although much of this work has been embedded into the Productivity organization, small dedicated budget (under \$50k) was released for some internal software upgrades to improve reporting.

Further Information

Page: 4. Communication

4.1 Have you published information about your company’s response to climate change and GHG emissions performance for this reporting year in places other than in your CDP response? If so, please attach the publication (s)

Publication	Page/Section reference	Attach the document
In mainstream financial reports (complete)	6-8, 22-23	https://www.cdproject.net/sites/2013/27/15027/Investor CDP 2013/Shared Documents/Attachments/Investor-4.1-C3-IdentifyAttachment/Annual_Report_2012.pdf
In voluntary communications (complete)	Sustainable Development Report 2012 Data Year, Feature Stories, Environment Chapter intro, EN3 -7, EN16-18	https://www.cdproject.net/sites/2013/27/15027/Investor CDP 2013/Shared Documents/Attachments/Investor-4.1-C3-IdentifyAttachment/PRAXAIR SUSTAINABLE DEVELOPMENT REPORT 2012 Data Year Fin Draft .pdf

Further Information

Module: Risks and Opportunities [Investor]

Page: 5. Climate Change Risks

5.1

Have you identified any climate change risks (current or future) that have the potential to generate a substantive change in your business operations, revenue or expenditure? Tick all that apply

- Risks driven by changes in regulation
- Risks driven by changes in physical climate parameters
- Risks driven by changes in other climate-related developments

5.1a

Please describe your risks driven by changes in regulation

ID	Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact
1	Emission reporting obligations	<p>Praxair operates in jurisdictions that have, or are developing, laws and/or regulations to reduce or mitigate the perceived adverse effects of greenhouse gas (GHG) emissions and faces a highly uncertain regulatory environment in this area. For example, the U.S. Environmental Protection Agency (EPA) has promulgated rules requiring reporting and managing GHG emissions and one of these rules regulates GHG emissions from light-duty vehicles and certain large manufacturing facilities, many of which are Praxair suppliers or customers. In addition to these developments in the United States, there has been regulation of GHGs in the European Union under the Emissions Trading System, which have wide implications for our customers and impact certain operations of Praxair in Europe. There are also requirements for mandatory reporting in Quebec, Canada, which apply to certain Praxair operations and will be used in developing cap-and-trade regulations on GHG emissions, which are expected to impact certain Praxair facilities. Among other impacts, such regulations are expected to raise the costs of energy,</p>	Increased operational cost	1-5 years	Direct	More likely than not	Medium

ID	Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact
2	Cap and trade schemes	<p>which is a significant cost for Praxair. Nevertheless, Praxair's customer contracts routinely provide rights to recover increased electricity, natural gas, and other costs that are incurred by the company.</p> <p>Praxair anticipates continued growth in its hydrogen business, as hydrogen is essential for refineries to remove sulfur from transportation fuels to meet ambient air quality standards in the United States. Hydrogen production plants and a large number of other manufacturing and electricity-generating plants have been identified under California law as a source of carbon dioxide emissions. California has issued regulations to implement a cap and trade scheme in 2013 that includes emissions from hydrogen production. Praxair's hydrogen business in the U.S. accounts for 83% of our Scope 1 GHG emissions. Praxair believes it will be able to mitigate the costs of these regulations through the terms of its product supply contracts. However, legislation that limits GHG emissions may impact growth by increasing operating costs and/or decreasing demand.</p>	Increased operational cost	1-5 years	Direct	More likely than not	Low-medium
3	Fuel/energy taxes and regulations	Cost and Availability of Raw Materials and Energy – Increases in the cost	Increased operational cost	1-5 years	Indirect (Supply chain)	About as likely as not	Medium

ID	Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact
		<p>of energy and raw materials and/or disruption in the supply of these materials could result in lost sales or reduced profitability. Energy is the single largest cost item in the production and distribution of industrial gases. Most of Praxair's energy requirements are in the form of electricity, natural gas and diesel fuel for distribution. Praxair attempts to minimize the financial impact of variability in these costs through the management of customer contracts and energy efficiency initiatives. Large customer contracts typically have escalation and pass-through clauses to recover energy and feedstock costs. Such attempts may not successfully mitigate cost variability which could negatively impact its financial condition or results of operations. The supply of energy has not been a significant issue in the geographic areas where it conducts business. However, regional energy conditions are unpredictable and may pose future risk. For carbon dioxide, carbon monoxide, helium, hydrogen, specialty gases and surface technologies, raw materials are largely purchased from outside sources. Praxair has contracts or commitments for, or readily available</p>					

ID	Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact
		sources of, most of these raw materials; however, their long-term availability and prices are subject to market conditions. A disruption in supply of such raw materials could impact the company's ability to meet contractual supply commitments.					

5.1b

Please describe (i) the potential financial implications of the risk before taking action; (ii) the methods you are using to manage this risk and (iii) the costs associated with these actions

ID 1: Emissions reporting obligations

(i) Financial Implications Before Acting - Among other impacts, such regulations are expected to raise the cost of energy, which is a significant cost for Praxair. For example, if energy prices rise 10%, energy costs to Praxair would rise proportionally and could exceed \$100 million.

(ii) Methods of Managing Risk - Praxair's customer contracts routinely provide rights to recover increased electricity, natural gas, and other costs that are incurred by the company. To manage the potential business risks from potential GHG emission regulation, Praxair actively monitors current developments, evaluates the direct and indirect business risks, and takes appropriate actions. Among others, actions include: increasing relevant resources and training; consulting with vendors, insurance providers and industry experts; incorporating GHG provisions in commercial agreements; and conducting regular reviews of the business risks with management. Although there are considerable uncertainties, Praxair believes that the business risk from potential regulations can be effectively managed through its commercial contracts. One example of how this is managed is that the risk of energy price increases has for several consecutive years been identified in Praxair's annual risk assessment as one of Praxair's top risks. It is therefore brought to the attention of the executive team and the Board, and a senior executive is appointed to ensure that the risk is managed for the coming year.

Praxair also aggressively invests in energy efficiency in the design of new plants, and in energy efficiency improvements to our existing plants. Examples of Praxair responses include: rigorous management of energy costs; regular evaluation and sensitivity analyses of the impacts of potential energy and raw material cost increases; presentations made to the Office of the Chairman and board on various cost scenarios under different potential GHG tax regimes; exploration of renewable energy options in order to expand our sources of energy to include non-fossil fuel sources; Corporate targets were created to achieve 1% energy intensity improvement per ton of product produced each year from improved design of our Air Separation Units (ASUs), 1% energy intensity improvement each year per ton of product from ASU operations, 0.4% GHG intensity improvement each year from H2 production.

(iii) Costs - For the most part, the management of these potential risks has zero additional financial impact and are managed within Praxair's current human and capital resources and budgets. In addition, Praxair retained a subscription to a climate change risk research service; and invested in internal consulting to improve its Sustainable Development Management System. The combined cost of these two elements was less than \$100,000.

