Module: Introduction

Page: Introduction

CC0.1 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 primarily for internal use. 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 $12,273 million, $11,925 million, and $11,224 million for 2014, 2013, and 2012, respectively.

Praxair serves a diverse group of industries including healthcare, petroleum refining, computer-chip manufacturing, beverage carbonation, fiber-optics, steel making, aerospace, chemicals and water treatment. In 2014, 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.

CC0.2 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
Wed 01 Jan 2014 - Wed 31 Dec 2014

CC0.3 Country list configuration

Please select the countries for which you will be supplying data. If you are responding to the Electric Utilities module, this selection will be carried forward to assist you in completing your response.

Select country

CC0.4 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($)

CC0.6

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 sub-industries, companies in the oil and gas sub-industries, companies in the information technology and telecommunications sectors and companies in the food, beverage and tobacco industry group should complete supplementary questions in addition to the main questionnaire.
If you are in these sector groupings (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@cdp.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.cdp.net/en-US/Programmes/Pages/More-questionnaires.aspx.

Further Information

Module: Management

Page: CC1. Governance

CC1.1 Where is the highest level of direct responsibility for climate change within your organization?

Board or individual/sub-set of the Board or other committee appointed by the Board

CC1.1a 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 Technology, Safety and Sustainability; this committee "(assists) the Board of Directors in fulfilling its oversight responsibilities for the Corporation's policies, practices and performance with respect to (1) the use of technology and research and development efforts; (2) safety of the Corporation's employees and contractors, employees of joint ventures and affiliates, and others in the communities in which the Corporation operates; (3) sustainability and environmental matters; and (4) certain enterprise risks including natural disasters, plant security and competitive threats."

This includes climate change policy, risks and activity, as well as emerging issues in the sustainability area. The Committee reports to the full Board of Directors five times per year on all of these issues. The Chair of the Committee is Nance K. Dicciani.

CC1.2 Do you provide incentives for the management of climate change issues, including the attainment of targets?

Yes

CC1.2a Please provide further details on the incentives provided for the management of climate change issues

Who is entitled to benefit from these incentives?	The type of incentives	Incentivized performance indicator	Comment
Chief Executive Officer (CEO)	Monetary reward	Emissions reduction project Energy reduction project Efficiency project Efficiency target Other: Increasing eco portfolio to 30% of revenue by 2015	The Compensation Committee seeks to achieve its executive compensation objectives by aligning the design of the Company's executive compensation programs with the Company's business objectives ensuring a balance between financial and strategic non- financial goals. The Board's Compensation Committee may make a positive or negative adjustment of up to 35 percentage points to the total financial payout earned based on the Committee's detailed review and assessment of performance against pre-established non-financial goals that relate directly to the Company's strategic objectives. The Compensation Committee identified the non-financial elements that were considered most important to long term sustainable success and established annual non-financial goals with respect to those elements. These included continuously reducing the environmental impact of operations and helping our customers enhance their product environmental performance. The Compensation Committee determined that the Company's performance with respect to the non-financial goals was favorable, and consequently, should be a strong positive factor in determining performance-based variable compensation. The Compensation Committee noted the following as examples of actions that successfully supported the Company's strategic objectives in determining 2014 variable compensation payouts: earning a place on the Dow Jones Sustainability Index for the 12th consecutive year and on the CDP Disclosure Leadership Index for the 7th consecutive year; and implementing sustainable productivity initiatives, with the largest benefits being seen in energy efficiency improvements. The Compensation Committee applied a positive adjustment of 28 percentage points to the 2014 variable compensation payout in recognition of the Company's performance relative to the non-financial goals.
Corporate executive team	Monetary reward	Emissions reduction project Energy reduction project Efficiency project Efficiency target Other: Increasing eco portfolio to 30% of revenue by 2015	The Compensation Committee seeks to achieve its executive compensation objectives by aligning the design of the Company's executive compensation programs with the Company's business objectives ensuring a balance between financial and strategic non- financial goals. The Board's Compensation Committee may make a positive or negative adjustment of up to 35 percentage points to the total financial payout earned based on the Committee's detailed review and assessment of performance against pre-established non-financial goals that relate directly to the Company's strategic objectives. The Compensation Committee identified the non-financial elements that were considered most important to long term sustainable success and established annual non-financial goals with respect to those elements. These included continuously reducing the environmental impact of operations and helping our customers enhance their product environmental performance. The Compensation Committee determined that the Company's performance with respect to the non-financial goals was favorable, and consequently, should be a strong positive factor in determining performance-based variable compensation. The Compensation Committee noted the following as examples of actions that successfully supported the Company's strategic objectives in determining 2014 variable compensation payouts: earning a place on the Dow Jones Sustainability Index for the 12th consecutive year and on the CDP Disclosure Leadership Index for the 7th consecutive year; and implementing sustainable productivity initiatives, with the largest benefits being seen in energy efficiency improvements. The Compensation Committee applied a positive adjustment of 28 percentage points to the 2014 variable compensation payout in recognition of the Company's performance relative to the non-financial goals.

Who is entitled to benefit from these incentives?	The type of incentives	Incentivized performance indicator	Comment
Management group	Monetary reward	Emissions reduction project Energy reduction project Efficiency project Efficiency target Other: Increasing eco portfolio to 30% of revenue by 2015	
All employees	Monetary reward	Emissions reduction project Energy reduction project Efficiency project Efficiency target Other: Increasing eco portfolio to 30% of revenue by 2015	

Further Information

Page: CC2. Strategy

CC2.1 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

CC2.1a Please provide further details on your risk management procedures with regard to climate change risks and opportunities

Frequency of monitoring	To whom are results reported?	Geographical areas considered	How far into the future are risks considered?	Comment
Annually	Board or individual/sub-set of the Board or committee appointed by the Board	North America, South America, Europe, Asia	> 6 years	At least annually, the full Board discusses (1) the key enterprise risks that management has identified, (2) management accountability for managing or mitigating each risk, (3) the steps being taken to manage each risk, and (4) which Board Committees will oversee each risk area on an ongoing basis. Risk assessments and energy cost forecasts are performed for capital investments in productive capacity; results are reported to the Board annually. Long-term assessments of energy supply reliability, costs and volatilities are material to the internal rate of return and net present value of capital investment projects. In addition, the VP of Sustainable Development annually reports to the Board Committee on Technology, Safety and Sustainability on Praxair's sustainable development programs, targets and risks and opportunities, including those related to Praxair's climate change strategy.

CC2.1b Please describe how your risk and opportunity identification processes are applied at both company and asset level

COMPANY LEVEL RISK/OPPORTUNITY ASSESSMENT: Responses are collected in an annual survey to business management and functional leads worldwide, including sustainable development. 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 up to the highest consequence, i.e., loss of life, as well as the probability of occurrence.

Risks are reviewed by the full Board of Directors annually. As part of that review, the Board decides which Board Committees will oversee each risk area on an ongoing basis. Each Committee then addresses its risk areas during its recurring meetings.

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. Finally, Praxair performs long-term assessments of energy supply reliability, costs and volatilities, which are material to capital investment projects.

CC2.1c How do you prioritize the risks and opportunities identified?

Praxair evaluates internal and external stakeholder views at the corporate level. Praxair’s business strategy reflects continuous engagement with our customers, employees, shareholders, suppliers and the communities in which we operate.

During Praxair’s risk assessment process, Praxair business management and functional leads respond to an annual risk survey to identify risks in their area against an incidence/ severity index. The results are subjected to a range of analyses and combined with the results of external stakeholder engagement to establish priority

concerns. Those risks considered most significant are identified and reported at least annually to executive management and to the Board, and then to shareholders in Praxair's Annual Report, see ITEM1A RISK.

The 2014 list of risks in Praxair's 10k identified climate change risk in the areas of (1) rising energy prices; (2) emerging environmental and GHG regulation; and (3) risks of catastrophic events such as extreme weather.

Because climate change risks were identified by the corporate risk assessment process, they are automatically considered top priorities in the annual sustainable development materiality assessment (SDMA). As part of the SDMA process, Praxair reviews all the issues potentially applicable to the company, and ranks the materiality of these issues. During this process, Praxair consolidates findings from key sustainability research organizations, as well as information gathered from other stakeholders.

For the most recent SDMA, a group of 40 Praxair managers from each of our major countries and corporate functions were asked to rank the top dozen elements for 2014. Six sustainable development priority factors were ultimately identified, which are mapped to Praxair's core values, strategy and growth drivers. "Energy and Climate Change" is one of these six priority factors.

CC2.2 Is climate change integrated into your business strategy?