ID 2: Cap and Trade Schemes

(i) Cap and trade schemes potentially create additional costs. Also, legislation that limits GHG emissions may impact growth in this area by increasing operating costs and/or decreasing demand.

(ii) Praxair believes it will mitigate costs through the terms of its product supply contracts.

(iii) For the most part, the management of these potential risks has zero additional financial impact and are managed within Praxair's human and capital resources and budgets. Praxair renewed its subscription to a climate change risk research service; and invested in internal consulting to improve its Sustainable Development Management System. The combined cost of these was less than \$100,000.

ID 3: Fuel/ energy taxes and regulations (potential increase in price of energy)

(i) The supply of energy has not been a significant issue in the geographic areas where the company conducts business. However, energy availability and price is unpredictable and may pose unforeseen future risks. For example, if energy prices rise 10%, energy costs to Praxair would rise proportionally and could exceed \$100 million.

(ii) However, regional energy conditions are unpredictable and may pose future risk. Praxair attempts to minimize the financial impact of variability in these costs through the management of customer contracts.

Large customer contracts typically have escalation and pass-through clauses to recover energy and feedstock costs.

(iii) For the most part, the management of these potential risks has zero additional financial impact and are managed within Praxair's human and capital resources and budgets. In addition, Praxair renewed its subscription to a climate change risk research service; and invested in internal consulting to improve its Sustainable Development Management System. The combined cost of these was less than \$100,000.

5.1c

Please describe your risks that are driven by change in physical climate parameters

ID	Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact
1	Tropical cyclones (hurricanes and typhoons)	Catastrophic events caused by natural disaster could disrupt the operations of the company and/or its customers and suppliers and could have significant adverse impact on the results of the operation. The occurrence of natural disasters, such as hurricane or earthquake, could disrupt or delay the company's ability to produce and distribute its products to customers and could potentially expose the company to third party liability claims. In addition, such events could impact the company's customers and suppliers resulting in temporary	Reduction/disruption in production capacity	1-5 years	Direct	About as likely as not	Medium-high

ID	Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact
		or long-term outages and/or the limitation of supply of energy or other raw materials used in normal business operations.					

5.1d

Please describe (i) the potential financial implications of the risk before taking action; (ii) the methods you are using to manage this risk; and (iii) the costs associated with these actions

ID 1: Tropical Cyclones

(i) Financial Implications Before Taking Action – Praxair regularly evaluates the potential scale, incidence and likelihood of weather-related risks. For example, the replacement cost of a single large Praxair facility could be more than \$50 million. On a long-term average annual basis, the Praxair, Inc. portfolio is expected to sustain over \$3 million in hurricane ground up loss.

(ii) Methods used to manage the risk include, among other actions: increasing relevant resources and training; consulting with vendors, insurance providers and industry experts; incorporating GHG provisions in commercial agreements; and conducting regular reviews of the business risks with management.

The Corporate Risk Management group continuously re-evaluates physical and financial operational risk from extreme weather exposure. This includes identification, analysis and management of current risk. Praxair Risk Management utilizes several tools to identify and manage natural disaster exposures. Annually earthquake and windstorm analysis is completed on Praxair exposures to ensure that appropriate limits of insurance are purchased.

Also, Praxair continuously seeks opportunities to reduce its own energy use and GHG footprint. To manage these potential physical risks from climate change, Praxair actively monitors current developments, evaluates the direct and indirect business risks, and takes appropriate actions, including the use of external climate risk identification software. A significant asset is the expertise of our Operations department and our Safety, Health and Environment department, which works to eliminate the potential of risk with strong design and safety processes. This includes pre-project safety and environmental evaluations, and constant operations monitoring to ensure safety and operations excellence. In 2012 Praxair completed an operational risk identification and assessment in conjunction with our insurance consultant. The project was conducted to identify and build a better understanding of operational risk. The assessment included identifying and scoring of operational risk, and assessing handling methods of operational risk: transfer (insurance), avoid, mitigate/reduce or accept.

(iii) Costs - Praxair annually spends in excess of \$20,000 to study its natural catastrophe risk. Praxair risk group also maps operational risk to ensure that third party risk transfer insurance is being purchased efficiently. In addition, comprehensive risk assessments are performed on all large facilities to identify and reduce operational risk. This process allows Praxair to ensure that capital assets are suitably built and engineered to protect as best possible from catastrophic natural disasters.

Also, Praxair invested in a subscription to a climate risk research service that provides, among other items, detailed evaluations by geography of emerging climate change vulnerability, water stress; likelihood of incidence of extreme weather. Cost was less than \$50,000.

5.1e

Please describe your risks that are driven by changes in other climate-related developments

ID	Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact
1	Reputation	The business model of industrial gases companies is that we seek to efficiently aggregate customer energy demands and to	Reduced demand for goods/services	1-5 years	Direct	Unlikely	Low

ID	Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact
		<p>develop technology that allows customers to outsource these services, thereby delivering enhanced economic and environmental efficiency to manufacturing industries. When our customers outsource their energy demands to us, Praxair takes on these demands and delivers energy more efficiently. This means that Praxair's energy use and corresponding GHG emissions are higher than they would be were we not taking on our customers' energy demands. But an inadequate understanding of Praxair's critical role in enabling this energy efficiency for many industrial sectors, and enabling the production of cleaner fuels, could create risks to its reputation and potentially lead to concerns within communities, local authorities, customers or potential employees.</p>					

5.1f

Please describe (i) the potential financial implications of the risk before taking action; (ii) the methods you are using to manage this risk; (iii) the costs associated with these actions

ID 1: Reputation

(i) An inadequate understanding of Praxair's critical role in enabling energy efficiency for many industrial sectors, and enabling the production of cleaner fuels, could create risks to its reputation and potentially lead to concerns within communities, local authorities, customers or potential employees. Several Praxair customers, representing more than \$1million in annual sales, ask Praxair to respond to the CDP Supply Chain questionnaire. Praxair invests in responding to these questionnaires as a means of promoting our reputation and business model.

(ii) Praxair reaches out to regulators and environmental groups through our government relations and communications departments. Praxair is a solution provider to major global challenges, and its business model means that it frequently takes on some of the "footprint" impacts, particularly energy and GHG footprints, in order to provide customers with a greater energy and GHG saving. In a context where GHG regulations and governmental policies are directed towards net GHG footprint rather than value created, there is a burden on Praxair to explain the value it creates. In 2010 - 2012, Praxair invested in research to calculate and validate its Carbon Footprint. Some of this work has been completed and is provided here:

Praxair's Carbon Footprint

Praxair's carbon productivity was calculated for three signature Praxair products in three markets: Hydrogen sold to make ultra-low sulfur diesel fuel; Krypton sold to insulate thermal windows; and Oxygen sold to optimize combustion in steelmaking. In 2012 these markets contributed some 11% of sales. Praxair applications enabled customers to avoid almost 34 million metric tons of CO₂e – an amount that exceeded all Praxair GHG emissions by 17 million metric tons. This research and results are offered as part of Praxair's communication to external stakeholders. Praxair does not seek GHG credit or offsets from these claims. More information on our methodology and external audit of results, can be found on our website at <http://www.praxair.com/our-company/sustainable-development/green-technologies-and-climate-change>.