Yes

CC2.2a Please describe the process of how climate change is integrated into your business strategy and any outcomes of this process

i. Influence: Energy & climate change-related initiatives, goals and targets are integrated into Praxair's overall business strategy. The overall business strategy is influenced by the energy & climate change risks and opportunities identified during Praxair's annual risk assessment process, as well as performance against energy & climate change goals and targets. Our corporate GHG targets are the main components of our business strategy influenced by climate change.

INTERNAL PROCESS FOR COLLECTING AND REPORTING INFORMATION: Praxair has a Sustainable Development (SD) Management System in place to drive the internal process for collecting SD performance data, which includes energy and GHG data. Performance data is reviewed monthly by the businesses and senior management and quarterly by the executive leadership team, which defines and executes Praxair's overall SD strategy. Energy & climate change performance, risks and opportunities are considered in the development of Praxair's SD targets.

The vice president of sustainable development also reports SD performance information at least twice per year to the CEO and the Executive Leadership SD Steering Committee, and annually to the Board of Directors Committee on Technology, Safety and Sustainability, which oversees energy and climate change issues.

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 to Praxair's business driven by climate change.

iii. Short-Term Strategy: Climate change has influenced Praxair's short-term (1 to 6 years) business strategy, most importantly by serving as the driver for the development of corporate GHG targets. The achievement of these targets is part of the management variable compensation goals. For example: Energy is a large cost item for Praxair; this influenced our corporate strategy and led us to set an ASU design efficiency target. When we met our original target of 6% improvement in 2013, we set a new target of 8.5% improvement, 2010-2015. At the end of 2014 we had achieved 7.5%.

Our focus on achieving these targets aligns directly with cost savings initiatives. Praxair has developed environmental KPIs to understand environmental and GHG costs in operations. Our productivity organization saves over 5% off our gross cost stack each year. In 2010 we started to report the environmental savings from

productivity projects. In 2014 this grew to more than $130 million gross savings and 450,000 MT CO2e saved. Tracking environmental productivity allows us to see the relationship between different activities, such as reducing energy and reducing water and/or waste.

iv. Long-Term Strategy: Defined as more than 6 years in the future; we see long-term business opportunity from innovation that takes advantage of opportunities presented by climate change. With Praxair's business model, much of the environmental benefit we provide customers is energy efficiency. Praxair has 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 that at least 30% revenue should come from our eco portfolio by 2015, i.e., from products that bring environmental benefit (22% in 2009; 32% in 2014). We are in the process of setting a new eco portfolio target through 2020.

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 annual energy savings (vs. baseline) of 1.8 million MWh of electricity and 2.5 million MMBtu of natural gas, delivering anticipated cumulative savings in excess of $600 million and 6 million MT CO2e by the end of the goal period. Through 2014, cumulative savings are more than $200 million and 1.6 million MT CO2e avoided. We also perform energy cost forecasts and risk assessments for capital projects to manage risks associated with the long-term reliability of energy supplies.

v. Strategic Advantage: The focus on energy efficiency and GHG emissions reductions reduces Praxair's risk from higher energy costs, and is a significant contributor to our operational and financial results and Praxair's industry-leading operating margin and return on capital.

COMPETITIVE ADVANTAGE: GHG goals are a clear sign of leadership in our sector – evidenced by recognition received from CDP and others. Energy efficiency directly drives business results by providing Praxair's customers with a lower cost solution to industrial gas production, typically than they can generate/supply on their own, which allows us to win more customers, among other benefits.

Praxair invested in the calculation of the carbon productivity of our major products and applications (e.g., hydrogen for refining and oxygen in the steel industry), and the validation and communication of this information to our customers and other stakeholders. 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 other stakeholders and differentiates us in our sector.

Employee environmental engagement is a key part of our employee engagement strategy. GHG targets include all employees at all levels. 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. Employee environmental engagement is helping save money, energy and GHG emissions, reduce other resource consumption, improve safety and operational discipline, and is driving environmental innovation.

vi. Business Decisions: During 2014, Praxair won a long-term hydrogen supply contract by Plug Power Inc., a fuel cell solutions provider. Per the contract, Praxair will supply liquid hydrogen to Plug Power customers in the U.S. Praxair recently announced it was building a steam methane reformer to increase the supply of hydrogen for customers served from its liquid hydrogen plant in Niagara Falls, NY. When completed in 2015, the liquid hydrogen production capacity of this plant will increase by 50%. By producing hydrogen in Niagara Falls, Praxair takes advantage of a power purchase agreement that the hydrogen will be produced using 100% renewable energy. Praxair is the largest supplier of carbon-free liquid merchant hydrogen in the U.S. This was a significant business decision that was influenced by regulatory risks, the rising cost of energy and growing demand for our products.

CC2.2c Does your company use an internal price of carbon?

No, and we currently don't anticipate doing so in the next 2 years

CC2.3 Do you engage in activities that could either directly or indirectly influence public policy on climate change through any of the following? (tick all that apply)

Direct engagement with policy makers
Trade associations

CC2.3a On what issues have you been engaging directly with policy makers?

Focus of legislation	Corporate Position	Details of engagement	Proposed legislative solution
Energy efficiency	Support	Praxair actively supported the Shaheen-Portman Senate Bill 1392, the Energy Savings and Industrial Competitiveness Act (This bill was pending before the U.S. Congress during 2014, and was signed into law in May 2015). This bipartisan 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 included 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 supported this legislation with no exceptions. We supported the overall objective of the bill, which is to drive energy efficiency in manufacturing.
Clean energy generation	Support	Praxair is a leading proponent of the Promoting Water Stewardship and Efficient Oil and Gas Production bill, HB 2691, presently before the Texas State Legislature. This bill provides tax incentives for the use of alternative base fluids, like carbon dioxide and nitrogen, in fracturing wells. The use of such fluids reduces the use of water and promotes a more sustainable way of extracting natural gas. Praxair is a proponent of this proposal and has built a diverse coalition of parties to advocate for its passage. Praxair's DryFrac TM Waterless Fracturing Technology, launched in September 2014, can replace water use in fracturing wells and can increase yields of natural gas. Much of the CO2 used in Praxair's liquid CO2 technology is captured from industrial off-gas and purified.	Praxair supports this legislation with no exceptions. If enacted, this incentive would be unprecedented in its drive of carbon utilization and water stewardship.

CC2.3b Are you on the Board of any trade associations or provide funding beyond membership?

No

CC2.3h 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 ensure 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, all of 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 and General Counsel to ensure consistency of public policy advocacy with Praxair's sustainability strategy, including our energy and GHG strategy. The VP & Chief Sustainability Officer works closely with government relations and participates in cross-functional groups to review advocacy positions that have an environmental or climate change impact. In turn, government relations has a seat on the Sustainable Development Council, which meets quarterly.

CC2.4 Would your organization's board of directors support an international agreement between governments on climate change, which seeks to limit global temperature rise to under two degree Celsius from pre-industrial levels in line with IPCC scenarios such as RCP2.6?

No opinion

CC2.4a Please describe your board's position on what an effective agreement would mean for your organization and activities that you are undertaking to help deliver this agreement at the 2015 United Nations Climate Change Conference in Paris (COP 21)

No response

Further Information

Page: CC3. Targets and Initiatives

CC3.1 Did you have an emissions reduction target that was active (ongoing or reached completion) in the reporting year?

Absolute and intensity targets

CC3.1a 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
Abs1	Scope 3: Processing of sold products	11%	100%	2014	40546000	2014	Praxair has an annual target to enable twice the amount of our own Scope 1+2 emissions to be avoided by customers. We calculated the carbon productivity of 4 signature products in 4 markets: Hydrogen sold to make ultra-low sulfur fuel, Krypton sold to insulate windows, Oxygen sold to optimize combustion in steelmaking, and Argon for welding. These markets contributed 11% of sales in 2014. As we explain in Question 14.1, Praxair does not calculate customer GHG emissions. So we express this target as 100% reduction of twice our 2014 emissions (20,245,000 MT CO2e * 2 = 40,490,000 MT CO2e). For the purposes of estimating the % emissions in scope, we assume the share of Scope 3 emissions is equal to the market share of these applications.
Abs2	Scope 1	1%	3%	2012	81000	2015	In 2012, Praxair set a target to reduce fuel consumption and GHG emissions by 3% from bulk trucking in the U.S., by installing on-board computers (OBCs). This target shows how the use of technology in our trucks is improving fuel efficiency and corresponding GHG emissions.

CC3.1b 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
Int1	Scope 2	84%	6%	metric tonnes CO2e per metric tonne of product	2009	0.19	2015	Praxair has a target to improve energy intensity from Air Separation Units (ASUs) by 6% by 2015, from a 2009 baseline. This equates to 1% per year. ASUs are our largest users of electricity, and therefore our largest source of Scope 2 emissions. We have translated this target into a GHG target by using a constant average global emission factor. We recognize that emission factors vary greatly across regions and change over time, but because energy intensity is our business metric, we followed CDP's guidance in the use of this methodology for the purposes of calculating performance against this target.

ID	Scope	% of emissions in scope	% reduction from base year	Metric	Base year	Normalized base year emissions	Target year	Comment
Int2	Scope 1	45%	2.4%	metric tonnes CO2e per metric tonne of product	2009	8.27	2015	Praxair has a target to improve GHG intensity from Hydrogen Production by 2.4% by 2015, from a 2009 baseline. This equates to 0.4% improvement each year. Hydrogen is Praxair's principal source of Scope 1 emissions and one of our most significant growth drivers. The hydrogen target was set in 2009 for hydrogen facilities operating at the time. The target does not include new hydrogen plants that started operating after 2009. In 2009, the plants included in the target accounted for about 75% of scope 1 emissions from hydrogen. The target now covers 45% of Scope 1 emissions.
Int3	Scope 1	1%	9%	metric tonnes CO2e per metric tonne of product	2009	0.021	2015	Praxair established a trucking target in 2009 to improve GHG intensity from our worldwide bulk trucking operation (Praxair drivers) by 9% through 2015, from a 2009 baseline. This equates to 1.5% per year.

CC3.1c 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
Int1	Increase	39			The increase in absolute emissions is due to increases in production at ASUs worldwide and the construction of new ASU plants since 2009. In 2009, which was a recession year, these plants were not operating at full capacity; in recent years they are operating at or near full capacity. Absolute emissions are calculated here using local and regional emission factors, as opposed to the constant EF used in the conversion of the energy target to a GHG target noted in 3.1b. This is so that information here is consistent with our reporting in sections 9 and 12 of this response.
Int2	Increase	14			The increase in absolute emissions from the hydrogen plants is due to increases in production at these sites. In 2009, which was a recession year, these plants were not operating at full capacity; in recent years they are operating at or near full capacity.
Int3	Increase	19			The increase in absolute emissions is due to an increase in the overall number of miles driven since 2009, which is a function of increased production and sales. In 2009, which was a recession year, Praxair plants were not operating at full capacity, meaning there was less product to deliver. In recent years production has increased, as have product deliveries/miles driven.

CC3.1d For all of your targets, please provide details on the progress made in the reporting year

ID	% complete (time)	% complete (emissions)	Comment
Abs1	100%	100%	Praxair exceeded the target to enable twice the amount of our own Scope 1+2 emissions to be avoided by customers. In 2014, we calculated that GHG emissions avoided from Hydrogen sold to make ultra-low sulfur fuel, Krypton sold to insulate windows, Oxygen sold to optimize combustion in steelmaking, and Argon for welding totaled 50.2 million metric tons CO2e, which exceeds our target of 40.5 million MT by almost 24%. See 3.2a for more information on how we calculate emissions avoided.
Abs2	67%	98%	Praxair is tracking ahead of pace for meeting the target to improve the fuel efficiency of U.S. bulk trucking by 3% by 2015 (from a 2012 baseline). We have installed on-board computers on the majority of these trucks, and so far we have seen a 2.5% improvement in fuel efficiency and corresponding GHG emissions.
Int1	83%	82%	We are making progress against our ASU target to achieve a 6% improvement in GHG intensity by 2015, from a 2009 baseline. By the end of 2014, we had achieved a 4.9% improvement. This is lagging slightly (by 0.1%) behind our plan to achieve a 1% improvement per year. This is due to an increase in demand for argon, which, when produced on its own and without co-products, is more energy intensive than other products produced by our ASUs.
Int2	83%	100%	We exceeded our Hydrogen production target to achieve a 2.4% improvement in GHG intensity by 2015, from a 2009 baseline. By the end of 2014, we had achieved a 5.1% improvement. This result was achieved with a combination of energy efficiency and because we procured by-product sources of hydrogen, which avoids GHG emissions that result from steam methane reforming.
Int3	83%	100%	We exceeded our target to achieve a 9% improvement in GHG intensity in our bulk trucking by 2015, from a 2009 baseline. By the end of 2014, we had achieved an 11.1% improvement. In China, we have increased the number of short-haul, high-volume deliveries. Coupled with strong fuel efficiency programs implemented globally, overall GHG intensity has improved as we deliver more product using less fuel.

CC3.2 Does the use of your goods and/or services directly enable GHG emissions to be avoided by a third party?

Yes

C3.2a Please provide details of how the use of your goods and/or services directly enable GHG emissions to be avoided by a third party

i. How emissions were avoided by a 3rd party: Praxair's Carbon Productivity

Praxair has a target to demonstrate and validate customer carbon productivity for selected products. Praxair's carbon productivity has been calculated for four signature Praxair products in four markets:

- Hydrogen (H2) sold to make ultra-low sulfur diesel fuel (ULSD). When used in trucks fitted with diesel particulate filters, it eliminates black carbon. 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.
- Krypton sold to insulate thermal windows.
- Oxygen (O2) sold to optimize combustion in steelmaking.
- Argon for welding.

In 2014 these markets contributed 11% of sales. These applications allow Praxair customers to avoid Scope 1 and Scope 2 energy-related GHG emissions.

Example: 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 17% 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 GHG and other emissions in other combustion applications throughout the steel mill. Praxair estimates that using our oxygen in steelmaking avoids 11 million metric tons CO2e per year.

ii. Emissions avoided: These four applications enabled customers to avoid 50.2 million metric tons of Scope 1+2 CO2e in 2014. This includes 11 million MT avoided by the use of oxygen in steelmaking and 37.7 million MT avoided by the use of hydrogen in ultra-low sulfur diesel.

iii. Methodology - Some of our assumptions are provided here, but as the methodologies are lengthy, we provide a full description of our methodologies, including emission factors, assumptions and global warming potentials, at http://www.praxair.com/our-company/sustainable-development/climate-change/offsetting-climate-change.

Example: Hydrogen - H2, a key growth platform for Praxair – is made from natural gas (CH4) and steam. The reaction of CH4 with water (H2O) produces H2 and emits CO2. In addition to enabling the reduction of sulfur from tailpipe emissions, when ultra-low sulfur diesel (ULSD) fuel is used in combination with a diesel particulate filter, 90% or more of black carbon (BC) emissions are eliminated. BC has a global warming potential of 2200. This is 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 (for example, an emission factor of 1.2 grams/gallon to represent the BC emissions from a class 8 truck operating without a diesel particulate filter). The final claim for benefits from H2 production factored in that 33% of Praxair H2 production is used to make ULSD and that 58% of trucks in the USA are fitted with diesel particulate filters.

iv. Praxair is not currently considering originating CERs or ERUs within the framework of CDM or JI.

CC3.3 Did you have emissions reduction initiatives that were active within the reporting year (this can include those in the planning and/or implementation phases)

Yes

CC3.3a 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*	38	7000
Implementation commenced*	340	48000
Implemented*	1989	450000
Not to be implemented	0	0

CC3.3b 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)	Scope	Voluntary/ Mandatory	Annual monetary savings (unit currency - as specified in CC0.4)	Investment required (unit currency - as specified in CC0.4)	Payback period	Estimated lifetime of the initiative	Comment
Energy efficiency: Building services	42 voluntary projects providing permanent reduction in power consumption for lighting retrofits, HVAC controls and building power improvements.	3415	Scope 2	Voluntary	384000	1000000	1-3 years	Ongoing	These projects relate to Praxair's progress toward meeting the ASU GHG intensity target described in question 3.1.
Energy efficiency: Processes	924 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 and reliability optimization.	351386	Scope 1 Scope 2	Voluntary	75860000	85000000	1-3 years	Ongoing	These projects relate to Praxair's progress toward meeting the ASU and Hydrogen GHG intensity targets described in question 3.1.
Process emissions reductions	38 projects that reduced ozone depleting substances (ODS) through refrigerant replacements, reducing transfer and process emissions and process efficiency	56	Scope 1	Voluntary	638000	600000	1-3 years	Ongoing	These projects also helped reduce the total amount of hazardous waste from Praxair sites.