(iii) Praxair did the research in-house with subject-matter experts. We paid external providers for the validation audits. This amount was less than \$50,000.

Further Information

Page: 6. Climate Change Opportunities

6.1

Have you identified any climate change opportunities (current or future) that have the potential to generate a substantive change in your business operations, revenue or expenditure? Tick all that apply

- Opportunities driven by changes in regulation
- Opportunities driven by changes in physical climate parameters
- Opportunities driven by changes in other climate-related developments

6.1a

Please describe your opportunities that are driven by changes in regulation

ID	Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact
REG	General environmental regulations, including planning	Governmental regulation of GHG and other emissions; renewable fuel standards in the EU and U.S.; the need for infrastructure build out in mature and developing economies (especially with the levels of growth being experienced in global mega-cities) - all these provide Praxair with	Increased demand for existing products/services	1-5 years	Direct	More likely than not	Medium

ID	Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact
		<p>market opportunities in applications like water technologies, CCS and industrial gases. The renewable energy market is a growth area for Praxair. Praxair supports the photovoltaics market, a key player in the growth of renewable energy. We offer a complete portfolio of solar-grade atmospheric, specialty and dopant gases, delivery systems and sputtering targets, to help customers meet today's economic and environmental demands and position them to exceed these demands in the future. For example, Praxair manufactures Argon, a critical gas used in solar wafer production. Praxair distributes Silane, a key raw material for the thin film deposition of amorphous and polysilicon films in the solar industry.</p>					

6.1b

Please describe (i) the potential financial implications of the opportunity; (ii) the methods you are using to manage this opportunity and (iii) the costs associated with these actions

ID REG:

(i) Potential financial implications: Governmental regulation of GHG & other emissions and the growth of renewable energy alternatives may provide business opportunities. Praxair continues to develop new applications technologies that can lower emissions, including GHG emissions, in Praxair's processes and help customers lower energy consumption and increase production throughput. Stricter regulation of water quality in emerging economies such as China provide a growing market for a number of gases, e.g., oxygen for wastewater treatment. Renewable fuel standards in the European Union and the U.S. create a market for second-generation biofuels with users of industrial gases such as oxygen, carbon dioxide, and hydrogen. Automotive and aircraft manufacturers also face challenges to improve product fuel efficiency. Nitrogen, for example, is essential to the aerospace & aircraft industry and is used in high Reynolds number wind tunnels, heat treating furnaces and autoclaves to help create incredibly strong but lightweight materials. The aerospace market provided 3% of Praxair's revenue in 2012.

Praxair's medium-term outlook is to achieve high single digit annual organic sales growth from underlying growth in industrial production, price increases as well as secular drivers such as energy, environmental and emerging economy use of our gases/products and application technologies. Applications technologies that meet the 2-3 percent annual sales growth target help customers reduce operating costs, increase process efficiencies and improve their environmental performance. If applications meet this target, this has a direct impact on Praxair's profitability. Our eco-portfolio – applications that help customers reduce their environmental footprint – was 27% of Praxair's 2012 sales, or over \$3 billion.

(ii) Management of Opportunity: One significant component of applications technology is Praxair's legacy atmospheric gas business, where we must continue to innovate. In 2012, for example, in the steel industry, Praxair's dilute oxygen combustion technology (DOC) helped reduce fuel consumption at an ArcelorMittal mill in Indiana by 260,000 million Btus. Praxair's technology represents a saving for the customer of more than \$1,000,000 per year in energy costs – and more than 13,000 metric tons of CO₂e not emitted. Praxair research in 2012 showed that the total CO₂e avoided from Praxair oxygen for its steel customers was 11 million metric tons.

Praxair's research and development is directed toward developing new and improved methods for the production and distribution of industrial gases and the development of new markets and applications for these gases. This results in the development of new advanced air separation and hydrogen process technologies and the frequent introduction of new industrial gas applications. Research and development for industrial gases is principally conducted at Tonawanda, New York; Burr Ridge, Illinois; Shanghai, China; and Bangalore, India.

It is the job of Praxair's R&D group to develop these applications technologies, such as the DOC mentioned above. In 2009, this group added Praxair's environmental KPIs to project ROI descriptions, so that any project passing through the R&D gates can be viewed in terms of its \$ROI and environmental ROI. This process allows us to consider the needs of our customers as well as the opportunities offered by the markets. This process has allowed the R&D group to develop targets for 2015: (1) that Praxair's eco-portfolio should equal or exceed 30% of sales, or more than \$3 billion of revenue by 2015; and (2) that the GHG benefit enabled by Praxair applications in use is double all Praxair GHG emissions. The second target was achieved in 2012: A net benefit of 17 million MT CO₂e was achieved.

(iii) Costs associated: There was no additional cost for actions taken, outside of regular budgeted staff and business costs in this area, including for R&D. A portion of the total R&D expenditure in 2012 (\$98 M) went to develop the applications and processes described above. An external auditor was retained to validate claims for CO₂e avoided from Praxair oxygen and hydrogen, this was less than \$50,000 in fees.

6.1c

Please describe the opportunities that are driven by changes in physical climate parameters

ID	Opportunity driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact
WEATH	Change in precipitation extremes and droughts	Stricter regulation of water quality in emerging economies such as China is being implemented to better manage water quality	Increased demand for existing products/services	1-5 years	Indirect (Client)	More likely than not	Medium

ID	Opportunity driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact
		<p>in areas where there is a combination of population pressure in mega-cities, and increased drought and weather extremes. This presents market opportunity for Praxair, as we develop and deliver customized systems to help industrial plants and municipalities meet their wastewater management goals. We work directly with our customers to provide beginning-to-end treatment methods, from needs assessment and treatment strategy to equipment design, installation and industrial supply. And we offer a wide range of applications that treat and reuse process water, all while maximizing treatment capacity, reducing VOC emissions, improving safety and reducing</p>					

ID	Opportunity driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact
		costs. Also, as the global demand for potable water continues to rise and fresh water supplies are quickly depleting, we're advancing industrial technology to make this life-sustaining resource accessible to a growing population. Last year alone, we helped bring clean drinking water to 25 million people around the world.					

6.1d

Please describe (i) the potential financial implications of the opportunity; (ii) the methods you are using to manage this opportunity and (iii) the costs associated with these actions

ID WEATH:

(i) Potential financial implications: Praxair's medium-term outlook is to achieve high single digit top-line growth from underlying growth in industrial production, price increases as well as secular drivers such as energy, environmental and emerging economy use of our gases/products and application technologies. Applications technologies that meet the 2-3 percent annual sales growth target help customers reduce operating costs, increase process efficiencies and improve their environmental performance. If applications meet this target, this has a direct impact on Praxair's profitability. Our eco-portfolio – applications that help customers reduce their environmental footprint – was 27% of Praxair's 2012 sales, or over \$3 billion.