Activity type	Description of activity	Estimated annual CO2e savings (metric tonnes CO2e)	Scope	Voluntary/ Mandatory	Annual monetary savings (unit currency - as specified in CC0.4)	Investment required (unit currency - as specified in CC0.4)	Payback period	Estimated lifetime of the initiative	Comment
Process emissions reductions	94 voluntary projects provided permanent process improvements in 17 different countries for vent gas reductions and reduction of product filling losses; plus project to use supply of available hydrogen byproduct as raw material to reduce operating plant GHG emissions.	18357	Scope 1	Voluntary	5128000	5000000	1-3 years	Ongoing	These projects relate to Praxair's achievement of the 2.4% GHG intensity improvement target for 5 of our Hydrogen plants (see question 3.1).
Transportation: fleet	713 voluntary projects around the globe provided permanent reduction in gasoline and diesel fuel use or fuel efficiency / route efficiency programs, on-site tank size optimization, trailer size optimization and truck modifications such as fairings & skirts for MPG efficiency	29370	Scope 1	Voluntary	35002000	15000000	1-3 years	Ongoing	Investment was not required on all of these projects. The total savings comes from projects requiring investment, as well as those not requiring investment. These projects relate to Praxair's progress toward meeting the 3% absolute GHG reduction target for U.S. bulk trucking and the GHG intensity target for worldwide bulk trucking described in question 3.1.
Behavioral change	30 projects to convert customers from cylinders to 'micro-bulk' tanks or micro-bulk to on-site fixed tanks that reduces number of delivery trips and therefore saves on fuel, GHG emissions and cost.	216	Scope 1	Voluntary	589000	5000000	4-10 years	Ongoing	

Activity type	Description of activity	Estimated annual CO2e savings (metric tonnes CO2e)	Scope	Voluntary/ Mandatory	Annual monetary savings (unit currency - as specified in CC0.4)	Investment required (unit currency - as specified in CC0.4)	Payback period	Estimated lifetime of the initiative	Comment
Low carbon energy purchase	2 projects to purchase renewable energy: one facility in India is purchasing wind energy, and one facility in Brazil is purchasing energy from a small hydroelectric plant.	18000	Scope 2	Voluntary	670000	2500000	4-10 years	Ongoing	Praxair is purchasing wind power in India and hydro power in Brazil through power purchase agreements. The monetary savings and investment required are for the wind purchases only. For the hydro power, there was no investment required, as there was no additional cost for purchasing this power.

CC3.3c 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. In 2014, energy and GHG efficiency projects resulted in savings of more than $130 million, about 600,000 MWh of electricity, 47,000 MMBtus, and 450,000 MT CO2e avoided. Although much of this work has been embedded into the Productivity organization and into the business units, a small dedicated budget (under $50k) was released for some internal software upgrades to improve reporting.

Further Information

Most of Praxair's GHG targets are 6-year targets, running 2010 through 2015. Praxair set 2009 as the baseline for these targets, which is why we often refer to the timeframe of the targets as 2009-2015.

Page: CC4. Communication

CC4.1

Have you published information about your organization'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	Status	Page/Section reference	Attach the document
In mainstream financial reports but have not used the CDSB Framework	Complete	pages 7, 8, 22-23	https://www.cdp.net/sites/2015/27/15027/Climate Change 2015/Shared Documents/Attachments/CC4.1/Praxair2014AnnualReport.pdf
In voluntary communications	Complete	Sustainable Value Rpt pages 3, 9-10, 12-22, 23-24, 26-28, 33, 34, 35, 37-38	https://www.cdp.net/sites/2015/27/15027/Climate Change 2015/Shared Documents/Attachments/CC4.1/Praxair 2014 SVR.pdf
In voluntary communications	Complete	GRI Annex page 11, Environmental Aspect: Energy (EN3-7); Aspect: Emissions, Effluents & Emissions (EN16-18); Aspect: Products & Services (EN26); Aspect: Transport (EN29)	https://www.cdp.net/sites/2015/27/15027/Climate Change 2015/Shared Documents/Attachments/CC4.1/Praxair 2014 SVR_GRI Annex.pdf

Further Information

Praxair's Annual Report, Sustainable Value Report and GRI Annex for the 2014 data year are available online at www.Praxair.com.

Module: Risks and Opportunities

Page: CC5. Climate Change Risks

CC5.1

Have you identified any inherent climate change risks 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

CC5.1a Please describe your inherent risks that are driven by changes in regulation

Risk driver	Description	Potential impact	Time-frame	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
Uncertainty surrounding new regulation	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. EPA has promulgated rules requiring reporting of GHG emissions, and Praxair and many of its suppliers and customers are subject to these rules. EPA has also promulgated regulations to restrict GHG emissions, including final rules regulating GHG emissions from light-duty vehicles and certain large manufacturing facilities, many of which are Praxair customers or suppliers. EPA recently proposed CO2 regulations for both new and existing power plants, which will require controls on GHG emissions from certain suppliers of power to Praxair's operations. In California, hydrogen production plants and a large number of other manufacturing and electricity-generating plants have been identified under state law as a source of CO2 emissions and these plants have also become subject to the state's recently promulgated cap and trade regulations. In addition to these developments in the U.S., the European Union has a cap and trade scheme - the Emissions Trading System - which has wide implications for our customers and may impact certain Praxair operations in Europe. Climate change and energy	Increased operational cost	Up to 1 year	Direct	More likely than not	Medium	Among other impacts, cap and trade schemes are expected to raise the cost of energy, which is a significant cost for Praxair. Also, legislation that limits GHG emissions may impact growth in this area by increasing operating costs and/or decreasing demand. For example, if energy prices rise 10%, energy costs to Praxair would rise proportionally and could exceed $100 million.	To manage the potential business risks from uncertainty related to potential GHG emissions regulations, Praxair actively monitors regulatory developments; consults with vendors, insurance providers and industry experts; conducts regular reviews of the business risks with management; conducts regular sensitivity analyses of the impacts of potential energy and raw material cost increases; presents to the Office of the Chairman and Board on various cost scenarios under different potential GHG tax regimes; and explores renewable energy options. Praxair's commercial contracts also routinely provide rights to recover increased electricity, natural gas, and other costs that are incurred by the company. Additionally, Praxair sets corporate energy and GHG targets to manage the risks of an uncertain regulatory environment. These targets drive us to continuously seek	Praxair believes it will continue to mitigate potential costs through the pass through clauses of its product supply contracts. 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 invested in internal consulting to improve its Sustainable Development Management System and reporting. The cost of this was less than $100,000.

Risk driver	Description	Potential impact	Time-frame	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	efficiency laws and policies are being widely embraced by jurisdictions throughout Latin America and Mexico. 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, which are expected to impact certain Praxair facilities. China has also announced plans to launch a national carbon emissions trading scheme in 2016 (although it does not appear the regulations will have a direct impact on GHG emissions from Praxair facilities). Among other impacts, such regulations are expected to raise the costs of energy, which is a significant cost for Praxair. Legislation that limits GHG emissions may impact growth by increasing operating costs and/or decreasing demand.							opportunities to reduce energy use and GHG emissions. For example: Certain Praxair hydrogen plants have a target to improve GHG intensity 2.4% (2009-2015). This target was exceeded in 2014: These hydrogen plants improved GHG intensity by 5.1%. This result was due to increased energy and GHG efficiency and to an increase in byproduct sourcing of hydrogen, which is less GHG-intensive than using natural gas as a feedstock. All of our risk management methods, including our targets, limit the likelihood and magnitude of increased cost from new regulation and reduce the risks to Praxair over the target period (5 years).	

CC5.1b Please describe your inherent risks that are driven by change in physical climate parameters

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
Tropical cyclones (hurricanes and typhoons)	The occurrence of catastrophic events or natural disasters such as extreme weather, including hurricanes and floods, 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 or long-term outages and/or the limitation of supply of energy or other raw materials used in normal business operations.	Reduction/ disruption in production capacity	>6 years	Direct	About as likely as not	Medium-high	The most important risk is to human safety. On the financial side, the replacement cost of a single large Praxair facility could be more than $200 million. On a long-term average annual basis, the Praxair, Inc. portfolio could sustain potentially over $3 million in hurricane losses.	To manage these risks, Praxair continuously monitors current developments, evaluates direct and indirect business risks; consults with vendors, insurance providers and industry experts; and conducts regular reviews of the business risks with management. Praxair works with its insurance provider to evaluate the risk from all perils including natural hazards such as extreme weather, windstorm and flooding. The insurer uses rigorous standards based on their own scientific research and proven solutions that often go beyond national recommendations (e.g. FEMA maps, NFPA codes) to identify and quantify exposures to Praxair assets. Based on their recommendations, Praxair may make investments in infrastructure that adapts to or mitigates risks from anticipated climate change. For example: As part of the siting considerations for Praxair's new data center a review of the flooding and storm water exposures was undertaken. The finished floor elevations were set to ensure no storm water would enter the data center during heavy rains. Our risk management methods limit the potential likelihood and magnitude of a disruption in production capacity due to extreme weather events. When constructing a new site, evaluations provided by our insurance provider can reduce risk in as little as one year.	Praxair annually spends in excess of $20,000 to study its natural catastrophe risk. The service provides, among other items, detailed evaluations by geography of emerging hurricane and flooding vulnerability and likelihood of incidence of extreme weather.