Praxair sees opportunities for our water quality improvement and wastewater treatment businesses, assisting municipalities and industrial customers. Praxair's 2012 Annual Report in the "Climate Change" section notes specifically that "Stricter regulation of water quality in emerging economies such as China provide a growing market for a number of gases, e.g., oxygen for wastewater treatment." (page 23). Our applications already enable safe drinking water for more than 25 million people in China and desalination for more than 2 million people in Spain, and access to safe wastewater treatment for another 25 million people, mainly in the US and Brazil. The potential financial implications can be calculated from the size of the market and the size of Praxair's opportunity. Wastewater is an \$80 million market for Praxair and is growing at 10% per year.

(ii) Methods to manage opportunity: In the marketplace, we are established in Brazil with technology, engineering and facility operations and are developing a strong business in China. Other markets include the U.S. and Europe. Praxair's water business is supported by a business development group who is actively investing in innovation and business development in this area. Water opportunities have been identified as significant. Praxair has identified the need for massive water infrastructure development that will involve similar processes and needs around the world. One example is Praxair's new Bio-Solids Management that utilizes ozone coupled with a Praxair application technology to reduce sludge up to 80%. This Lyso™ ozonated sludge reduction technology enables bio-solids disposal costs to be greatly reduced. The approach results in significantly greater lysis of secondary sludge streams.

To maintain this innovation stream, Praxair R&D measures \$ ROI and environmental ROI, including of GHG and water, in all projects under development, so that any project passing through the R&D gates can be viewed in terms of its \$ROI and environmental ROI. This process allows us to consider the needs of our customers as well as the opportunities offered by the markets. This process has allowed the R&D group to develop a target that Praxair's eco-portfolio should equal or exceed 30% of sales, or more than \$3 billion of revenue by 2015.

(iii) Costs associated: There was zero additional cost for actions taken, outside of regular budgeted staff and business costs in this area, including for R&D. A portion of the total R&D expenditure in 2012 (\$98 million) went to develop the applications and processes described above.

6.1e

Please describe the opportunities that are driven by changes in other climate-related developments

ID	Opportunity driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact
OTHER	Other drivers	New products and services will be needed to mitigate the effects of climate change, or plan for adaptation. These play out in different ways in different geographies, but they include the need for infrastructure build outs for water systems; technology to provide more resource efficiency; and energy security and reliability. These provide market opportunity for Praxair, as we provide gases into all these markets, e.g., nitrogen to make lighter composites to make aircraft more fuel efficient; alloys to make wind turbines more durable; CO2 to make water more potable and to clean wastewater systems. These gases	New products/business services	Current	Indirect (Client)	More likely than not	Medium

ID	Opportunity driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact
		are some of the gases sold into Praxair's end-markets in electronics (8% revenue), aerospace (3%) and "other" (11%), and that provide growth opportunities as markets continue to grow for climate-related technologies.					

6.1f

Please describe (i) the potential financial implications of the opportunity; (ii) the methods you are using to manage this opportunity; (iii) the costs associated with these actions

ID OTHER:

(i) Financial implications: Solar energy: Industrial gas supply position is critical to market success of photovoltaics (PV). Market for rotatable targets on their own expected to be \$300 million within five years. Praxair serves over 40 PV customers in U.S., China, Taiwan, Korea, India, Germany, Italy and Spain. Praxair sales forecasted to grow from \$60 million at ~ 30% per year.

(ii) Methods to Manage: For biofuels: Renewable Energy Markets in Second Generation biofuels, Praxair is supplying demonstration projects today in cellulosic biofuel; Biomass Based Diesel; and other advanced biofuels (Algae). We are exploiting opportunities for technology advancement through yield and productivity improvements; solving gasification process challenges; and working on gas cleanup, processing and mixing.

For photovoltaics: Praxair is developing and promoting the use of it products throughout the supply chain. In the crystalline process, this includes: Hydrogen and Nitrogen for Polysilicon; Argon for Silicon Ingots; Nitrogen for Silicon wafers; Nitrogen, Argon, Silane, Ammonia, CF4 and targets for silicon wafers; and Nitrogen & Welding Gases for Solar Modules. We are actively pursuing opportunities in select regions, including China. Our Electronics business, which supplies specialty gases for photovoltaics, relocated HQ to Shanghai to be closer to the country and regional business opportunity there. We have plans to source 40% of applications development in emerging economies by 2015 (presently we source the vast bulk from U.S.-based R&D). Our investment is paying off: in 2010 we signed 15 new contracts with solar manufacturing companies, many in Asia.

To maintain this innovation stream, Praxair R&D measures \$ ROI and environmental ROI, including of water, in all projects under development, so that any project passing through the R&D gates can be viewed in terms of its \$ROI and environmental ROI. This process allows us to consider the needs of our customers as well as the opportunities offered by the markets. This process has allowed the R&D group to develop a target that Praxair's eco-portfolio should equal or exceed 30% of sales, or more than \$3 billion of revenue by 2015.

(iii) Costs associated: There was no additional cost for actions taken, outside of regular budgeted staff and business costs in this area, including for R&D. A portion of the total R&D expenditure in 2012 (\$98 million) went to develop the applications and processes described above.

Module: GHG Emissions Accounting, Energy and Fuel Use, and Trading [Investor]

Page: 7. Emissions Methodology

7.1

Please provide your base year and base year emissions (Scopes 1 and 2)

Base year	Scope 1 Base year emissions (metric tonnes CO2e)	Scope 2 Base year emissions (metric tonnes CO2e)
Thu 01 Jan 2009 - Thu 31 Dec 2009	4163000	9317000

7.2

Please give the name of the standard, protocol or methodology you have used to collect activity data and calculate Scope 1 and Scope 2 emissions

Please select the published methodologies that you use
The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (Revised Edition)
US EPA Mandatory Greenhouse Gas Reporting Rule
Other

7.2a

If you have selected "Other", please provide details below

The California ARB Regulation for the Reporting of Greenhouse Gas Emissions

7.3

Please give the source for the global warming potentials you have used

Gas	Reference
CO2	IPCC Second Assessment Report (SAR - 100 year)
SF6	IPCC Second Assessment Report (SAR - 100 year)
CH4	IPCC Second Assessment Report (SAR - 100 year)
N2O	IPCC Second Assessment Report (SAR - 100 year)
Other: HFC-134a	IPCC Second Assessment Report (SAR - 100 year)
Other: HFC 404a	IPCC Second Assessment Report (SAR - 100 year)
Other: HFC 507	IPCC Second Assessment Report (SAR - 100 year)

7.4

Please give the emissions factors you have applied and their origin; alternatively, please attach an Excel spreadsheet with this data

Fuel/Material/Energy	Emission Factor	Unit	Reference
Diesel/Gas oil	22.4	lb CO2e per gallon	US EPA AP 42
Natural gas	120	lb CO2 per 1000 ft3	US EPA AP 42

Further Information

For electricity, Praxair uses the IEA country CO2 emission factors except for the U.S., where we use the 2012 data release of the eGRID subregion emission factors.