CC5.1c Please describe your inherent risks that are driven by changes in other climate-related developments

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
Reputation	Praxair uses energy and seeks to continually improve its energy efficiency; and its applications often bring energy efficiency, as well as environmental and GHG improvements, to customer processes. Some customers are seeking to reduce GHG gases in their supply chain and ask Praxair to provide information, e.g. with the CDP Supply Chain program, and/or to help meet their targets. If Praxair does not or cannot meet these expectations the company could lose business from that customer.	Reduced demand for goods/ services	1 to 3 years	Direct	Unlikely	Low	The estimated financial implication could be over $1 million in annual sales.	Praxair manages risks to reputation by communicating with customers and the public to demonstrate that its applications create a net GHG benefit. For example, Praxair invested in research to calculate and validate its Carbon Footprint. We promote this research in public communications to help tell our story and manage the risk from our GHG emissions profile to our reputation. Praxair's carbon productivity was calculated for four signature Praxair products in four markets: Hydrogen used to make ultra-low sulfur diesel fuel; Krypton used to insulate thermal windows; Argon sold for welding; and Oxygen used to optimize combustion in steelmaking. In 2014 these markets contributed some 11% of sales. Praxair applications enabled customers to avoid 50.2 million metric tons of CO2e – an amount that exceeded all Praxair GHG emissions by 30 million metric tons. This research and results are offered as part of Praxair's communication to external stakeholders, including on our website and in our SD report, which we publish annually. By being transparent about the GHG impacts of our operations and the GHG benefits of our applications, Praxair limits both the likelihood and magnitude of reduced demand for our products and services due to damage to our reputation. We communicate with our stakeholders regularly, which reduces our risk on an ongoing basis.	Praxair conducted the research in-house with subject-matter experts. We paid external providers for the validation audits. This amount was less than $50,000.

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
Uncertainty in market signals	Cost and Availability of Raw Materials and Energy – Increases in the cost 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. Such attempts may not successfully mitigate cost variability which could negatively impact Praxair's financial condition or results of operations. The supply of energy has not been a significant issue in the geographic areas where Praxair conducts business. However, regional energy conditions are unpredictable and may	Increased operational cost	1 to 3 years	Indirect (Supply chain)	About as likely as not	Medium	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. In addition, if raw materials became unavailable and Praxair was unable to meet its contractual obligations to customers, the company could potentially incur a loss up to the limits of its contractual liability.	Praxair performs long-term assessments of energy supply cost and reliability when making capital investment decisions to help manage the risk of energy supply and cost volatility, which are material to the internal rate of return and net present value of capital investment projects. Praxair also includes escalation and pass-through clauses in customer contracts to recover energy and feedstock costs. Praxair pursues a range of actions to secure multiple sources of raw materials. For example, in Texas, Praxair uses a 2.5 billion standard cubic foot high-purity hydrogen storage cavern. This, together with sourcing by-product hydrogen, provides Praxair and our customers with confidence that we can provide a reliable service over our long-term contracts. Finally, Praxair rigorously pursues energy efficiency, invests in renewable energy, and has set energy and GHG intensity targets to minimize risks related to energy cost and availability. Praxair has targets to improve the GHG efficiency of its bulk trucking, ASUs and hydrogen plants (through 2015; 2009 baseline). These targets have either been met early or are on track. Praxair's management methods reduce the likelihood that disruptions in the supply of energy will have a major impact on operational cost. These investments also reduce the potential magnitude of such disruptions. We make investments in energy efficiency and renewable energy annually, which reduces potential risk on an ongoing basis.	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 invested in internal consulting to improve its Sustainable Development Management System and reporting. The cost of this was less than $100,000.

Risk driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	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 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.								

Further Information

More information on our methodology and external audit of our carbon footprint can be found on our website at http://www.praxair.com/our-company/sustainable-development/climate-change. Praxair does not seek GHG credit or offsets from these claims.

Page: CC6. Climate Change Opportunities

CC6.1

Have you identified any inherent climate change opportunities 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

CC6.1a Please describe your inherent opportunities that are driven by changes in regulation

Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
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 market opportunities in applications like water technologies, carbon capture and sequestration (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	Increased demand for existing products/ services	1 to 3 years	Indirect (Client)	More likely than not	Medium	Our eco portfolio – applications that help customers reduce their environmental footprint – was 32% of Praxair's 2014 sales, or $3.9 billion. Praxair's long-term outlook is to achieve 8-12 percent annual organic sales growth from these drivers. If applications meet this target, this has a direct impact on Praxair's profitability.	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. The R&D group has set a target for 2015 that Praxair's eco portfolio should equal or exceed 30% of sales, or more than $3 billion of revenue by 2015. In 2014, Praxair's eco portfolio was 32% of sales. For example, Praxair is providing liquid hydrogen to fuel cell makers as a transportation fuel. In 2014, Praxair announced an agreement with Plug Power that pairs Plug Power's GenFuel hydrogen fueling infrastructure solution with Praxair's liquid hydrogen supply capability. Praxair is the largest supplier of carbon-free Merchant Hydrogen in the U.S. To meet additional demand from this agreement, Praxair has built a new Steam Methane Reformer that will increase Praxair's Niagara Falls liquid hydrogen production capacity by 50%. By setting targets for our eco portfolio, Praxair is able to increase the likelihood and magnitude of new environmental regulations	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 2014 ($96 million) went to develop the applications and processes described in this section. An external auditor was paid to validate claims for CO2e avoided from Praxair oxygen and hydrogen applications, and this was less than $50,000 in fees.

Opportunity driver	Description	Potential impact	Timeframe	Direct/Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	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 supplies Silane, a key raw material for the thin film deposition of amorphous and polysilicon films in the solar industry.							leading to increased demand for our products and applications. We expect these opportunities to materialize within the next 3 years.	

CC6.1b Please describe the inherent opportunities that are driven by changes in physical climate parameters

Opportunity driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
Change in precipitation extremes and droughts	Changes in precipitation extremes is leading to water shortages, especially in mega-cities where there are population pressures. This in turn leads to stricter regulation of water quality, as we are seeing in emerging economies such as China. 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	Increased demand for existing products/services	1 to 3 years	Indirect (Client)	More likely than not	Medium	The potential financial implications can be calculated from the size of the market and the size of Praxair's opportunity. The global water and wastewater network market is expected to grow at a compound annual growth rate of 9.6% from 2014 to 2020. Industry experts expect that the demand for water treatment products in China alone will grow 10.3 percent annually to $7.5 billion in 2015. Wastewater is an $80 million end market for Praxair and is growing at >10% per year, 2012 – 2016. This represented a market opportunity of about $10 million in 2014.	Praxair's water business is supported by a business development group who is actively investing in innovation and business development. Praxair has identified the need for massive water infrastructure development. For example: Praxair has signed a long-term gas supply contract with Gao Bei Dian Water Recycling Plant of Beijing Drainage Group Co., Ltd. Praxair will build, own and operate a vacuum pressure swing adsorption unit to supply gaseous oxygen to the plant for its wastewater treatment and recycling processes. The plant treats wastewater from municipal drainage and uses the recycled product as cooling water for local power plants as well as for landscaping needs throughout the city. The plant helps to mitigate water shortages and supports the city's sustainable development efforts. To maintain this innovation stream, Praxair R&D developed a target that Praxair's eco portfolio should equal or exceed 30% of sales, or more than $3 billion of revenue by 2015. In 2014, our eco portfolio was 32% of sales, or $3.9 billion. By setting a target for our eco portfolio, Praxair is able to increase the likelihood and magnitude of our opportunity to increase demand for products	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 2014 ($96 million) went to develop the applications and processes described in this section.

Opportunity driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
	safety and reducing 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 more than 70 million people around the world.							and applications that help companies manage changes in precipitation extremes. We expect these opportunities to materialize within the next 3 years.	

CC6.1c Please describe the inherent opportunities that are driven by changes in other climate-related developments

Opportunity driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
Changing consumer behaviour	As more and more companies and individuals acknowledge climate change and its impacts, they will demand new products and services 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 are some of the gases sold into Praxair's end-markets in electronics (7% revenue), aerospace (3%) and "other" (9%), and that provide growth opportunities as markets continue to grow for climate-related technologies.	New products/ business services	Up to 1 year	Indirect (Client)	More likely than not	Medium	Solar energy: Praxair sales are forecasted to grow from $60 million at ~ 10% per year. 2nd generation biofuels use industrial and specialty gases at many points in their supply chain and provide a potential ~$100 million gases market by 2015.	Praxair is actively investing in innovation and business development in order to meet customer demand for products with a lower carbon footprint. To maintain an environmental innovation stream, Praxair has set a target that our eco portfolio - applications that bring customers environmental benefit - should equal or exceed 30% of sales, or more than $3 billion revenue by 2015. In 2014, Praxair's eco portfolio was 32% of sales, or $3.9 billion, and 42% applications growth was from the eco portfolio. This focus on environmental innovation is yielding positive market results. Praxair's Global Market Development organization raises awareness of applications within our eco portfolio across a broad range of markets and regions. For example, in photovoltaics, Praxair is developing and promoting the use of its products throughout the PV supply chain. We also raise awareness by providing information about products in our eco portfolio on our website. For example, we show how Praxair CO2 can be used in industrial applications where the carbon is chemically "fixed" and not emitted to the atmosphere; see Praxair.com/our-company/sustainable-development/climate-change. By working toward the eco portfolio target, Praxair is able to increase the likelihood and magnitude of our	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 2014 ($96 million) went to develop the applications and processes described in this section.

Opportunity driver	Description	Potential impact	Timeframe	Direct/ Indirect	Likelihood	Magnitude of impact	Estimated financial implications	Management method	Cost of management
								opportunity to meet consumers' demands for climate friendly products and applications. We expect these opportunities to materialize regularly, as we are constantly looking for ways to increase our eco portfolio.	

Further Information

Module: GHG Emissions Accounting, Energy and Fuel Use, and Trading

Page: CC7. Emissions Methodology

CC7.1 Please provide your base year and base year emissions (Scopes 1 and 2)

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

CC7.2 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

CC7.2a If you have selected "Other" in CC7.2 please provide details of the standard, protocol or methodology you have used to collect activity data and calculate Scope 1 and Scope 2 emissions

The California ARB Regulation for the Reporting of Greenhouse Gas Emissions

CC7.3 Please give the source for the global warming potentials you have used

Gas	Reference
CO2	IPCC Fourth Assessment Report (AR4 - 100 year)
CH4	IPCC Fourth Assessment Report (AR4 - 100 year)
N2O	IPCC Fourth Assessment Report (AR4 - 100 year)
SF6	IPCC Fourth Assessment Report (AR4 - 100 year)
HFCs	IPCC Fourth Assessment Report (AR4 - 100 year)

CC7.4 Please give the emissions factors you have applied and their origin; alternatively, please attach an Excel spreadsheet with this data at the bottom of this page

Fuel/Material/Energy	Emission Factor	Unit	Reference
Diesel/Gas oil	22.4	lb CO2e per gallon	US EPA AP 42
Natural gas	120	lb CO2e per 1000 ft3	US EPA AP 42
Distillate fuel oil No 2	223	lb CO2 per gallon	US EPA AP 42

Further Information

Page: CC8. Emissions Data - (1 Jan 2014 - 31 Dec 2014)

CC8.1 Please select the boundary you are using for your Scope 1 and 2 greenhouse gas inventory

Financial control

CC8.2 Please provide your gross global Scope 1 emissions figures in metric tonnes CO2e

7761000

CC8.3 Please provide your gross global Scope 2 emissions figures in metric tonnes CO2e

12484000

CC8.4 Are there are any sources (e.g. facilities, specific GHGs, activities, geographies, etc.) of Scope 1 and Scope 2 emissions that are within your selected reporting boundary which are not included in your disclosure?

Yes

CC8.4a Please provide details of the sources of Scope 1 and Scope 2 emissions that are within your selected reporting boundary which are not included in your disclosure

Source	Relevance of Scope 1 emissions from this source	Relevance of Scope 2 emissions excluded from this source	Explain why the source is excluded
Electricity use at very small sites	No emissions excluded	Emissions are not relevant	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.

CC8.5 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	Uncertainty range	Main sources of uncertainty	Please expand on the uncertainty in your data
Scope 1	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 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, much of which is made from natural gas (CH4). GHG emissions from hydrogen production are based on 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; or if the hydrogen is by-product sourced. 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.
Scope 2	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 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 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.

CC8.6 Please indicate the verification/assurance status that applies to your reported Scope 1 emissions

Third party verification or assurance complete

CC8.6a Please provide further details of the verification/assurance undertaken for your Scope 1 emissions, and attach the relevant statements

Type of verification or assurance	Attach the statement	Page/section reference	Relevant standard	Proportion of reported Scope 1 emissions verified (%)
Limited assurance	https://www.cdp.net/sites/2015/27/15027/Climate Change 2015/Shared Documents/Attachments/CC8.6a/Verification Letter - 2014.pdf	Pages 1-2	ISO14064-3	100

CC8.7 Please indicate the verification/assurance status that applies to your reported Scope 2 emissions

Third party verification or assurance complete

CC8.7a Please provide further details of the verification/assurance undertaken for your Scope 2 emissions, and attach the relevant statements

Type of verification or assurance	Attach the statement	Page/Section reference	Relevant standard	Proportion of reported Scope 2 emissions verified (%)
Limited assurance	https://www.cdp.net/sites/2015/27/15027/Climate Change 2015/Shared Documents/Attachments/CC8.7a/Verification Letter - 2014.pdf	Pages 1-2	ISO14064-3	100

CC8.8 Please identify if any data points have been verified as part of the third party verification work undertaken, other than the verification of emissions figures reported in CC8.6, CC8.7 and CC14.2

Additional data points verified	Comment
Year on year change in emissions (Scope 2)	Praxair's scope 2 emissions account for 62% of emissions (not including scope 3). Electricity accounts for a significant portion of Praxair's operational spend, and we invest heavily in energy efficiency, especially at our ASUs, which comprise 84% of our Scope 2 emissions. We had the year on year change in Scope 2 emissions verified, and these emissions increased by 5.1%.

CC8.9 Are carbon dioxide emissions from biologically sequestered carbon relevant to your organization?

No

Further Information

Praxair's verification letter is available on our website at www.praxair.com/our-company/safety-and-environment/environment/environmental-management-system

Page: CC9. Scope 1 Emissions Breakdown - (1 Jan 2014 - 31 Dec 2014)

CC9.1 Do you have Scope 1 emissions sources in more than one country?

Yes

CC9.1a Please break down your total gross global Scope 1 emissions by country/region

Country/Region	Scope 1 metric tonnes CO2e
North America	7559000
South America	73000
Europe	43000
Asia, Australasia, Middle East and Africa	86000

CC9.2 Please indicate which other Scope 1 emissions breakdowns you are able to provide (tick all that apply)

By business division
By GHG type

CC9.2a Please break down your total gross global Scope 1 emissions by business division

Business division	Scope 1 emissions (metric tonnes CO2e)
ASUs	482000
Hydrogen Plants	6589000
CO2 Plants	256000
Packaged Gas	156000
Electronics+Surface Technologies	23000
Helium Plants	0
Trucking	251000

Business division	Scope 1 emissions (metric tonnes CO2e)
Corporate Offices	4000

CC9.2c **Please break down your total gross global Scope 1 emissions by GHG type**

GHG type	Scope 1 emissions (metric tonnes CO2e)
CO2	7609000
N2O	67000
SF6	6000
HFCs	77000
CH4	2000

Further Information

Page: CC10. Scope 2 Emissions Breakdown - (1 Jan 2014 - 31 Dec 2014)

CC10.1 **Do you have Scope 2 emissions sources in more than one country?**

Yes

CC10.1a **Please break down your total gross global Scope 2 emissions and energy consumption by country/region**

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 accounted for in CC8.3 (MWh)
North America	6681000	11373000	330000
South America	435000	4074000	49000
Europe	1076000	2626000	0
Asia, Australasia, Middle East and Africa	4292000	5770000	17000

CC10.2

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

By business division

CC10.2a **Please break down your total gross global Scope 2 emissions by business division**

Business division	Scope 2 emissions (metric tonnes CO2e)
ASUs	10536000
Hydrogen Plants	520000
CO2 Plants	202000
Packaged Gas	120000
Electronics + Surface Technologies	41000
Helium Plants	31000
Standard Plant	1028000
Trucking	0
Corporate Offices	6000

Further Information

Page: CC11. Energy

CC11.1 **What percentage of your total operational spend in the reporting year was on energy?**

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

CC11.2

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	2760000
Electricity	23035000
Heat	0
Steam	808000
Cooling	0

CC11.3 Please complete the table by breaking down the total "Fuel" figure entered above by fuel type

Fuels	MWh
Diesel/Gas oil	343000
Natural gas	2413000
Distillate fuel oil No 2	4000

CC11.4 Please provide details of the electricity, heat, steam or cooling amounts that were accounted at a low carbon emission factor in the Scope 2 figure reported in CC8.3

Basis for applying a low carbon emission factor	MWh associated with low carbon electricity, heat, steam or cooling	Comment
Power Purchase Agreements (PPA) not backed by instruments	330000	Our facilities in the Niagara Falls region of New York have a replacement power contract with the local utility that guarantees hydropower. These facilities include a corporate office, an air separation unit, and a hydrogen plant.
Power Purchase Agreements (PPA) not backed by instruments	17000	One facility in India (an air separation unit) began using wind power in 2014. A second facility will also begin using wind power in 2015.
Power Purchase Agreements (PPA) not backed by instruments	49000	In Brazil, Praxair buys renewable energy from a small hydroelectric plant (generation less than 30 MW). We are using this renewable energy at select facilities in Sao Paulo state.