Page: 8. Emissions Data - (1 Jan 2012 - 31 Dec 2012)

8.1

Please select the boundary you are using for your Scope 1 and 2 greenhouse gas inventory

Financial control

8.2

Please provide your gross global Scope 1 emissions figures in metric tonnes CO2e

5355000

8.3

Please provide your gross global Scope 2 emissions figures in metric tonnes CO2e

11329000

8.4

Are there any sources (e.g. facilities, specific GHGs, activities, geographies, etc.) of Scope 1 and Scope 2 emissions which are not included in your disclosure?

Yes

8.4a

Please complete the table

Source	Scope	Explain why the source is excluded
Electricity use at very small sites	Scope 2	Praxair has a number of very small office sites, many with 1-2 people. We estimated these emissions and, as they represent less than 1% of our Scope 2 emissions, consider them to be de minimis.

8.5

Please estimate the level of uncertainty of the total gross global Scope 1 and 2 emissions figures that you have supplied and specify the sources of uncertainty in your data gathering, handling and calculations

Scope 1 emissions: Uncertainty range	Scope 1 emissions: Main sources of uncertainty	Scope 1 emissions: Please expand on the uncertainty in your data	Scope 2 emissions: Uncertainty range	Scope 2 emissions: Main sources of uncertainty	Scope 2 emissions: Please expand on the uncertainty in your data
More than 2% but less than or equal to 5%	Assumptions Metering/ Measurement Constraints	Our Sustainable Development Management System was implemented in 2011, requiring monthly sign-off from all businesses of their results versus corporate GHG targets; and there is a quarterly review by the Office of the Chairman. This creates a level of internal oversight and management over our GHG emissions data. Most of Praxair Scope 1 emissions are from hydrogen production, which is made from natural gas (CH4). Hydrogen production GHG emissions are calculated from a chemical relationship between hydrogen produced and natural gas used to make it. GHG emissions are based on	More than 2% but less than or equal to 5%	Assumptions Metering/ Measurement Constraints	Our Sustainable Development Management System was implemented in 2011, requiring monthly sign-off from all businesses of their results vs. corporate GHG targets; and there is a quarterly review by the Office of the Chairman. This creates a level of internal oversight and management over our GHG emissions data. Standard Plants represent about 8% of Praxair's Scope 2 emissions. Praxair does not pay for or meter the electricity at these sites, as these plants are on customer sites and the customer pays the electricity. These emissions are estimated once every three years

Scope 1 emissions: Uncertainty range	Scope 1 emissions: Main sources of uncertainty	Scope 1 emissions: Please expand on the uncertainty in your data	Scope 2 emissions: Uncertainty range	Scope 2 emissions: Main sources of uncertainty	Scope 2 emissions: Please expand on the uncertainty in your data
		<p>assumptions that all carbon in the natural gas is converted into CO2 and is emitted unless there are additional carbon-based products such as CO, methanol, formaldehyde or CO2. There are some measurement constraints in regards to all the data needed to do this material balance such as variability in carbon content in the natural gas, meter reading availability of the different raw materials, as well as the type of products produced. In addition, natural gas data at our Packaged Gas and PST sites is collected only once every three years. This represents less than 2.5% of our total emissions, and does not warrant the level of effort for collecting this data annually.</p>			<p>because actual activity data is not available. Praxair uses assumptions based on similar plants that we own and operate. In addition, we have a small number of owned corporate offices that account for less than 1% of our Scope 2 emissions. This data is collected once every three years from the larger offices, and estimated based on square footage for the smaller of these offices. Because of the small contribution to our emissions total, this category does not warrant the level of effort to collect and calculate emissions annually.</p>

8.6

Please indicate the verification/assurance status that applies to your Scope 1 emissions

Third party verification or assurance complete

8.6a

Please indicate the proportion of your Scope 1 emissions that are verified/assured

More than 90% but less than or equal to 100%

8.6b

Please provide further details of the verification/assurance undertaken, and attach the relevant statements

Type of verification or assurance	Relevant standard	Attach the document
Limited assurance	ISO14064-3	https://www.cdproject.net/sites/2013/27/15027/Investor CDP 2013/Shared Documents/Attachments/Investor-8.6b-C3-RelevantStatement/Praxair CY2012 GHG Verification Statement_June 2013.pdf

8.7

Please indicate the verification/assurance status that applies to your Scope 2 emissions

Third party verification or assurance complete

8.7a

Please indicate the proportion of your Scope 2 emissions that are verified/assured

More than 90% but less than or equal to 100%

8.7b

Please provide further details of the verification/assurance undertaken, and attach the relevant statements

Type of verification or assurance	Relevant standard	Attach the document
Limited assurance	ISO14064-3	https://www.cdproject.net/sites/2013/27/15027/Investor CDP 2013/Shared Documents/Attachments/Investor-8.7b-C3-RelevantStatement/Praxair CY2012 GHG Verification Statement_June 2013.pdf

8.8

Are carbon dioxide emissions from biologically sequestered carbon relevant to your organization?

Yes

8.8a

Please provide the emissions in metric tonnes CO2

10000

Page: 9. Scope 1 Emissions Breakdown - (1 Jan 2012 - 31 Dec 2012)

9.1

Do you have Scope 1 emissions sources in more than one country?

Yes

9.1a

Please complete the table below

Country/Region	Scope 1 metric tonnes CO2e
North America	5116000
South America	67000
Europe	101000
Asia, Australasia, Middle East and Africa	71000

9.2

Please indicate which other Scope 1 emissions breakdowns you are able to provide (tick all that apply)

By business division
By GHG type

9.2a

Please break down your total gross global Scope 1 emissions by business division

Business division	Scope 1 emissions (metric tonnes CO2e)
Air Separation Units	311000
Hydrogen facilities	4420000
CO2 plants	198000
Packaged gases	161000

Business division	Scope 1 emissions (metric tonnes CO2e)
Electronics + Surface Technologies	26000
Trucking	235000
Helium plants	0
Corporate Offices	4000

9.2c

Please break down your total gross global Scope 1 emissions by GHG type

GHG type	Scope 1 emissions (metric tonnes CO2e)
CO2	5228000
N2O	36000
SF6	26000
HFCs	64000
CH4	1000

Page: 10. Scope 2 Emissions Breakdown - (1 Jan 2012 - 31 Dec 2012)

10.1

Do you have Scope 2 emissions sources in more than one country?