Further Information

Page: CC12. Emissions Performance

CC12.1 How do your gross global emissions (Scope 1 and 2 combined) for the reporting year compare to the previous year?

Increased

CC12.1a Please identify the reasons for any change in your gross global emissions (Scope 1 and 2 combined) and for each of them specify how your emissions compare to the previous year

Reason	Emissions value (percentage)	Direction of change	Comment
Emissions reduction activities	2.50	Decrease	Emissions decreased 2.50% due to energy efficiency and other GHG emissions reduction activities, including new purchases of low carbon energy (as reported in question 11.4). This percent was derived by dividing 450,000 MT CO2e saved (as reported in question 3.3a) by Praxair's 2013 Scope 1+2 total of 18,035,000 MT CO2e * 100 to arrive at 2.50%.
Divestment			
Acquisitions	0.17	Increase	Praxair's acquisition of NuCo2 added 31,000 MT to Praxair's Scope 1 emissions in 2014, which equates to a 0.17% increase. (31,000 divided by last year's emissions of 18,035,000 MT CO2e *100 = 0.17%)
Mergers			
Change in output	14.58	Increase	Emissions in 2014 were 12.25% higher than in 2013. Had Praxair not undertaken emissions reduction activities, emissions would have been 14.75% higher (sum of reported 2014 Scope 1+2 of 20,245,000 MT CO2e + 450,000 MT from emissions reductions activities, minus 2013 reported Scope 1+2 emissions of 18,035,000 MT, divided by 18,035,000 *100). 0.17% of this 14.75% is from the acquisition of NuCO2 noted above. The remaining 14.58% increase is due to changes in output including increased production. Production increased by 5% overall, plus increased demand for argon led to a change in output at our ASUs. Producing argon is less efficient than producing nitrogen or oxygen, because of argon's low concentration in ambient air - it takes more energy to extract argon from the air. The demand for argon resulted in our efficiency being lower than it otherwise would have been. These factors combined account for the 14.58% increase.
Change in methodology			
Change in boundary			
Change in physical operating conditions			
Unidentified			
Other			

CC12.2 Please describe your gross global combined Scope 1 and 2 emissions for the reporting year in MT 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
0.001650	metric tonnes CO2e	unit total revenue	9	Increase	Gross emissions increased by 12%. Revenue grew by 3%. GHG emissions increased at a faster rate in part due to acquiring less energy-efficient industrial and packaged gas businesses in Italy, Asia and North and South America, and because of increased U.S. demand for argon, which is produced at our ASUs less efficiently than nitrogen and oxygen.

CC12.3 Please describe your gross global combined Scope 1 and 2 emissions for the reporting year in MT 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
729	metric tonnes CO2e	FTE employee	11	Increase	Gross emissions increased 12%; the number of full-time employees increased by 1%.

CC12.4 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
0.308	metric tonnes CO2e	metric tonne of product	7	Increase	Gross emissions increased 12%, and production volume only increased by 5%. This is partially due to an increase in demand for argon, which is produced less efficiently than nitrogen or oxygen. Because of argon's low concentration in ambient air, it takes more energy to extract argon from the air. The high demand for argon resulted in our efficiency being lower than it otherwise would have been.

Further Information

Page: CC13. Emissions Trading

CC13.1 Do you participate in any emissions trading schemes?

Yes

CC13.1a 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	Wed 01 Jan 2014 - Wed 31 Dec 2014	44771	0	38801	Facilities we own and operate

CC13.1b What is your strategy for complying with the schemes in which you participate or anticipate participating?

Praxair stays current with developments in global regulations. While Praxair is not covered under the EU Emissions Trading Scheme (ETS), we do have facilities that are part of California's Cap and Trade program and the UK's Climate Change Agreement (the UK program is part of their carbon tax program; it is not a trading scheme). These are all regulated programs; Praxair does not trade allowances in voluntary speculative trading schemes. An entirely robust estimation of the future demands of these trading schemes is not possible. However, Praxair is prepared to participate 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. Praxair's customer contracts pass through increases in the cost of energy, and would also pass through allowance purchases.

If Praxair comes under additional regulated emissions trading regimes such as ETS, we will participate.

CC13.2 Has your organization originated any project-based carbon credits or purchased any within the reporting period?

Yes

CC13.2a Please provide details on the project-based carbon credits originated or purchased by your organization in the reporting period

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 cancelled	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. This is Praxair's third year with this project and third purchase of the same number of credits.	VCS (Verified Carbon Standard)	66	667	Yes	Voluntary Offsetting

Further Information

Page: CC14. Scope 3 Emissions

CC14.1 Please account for your organization's Scope 3 emissions, disclosing and explaining any exclusions

Sources of Scope 3 emissions	Evaluation status	metric tonnes CO2e	Emissions calculation methodology	Percentage of emissions calculated using data obtained from suppliers or value chain partners	Explanation
Purchased goods and services	Not relevant, explanation provided				Praxair's largest purchased good is energy, such as electricity to operate our facilities and natural gas to make hydrogen. Details on our energy purchases and emissions are provided in sections CC7-CC10 of this report. Other goods and services purchased by Praxair include logistics and transportation services, office infrastructure requirements and administrative benefits and services. In the rows below, we detail our largest upstream emissions from the purchase of capital goods, upstream transportation, and upstream energy-related emissions. In 2012 and 2013, we estimated emissions from our consumption of paper using the U.S. EPA's WARM methodology. These emissions, along with emissions from the remaining upstream goods and services, are less than 1% of our scope 3 footprint and are considered to be not relevant when compared to our energy-related activities.
Capital goods	Relevant, calculated	406000	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).	100.00%	
Fuel-and-energy-related activities (not included in Scope 1 or 2)	Relevant, calculated	2050000	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	100.00%	

Sources of Scope 3 emissions	Evaluation status	metric tonnes CO2e	Emissions calculation methodology	Percentage of emissions calculated using data obtained from suppliers or value chain partners	Explanation
			on information from the US Department of Energy. We then added in emissions from upstream natural gas.		
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. These emissions represent less than 2% of our scope 3 footprint. Since they are not relevant to Praxair, we carried over our emissions estimate to 2013 and 2014.	0.00%	
Waste generated in operations	Relevant, calculated	13000	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 uses waste volumes provided by waste vendors and multiplies 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 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.	100.00%	Emissions from waste generated in operations is relevant to Praxair. We have a Zero Waste program that encourages all sites to reduce waste and eliminate sending waste to landfill. Participation in this program is growing and through this program, we track waste data and the GHG benefits from reducing waste.
Business travel	Not relevant, explanation provided				Praxair estimated emissions from business travel in 2012 and 2013. These emissions were about 9,000 metric tons CO2e, representing 0.3% of our scope 3 footprint. Since our level of business travel did not change in 2014 compared to 2013, we did not recalculate these emissions. We do not

Sources of Scope 3 emissions	Evaluation status	metric tonnes CO2e	Emissions calculation methodology	Percentage of emissions calculated using data obtained from suppliers or value chain partners	Explanation
					consider these emissions to be relevant to our scope 3 footprint.
Employee commuting	Not relevant, calculated	54000	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 (2014: 27,780) 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 not take into account employees using public transit or carpooling.	0.00%	
Upstream leased assets	Not relevant, explanation provided				Praxair estimated emissions from leased office space in 2012 and 2013. These emissions were about 15,000 metric tons CO2e in 2013, representing 0.5% of our scope 3 footprint. Since the square footage of leased office space did not change significantly in 2014 compared to 2013, we did not recalculate these emissions. We do not consider these emissions to be relevant to our scope 3 footprint.