Yes

10.1a

Please complete the table below

Country/Region	Scope 2 metric tonnes CO2e	Purchased and consumed electricity, heat, steam or cooling (MWh)	Purchased and consumed low carbon electricity, heat, steam or cooling (MWh)
North America	6422000	10900000	350000
Europe	840000	2400000	
Asia, Australasia, Middle East and Africa	3598000	4400000	
South America	469000	4000000	

10.2

Please indicate which other Scope 2 emissions breakdowns you are able to provide (tick all that apply)

By business division

10.2a

Please break down your total gross global Scope 2 emissions by business division

Business division	Scope 2 emissions (metric tonnes CO2e)
Air Separation Units	9627000
Hydrogen Facilities	424000
CO2 Plants	153000
Packaged Gases	85000
Electronics + Surface Technologies	51000
Trucking	0
Helium Plants	31000
Standard Plants	952000
Corporate Offices	6000

Page: 11. Energy

11.1

What percentage of your total operational spend in the reporting year was on energy?

More than 25% but less than or equal to 30%

11.2

Please state how much fuel, electricity, heat, steam, and cooling in MWh your organization has purchased and consumed during the reporting year

Energy type	MWh
Fuel	2201000
Electricity	21400000
Heat	0
Steam	300000
Cooling	0

11.3

Please complete the table by breaking down the total "Fuel" figure entered above by fuel type

Fuels	MWh
Natural gas	1900000
Distillate fuel oil No 2	1000
Diesel/Gas oil	300000

11.4

Please provide details of the electricity, heat, steam or cooling amounts that were accounted at a low carbon emission factor

Basis for applying a low carbon emission factor	MWh associated with low carbon electricity, heat, steam or cooling	Comments
Power Purchase Agreements (PPA) not backed by instruments	350000	Our facilities in the Niagara Falls region of New York have a replacement power contract with the local utility that guarantees hydropower.

Page: 12. Emissions Performance

12.1

How do your absolute emissions (Scope 1 and 2 combined) for the reporting year compare to the previous year?

Increased

12.1a

Please complete the table

Reason	Emissions value (percentage)	Direction of change	Comment
Emissions reduction activities	3	Decrease	Praxair's energy efficiency activities in 2012 realized \$112 million in savings and almost 500,000 metric tons CO2e avoided. This represents 3% of Scopes 1+2 emissions.
Divestment			
Acquisitions			
Mergers			
Change in output	4	Increase	There was a 1% increase in emissions, mainly from hydrogen production. Overall efficiency was impacted by plants that were not operating at full capacity. This offset energy efficiency improvements, transportation and logistics improvements and the slight decrease in

Reason	Emissions value (percentage)	Direction of change	Comment
Change in methodology			Praxair's overall sales. Praxair's net emissions increase from 2011 to 2012 was 1% (4% increase from change in output - 3% decrease from energy efficiency).
Change in boundary			
Change in physical operating conditions			
Unidentified			
Other			

12.2

Please describe your gross combined Scope 1 and 2 emissions for the reporting year in metric tonnes CO2e per unit currency total revenue

Intensity figure	Metric numerator	Metric denominator	% change from previous year	Direction of change from previous year	Reason for change
0.001486	metric tonnes CO2e	unit total revenue	1.6	Increase	There was a 12% increase in scope 1 for hydrogen. This results in a net increase in Scope 1 GHG emissions from H2 production, in a fixed chemical relationship. This offset energy efficiencies, transportation and logistics improvements and the slight decrease in sales.

12.3

Please describe your gross combined Scope 1 and 2 emissions for the reporting year in metric tonnes CO2e per full time equivalent (FTE) employee

Intensity figure	Metric numerator	Metric denominator	% change from previous year	Direction of change from previous year	Reason for change
628	metric tonnes CO2e	FTE employee	0.00	No change	Total emissions rose 1%, while headcount also increased by 1%.

12.4

Please provide an additional intensity (normalized) metric that is appropriate to your business operations

Intensity figure	Metric numerator	Metric denominator	% change from previous year	Direction of change from previous year	Reason for change
0.185	metric tonnes CO2e	metric tonne of product	5	Decrease	In the case of ASU's, energy efficiency improvements more than made up for increases in output.

Page: 13. Emissions Trading

13.1
Do you participate in any emissions trading schemes?

Yes

13.1a
Please complete the following table for each of the emission trading schemes in which you participate

Scheme name	Period for which data is supplied	Allowances allocated	Allowances purchased	Verified emissions in metric tonnes CO2e	Details of ownership
California's Greenhouse Gas Cap and Trade Program	Mon 01 Oct 2012 - Tue 31 Dec 2013	35000	0	39478	Facilities we own and operate

13.1b
What is your strategy for complying with the schemes in which you participate or anticipate participating?

While Praxair is not covered under the ETS, we do have facilities that are part of California's Cap and Trade program, Quebec's cap and trade program, and the UK's Climate Change Agreement. These are all regulated programs; Praxair does not trade allowances in voluntary speculative trading schemes.

If Praxair comes under additional regulated emissions trading regimes such as ETS, we will participate. Praxair stays current with developments in global regulations in this respect.

An entirely robust estimation of the future demands of these trading schemes is not possible. However, Praxair is prepared for participating in these schemes by having an adequate and flexible GHG strategy. This takes into account all kinds of emissions reduction measures, e.g. use of abatement technology, increase in energy efficiency, as well as the use of project-based carbon credits and, in the eventual case of ETS, a purchase strategy for EUAs.

13.2
Has your company originated any project-based carbon credits or purchased any within the reporting period?

Yes

13.2a
Please complete the table

Credit origination or credit purchase	Project type	Project identification	Verified to which standard	Number of credits (metric tonnes of CO2e)	Number of credits (metric tonnes CO2e): Risk adjusted volume	Credits retired	Purpose, e.g. compliance
Credit Purchase	Forests	The Rio Bravo Climate Action Project, a 15,550 acre area of tropical forest located in northwest Belize, registered by the Nature Conservancy	VCS (Voluntary Carbon Standard)	667	667	Yes	Voluntary Offsetting

Further Information

Page: 14. Scope 3 Emissions

14.1

Please account for your organization's Scope 3 emissions, disclosing and explaining any exclusions

Sources of Scope 3 emissions	Evaluation status	metric tonnes CO2e	Methodology	Percentage of emissions calculated using primary data	Excl
Purchased goods and services	Not relevant, calculated	400	An inventory of office paper purchased was conducted for 2009: 786,662lbs. This was converted to a baseline of 462 MT CO2e, using the USA EPA WARM methodology. By the end of 2011, Praxair had reduced its paper consumption by 20 percent, to 370 MT CO2e. The result from 2011 is carried over for 2012, since these emissions are small when compared to other Scope 3 categories.	100%	Prax larg purc goo ene as e to o facil nat mak hydi Det ene purc and are in th Oth and purc Prax incl logis tran serv offic infra requ and adm ben serv the belc deta larg upst emis from purc capi upst tran and ene rela emis The upst

Sources of Scope 3 emissions	Evaluation status	metric tonnes CO2e	Methodology	Percentage of emissions calculated using primary data	Explanatory notes
Capital goods	Relevant, calculated	473000	The principal material Praxair procures for capital projects is steel. Based on our annual spend, we used our Steelfirst subscription to calculate the price of carbon steel per country. The weight of steel was then calculated as price per ton divided into spend. Related GHG emissions were calculated by multiplying the carbon steel volumes using a GHG emission factor derived from the U.S. EPA (0.87 MT CO2e/ per MT carbon steel).	100%	goods purchased for capital projects are included in our relative value chain
Fuel-and-energy-related activities (not included in Scope 1 or 2)	Relevant, calculated	1888000	The methodology used is based on the GHG Protocol Corporate Value Chain (Scope 3) Accounting and Reporting Standard, Category 3. For electricity, we prorated the fuel mix ratios in those 7 countries where we use more than 1 billion KW. These 7 countries represent more than 87% of our total electricity usage. We extrapolated this mix to the remaining 13% of our electricity usage. We then assumed a T&D loss rate of 7%, based on information from the US Department of Energy. We then added in emissions from upstream natural gas.	100%	
Upstream transportation and distribution	Not relevant, calculated	37000	Two transportation projects were evaluated: one very large project in Russia and one medium-sized project in the U.S. For each project evaluated, distance travelled was recorded for road, rail and sea. Emissions factors per mode of transportation were used from CEFIC/ ECTA March 2011 Guidelines for Measuring and Managing CO2 Emissions from Freight Transport Operations, and GHG emissions were determined per project. The average GHG emissions per project was multiplied by the number of oversized and heavy capital equipment transportation projects. This was multiplied by 1.2 to determine GHG emissions from 100 percent of capital equipment purchased. The number likely overstates the emissions as 20 percent is from far smaller capital equipment transportation projects.	100%	
Waste generated in operations	Not relevant, calculated	25000	The methodology used is based on the Greenhouse Gas Protocol's Corporate Value Chain (Scope 3) Accounting and Reporting Standard. Using the average data method according to this standard, Praxair multiplied the waste treated by third parties for each waste treatment method by the associated emission factors. The amount of waste treated by third parties is recorded in our EKPI database according to the waste treatment methods (landfill, recycled, other). To calculate the CO2e emissions	100%	

Sources of Scope 3 emissions	Evaluation status	metric tonnes CO2e	Methodology	Percentage of emissions calculated using primary data	Exl
Business travel	Not relevant, calculated	9000	<p>resulting from waste treated in landfills, Praxair multiplies the total amount of waste in this category by an emissions factor provided by the EPA, which is associated with the municipal waste mix in the United States. The IPCC suggests that any CO2e emissions associated with recycling should not be included in Scope 3 inventories. Therefore Praxair uses an emissions factor of 0 for recycled waste treated by third parties. The small amount of waste which is not landfilled or recycled is calculated equally as if it were landfilled.</p> <p>Business travel is a very small component of Praxair's reported Scope 3 emissions; its most significant component is airline travel. In 2008, Praxair calculated GHG emissions from rental cars, which was less than five percent of transportation Scope 3 emissions; therefore, we consider this to be de minimis. Praxair's travel vendor provided a GHG report for 2009 global air travel and calculates airline GHG emissions on the basis of short, medium and long-haul flights, using emission factors of 0.18, 0.19 and 0.24 respectively. The GHG emissions factors are derived from the GHG Protocol. Emissions from business travel are small compared to other Scope 3 sources; these will be recalculated once every five years.</p>	100%	
Employee commuting	Not relevant, calculated	47000	<p>The methodology is based on the GHG Protocol Corporate Value Chain (Scope 3) Accounting and Reporting Standard, Category 7: Employee Commuting. This category includes emissions from the transportation of employees between their homes and their worksites. Emissions from employee commuting may arise from automobile travel, bus travel, rail travel, or other modes of transportation (e.g., subway, bicycling, walking). At Praxair, emissions from employee commuting are not relevant to the business goals. Praxair used a simplified version of the Scope 3 Protocol's average-data method to calculate emissions from employee commuting. This involved estimating emissions from employee commuting based on average (e.g., national) data on commuting patterns. National data on commuting times in some Praxair countries is provided in the OCED "How's Life: Measuring Wellbeing (2011): www.oecd.org/els/family/43199696.pdf. Praxair used the OECD average time of 38 minutes per day. Time spent commuting was assumed to be in a single occupancy car at 30 miles per hour; the average commuting distance (both ways) was assumed to be 21 miles. We assumed the average passenger vehicle emissions as 423 grams of CO2 per mile, based on the U.S. EPA Greenhouse Gas Emissions from a Typical Passenger Vehicle at: www.epa.gov/oms/climate/documents/420f11041.pdf. This was multiplied by the number of employees (2012: 26,539) and 220 working days per year. We assume that the calculated result overstates emissions from employee commuting, as it assumes that each employee drives a car to work and does</p>	100%	

Sources of Scope 3 emissions	Evaluation status	metric tonnes CO2e	Methodology	Percentage of emissions calculated using primary data	Explanatory notes
Upstream leased assets	Not relevant, calculated	12000	<p>not take into account employees using public transit or carpooling.</p> <p>GHG emissions from leased offices were assessed based on leased space (in square foot) and a standard global assumed annual energy consumption per square foot for office buildings. Praxair has 23 leased offices around the world. Square footage reports were received for seven of these, from which we inferred that smaller offices could be estimated at 25,000 square feet and larger offices at 150,000. Total square feet of leased assets were estimated as 688,000. Using the EIA report for commercial building energy use, we assumed 26 KWh per square foot. CO2e was determined using the EPA GHG Calculator. This likely overestimates the energy use as all Praxair offices are implementing energy savings initiatives.</p>	100%	
Investments	Not relevant, calculated	22000	An estimate of Praxair's share of GHG emissions from joint ventures where we own less than 50% was made based on assuming the same output per \$ revenue in our JV's as in our own business.	100%	Because we own a small share of the joint venture, we do not include its emissions in our Scope 3 emissions. This is because the joint venture's emissions are not directly attributable to our operations.
Downstream transportation and distribution	Relevant, calculated	266000	Praxair products are delivered by pipeline, through on-site product production, and by truck. A small portion is delivered by train and ship. Product delivered by Praxair trucks is reported as Scope 1. Half of Praxair's truck miles are driven by contractors. Contractor miles driven are collected in each country and business or region and tracked as part of Praxair's safety program. Praxair's Scope 3 emissions resulting from delivery of products by third party carriers were derived using the same methodology to calculate GHG emissions from Praxair's trucks: Total miles were converted into gallons assuming consumption of a standard 5.57 miles per gallon, and converted to GHGs using an EPA emission factor for diesel fuel to metric tons.	100%	
Processing of sold products	Not relevant, explanation provided				Guidance requires us to report on the processing of sold products. However, Praxair's products are sold as finished goods and do not require further processing by the customer. Therefore, this category is not applicable to Praxair.

Sources of Scope 3 emissions	Evaluation status	metric tonnes CO2e	Methodology	Percentage of emissions calculated using primary data	Excl
					and Star sect Pra> the l of r chai cart bevi com refir elec aerc autc heal stee etc.; prov mar inter proc mar dow appl eacI has diffe prof effoi in d Sco emis from proc our is no reas and reas are reas estir dow emis assc with vari use: proc How emis from sale foc may trac This segi sub: foc

Sources of Scope 3 emissions	Evaluation status	metric tonnes CO2e	Methodology	Percentage of emissions calculated using primary data	Explanatory
Use of sold products	Not relevant, explanation provided				beverage market is 6% annual revenue Actual volume business confirmed How global beverage customer requirements information part Supplier process we to these we represent emissions the category product sold use process end treatment sold Guidance this is based on the Protocol Corporate Value (Sector Accounting and Standards Practice) the of market chain carbon beverage companies refrigeration electrical aircraft auto health steel etc. provided

Sources of Scope 3 emissions	Evaluation status	metric tonnes CO2e	Methodology	Percentage of emissions calculated using primary data	Explanatory notes
					mar inter proc mar dow appl each has differ prof effort in d Sco emis from our is no reas and reas are reas estim dow emis assoc with vari use: proc How emis from sale foc may trac This seg sub: foc bevi mar is 6' ann reve Act volu busi conl How glob bevi cust requ info part Sup proc we p

Sources of Scope 3 emissions	Evaluation status	metric tonnes CO2e	Methodology	Percentage of emissions calculated using primary data	Explanations
End of life treatment of sold products	Not relevant, explanation provided				<p>to the we (repe emi: the i cate proc sold use proc end trea sold</p> <p>Guid this is ba the i Prot Corj Valu (Sc Acc and Star sect 47% Pra) mat non-gree gas atm gas extr: dire the i ultin retu the atm with imp: addi Pra) the l of m chai cart bevi com refir elec aerc autc heal stee etc.) prov mar</p>

Sources of Scope 3 emissions	Evaluation status	metric tonnes CO2e	Methodology	Percentage of emissions calculated using primary data	Explanatory
					interproc mar dow appl eacl has diffe prof effoi in d Sco emis from life t of o proc not reas and reas are reas estim dow emis assoc with vari use proc can reas estim over dow emis CO ₂ our cust may rep ther sale sub reve foc be sect busi conf How do p this info CDF chai who cust ours

Sources of Scope 3 emissions	Evaluation status	metric tonnes CO2e	Methodology	Percentage of emissions calculated using primary data	Explanatory notes
Downstream leased assets	Not relevant, explanation provided		Praxair does not have any downstream leased assets.		requ proc infor For reas do r emis the cate proc sold use proc end trea sold Prax not l dow leas
Franchises	Not relevant, explanation provided		Praxair does not have any franchises.		Prax not l fran
Other (upstream)					
Other (downstream)					

14.2

Please indicate the verification/assurance status that applies to your Scope 3 emissions

Third party verification or assurance complete

14.2a

Please indicate the proportion of your Scope 3 emissions that are verified/assured

More than 0% but less than or equal to 20%

14.2b

Please provide further details of the verification/assurance undertaken, and attach the relevant statements

Type of verification or assurance	Relevant standard	Attach the document
Limited assurance	ISO14064-3	https://www.cdproject.net/sites/2013/27/15027/Investor CDP 2013/Shared Documents/Attachments/Investor-14.2b-C3-RelevantStatementAttached/Praxair CY2012 GHG Verification Statement_June 2013.pdf

14.3

Are you able to compare your Scope 3 emissions for the reporting year with those for the previous year for any sources?

Yes

14.3a
Please complete the table

Sources of Scope 3 emissions	Reason for change	Emissions value (percentage)	Direction of change	Comment
Downstream transportation and distribution	Change in methodology	7	Decrease	There was a slight (3%) increase in miles driven by contract drivers. The decrease in emissions is due to a change in the miles per gallon used to calculate emissions. In previous years, we were using a flat 5 mpg. Based on fuel consumption data collected during 2012, we realized that mpg had improved significantly, so we calculated 2012 emissions using 5.57 mpg. This more than offset the increase in mileage.
Waste generated in operations	Change in methodology	79	Increase	The increase from 2011 to 2012 is mainly due to an increase in reporting from the facilities in the U.S. and Canada. With the simplification of our environmental KPI database, along with the Zero Waste initiative, more facilities took ownership and inputted their own data. In prior years, we relied on information from our vendors, and not all vendors were reporting.
Capital goods	Change in methodology	86	Increase	The increase is due largely to a significant decrease in worldwide steel prices, which is used to calculate the weight of steel procured. A lower price inflates the "calculated" GHG emissions.

14.4
Do you engage with any of the elements of your value chain on GHG emissions and climate change strategies? (Tick all that apply)

- Yes, our suppliers
- Yes, our customers

14.4a
Please give details of methods of engagement, your strategy for prioritizing engagements and measures of success

Praxair drivers drive around the world about 30Xs a day, and half of this is done by contract drivers.

Method of engagement with contract drivers: To improve GHG intensity in trucking, Praxair works on improving distribution efficiency around the world, with technology investments such as route optimization and on-board computers, and with training in fuel efficient driving techniques. These initiatives are conducted with our own drivers and with contract drivers. In addition, suppliers were engaged in a series of steps starting with the communication of Praxair's supplier expectations, including environmental improvement. This was followed by a Supplier Forum which included some contract driver companies. Expectations that contractor environmental performance is in line with Praxair standards has been included among several sustainability issues that are "tie-breakers" in proposals; and they have been included in contract terms. Drivers receive the same professional driver training in eco-efficiency that is provided to Praxair drivers.

Strategy: We prioritize our engagement with suppliers in regions with the highest proportion of contract drivers. In South America, where most of our drivers are contract drivers, our GHG intensity reduction target was extended to contract drivers.

Measure of Success: Success is measured in several ways, including, for example, in South America the performance of contract drivers against the contractor distribution GHG target. The 1.5% annual intensity improvement for driving that applies worldwide to Praxair drivers, has also been adopted in South America for contract drivers. In 2012, they achieved a 2% intensity improvement over 2011.

14.4b

To give a sense of scale of this engagement, please give the number of suppliers with whom you are engaging and the proportion of your total spend that they represent

Number of suppliers	% of total spend	Comment
---------------------	------------------	---------

14.4c

If you have data on your suppliers' GHG emissions and climate change strategies, please explain how you make use of that data

How you make use of the data	Please give details
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Module: Sign Off

Page: Sign Off

Please enter the name of the individual that has signed off (approved) the response and their job title

Riva Krut, VP and Chief Sustainability Officer.
June 24 2013

CDP