Sources of Scope 3 emissions	Evaluation status	metric tonnes CO2e	Emissions calculation methodology	Percentage of emissions calculated using data obtained from suppliers or value chain partners	Explanation
Downstream transportation and distribution	Relevant, calculated	250000	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. About half of Praxair's truck miles each year 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 by assuming contractor fuel efficiency is equivalent to the prior year Praxair driving fuel efficiency. This miles per gallon value was then multiplied by total miles driven, and converted to GHGs using an EPA emission factor for diesel fuel.	100.00%	
Processing of sold products	Not relevant, explanation provided				Guidance for this category is based on the GHG Protocol Corporate Value Chain (Scope 3) Accounting and Reporting Standard, section 6.4. Praxair is at the beginning of many value chains (for carbonated beverage companies, refineries, electronics, aerospace, automotive, healthcare, steel making, etc.). Praxair provides many intermediate products with many downstream applications, each of which has a very different GHG profile. The effort involved in determining Scope 3 emissions from processing of our products is not reasonable, and for this reason, we are unable to reasonably estimate the downstream emissions associated with the various end uses of our products. For these reasons we do not report emissions in the following categories: processing of sold products, use of sold products, and end of life treatment of sold products. Emissions from our CO2 sales to the food industry may be traceable. This market segment is a subset of our food and beverage end market, which is 6% of our annual revenue. Actual CO2 volumes are business confidential. However, customers have

Sources of Scope 3 emissions	Evaluation status	metric tonnes CO2e	Emissions calculation methodology	Percentage of emissions calculated using data obtained from suppliers or value chain partners	Explanation
					requested this information as part of CDP's Supply Chain program and we have provided it to them.
Use of sold products	Not relevant, explanation provided				Guidance for this category is based on the GHG Protocol Corporate Value Chain (Scope 3) Accounting and Reporting Standard, section 6.4. Praxair is at the beginning of many value chains (for carbonated beverage companies, refineries, electronics, aerospace, automotive, healthcare, steel making, etc.). Praxair provides many intermediate products with many downstream applications, each of which has a very different GHG profile. The effort involved in determining Scope 3 emissions from use of our products is not reasonable, and for this reason, we are unable to reasonably estimate the downstream emissions associated with the various end uses of our products. For these reasons we do not report emissions in the following categories: processing of sold products, use of sold products, and end of life treatment of sold products. Emissions from our CO2 sales to the food industry may be traceable. This market segment is a subset of our food and beverage end market, which is 6% of our annual revenue. Actual CO2 volumes are business confidential. However, customers have requested this information as part of CDP's Supply Chain program and we have provided it to them.
End of life treatment of sold products	Not relevant, explanation provided				Guidance for this category is based on the GHG Protocol Corporate Value Chain (Scope 3) Accounting and Reporting Standard, section 6.4. 47% of Praxair's raw materials are non-greenhouse gas

Sources of Scope 3 emissions	Evaluation status	metric tonnes CO2e	Emissions calculation methodology	Percentage of emissions calculated using data obtained from suppliers or value chain partners	Explanation
					atmospheric gases, extracted directly from the air and ultimately returned to the atmosphere with no GHG impact. In addition, Praxair is at the beginning of many value chains (for carbonated beverage companies, refineries, electronics, aerospace, automotive, healthcare, steel making, etc.). Praxair provides many intermediate products with many downstream applications, each of which has a very different GHG profile. The effort involved in determining Scope 3 emissions from end-of-life treatment of our products is not reasonable, and for this reason, we are unable to reasonably estimate the downstream emissions associated with the various end uses of our products. For these reasons we do not report emissions in the following categories: processing of sold products, use of sold products, and end of life treatment of sold products. Emissions from our CO2 sales to the food industry may be traceable. This market segment is a subset of our food and beverage end market, which is 6% of our annual revenue. Actual CO2 volumes are business confidential. However, customers have requested this information as part of CDP's Supply Chain program and we have provided it to them.
Downstream leased assets	Not relevant, explanation provided				Praxair does not have any downstream leased assets.
Franchises	Not relevant, explanation provided				Praxair does not have any franchises.

Sources of Scope 3 emissions	Evaluation status	metric tonnes CO2e	Emissions calculation methodology	Percentage of emissions calculated using data obtained from suppliers or value chain partners	Explanation
Investments	Not relevant, explanation provided				An estimate of Praxair's share of GHG emissions from joint ventures where we own less than 50% was made for 2012 and 2013 based on assuming the same output per $ revenue in our JV's as in our own business. In 2014, we owned only a small share in a joint venture, and our share of revenue in JV's is only a fraction of our total revenue. We estimated emissions from JV's to be less than 1% of our scope 3 footprint and, therefore, consider them not relevant.
Other (upstream)					
Other (downstream)					

CC14.2 Please indicate the verification/assurance status that applies to your reported Scope 3 emissions

Third party verification or assurance complete

CC14.2a Please provide further details of the verification/assurance undertaken, and attach the relevant statements

Type of verification or assurance	Attach the statement	Page/Section reference	Relevant standard	Proportion of Scope 3 emissions verified (%)
Limited assurance	https://www.cdp.net/sites/2015/27/15027/Climate Change 2015/Shared Documents/Attachments/CC14.2a/Verification Letter - 2014.pdf	Pages 1-2	ISO14064-3	9

CC14.3 Are you able to compare your Scope 3 emissions for the reporting year with those for the previous year for any sources?

Yes

CC14.3a Please identify the reasons for any change in your Scope 3 emissions; for each of them specify how your emissions compare to the previous year

Sources of Scope 3 emissions	Reason for change	Emissions value (percentage)	Direction of change	Comment
Fuel- and energy-related activities (not included in Scopes 1 or 2)	Change in output	5	Increase	Gross Scope 1+2 emissions from Praxair's use of electricity and natural gas increased by about 5%, leading to a corresponding 5% increase in Scope 3 emissions from the same activities. The increase is due primarily to the acquisition of new plants in various geographies and an overall increase in production.
Capital goods	Change in output	19	Decrease	Total capital expenditures decreased by 16% from 2013 to 2014. Fewer new plants were built in 2014, resulting in a decrease in the amount of steel purchased and a corresponding decrease in GHG emissions.
Downstream transportation and distribution	Acquisitions	5	Increase	Praxair contractors travelled more miles, in part due to the acquisition of new plants in various geographies. The majority of miles driven to transport product outside the U.S. is done by contract drivers, and most acquisitions made in 2014 were outside the U.S.
Waste generated in operations	Emissions reduction activities	7	Decrease	GHG emissions from the generation of waste have decreased primarily due to the success of Praxair's Zero Waste program, which focuses on emissions reduction activities. Participation in this program continues to increase, resulting in facilities increasing their rates of recycling and reuse, generating less waste overall, and disposing of less waste in landfills. We also made a slight adjustment to 2013 data to correct a conversion from short tons to metric tons.

CC14.4 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

CC14.4a Please give details of methods of engagement, your strategy for prioritizing engagements and measures of success

We engage with utility suppliers (where we work together to reduce emissions from our electricity use) and with contract drivers (where we work together to reduce their emissions from distributing our product). These are two of the largest components of our supply chain, and the two areas where engagement has the greatest impact on managing GHG emissions.

Method of engagement: As a very large energy buyer, Praxair is a strategic customer for many of its electricity providers. Praxair energy reductions can help utility

companies meet state and federal/ national regulations for energy efficiency and renewable energy standards. Also, Praxair's flexible use of power allows the utility companies to effectively manage their loads and not have to build out a capital infrastructure to manage intermittent peaks in demand. Praxair therefore reaches out to these suppliers on a regular planned basis and partners with utility companies one-on-one to optimize these win-win opportunities.

We engage contract drivers by communicating Praxair's supplier expectations, hosting annual Supplier Forums, and partnering on initiatives to improve fuel efficiency.

Prioritizing engagements: Praxair prioritizes engagement with the 25 major utility companies in the U.S. where we have major contracts that collectively account for almost 1/3 of Praxair's global power consumption and more than 90% of Praxair's U.S. power spend, or over $400 million. As energy is the largest component of Praxair's variable costs, energy efficiency is a material issue for the company. Optimizing energy use is a key strategy to minimize risks from increases in energy prices, as well as to increase margin and revenue.

We focus our engagement with contract drivers in Europe and South America, where a higher percentage of drivers are contract drivers (as opposed to Praxair employees).

Measure of success: The results of our engagement are measured in several ways, including, for example, an annual report on energy and CO2e savings resulting from partnerships with utility company suppliers. In 2014, these partnerships saved approximately 15,000 MT CO2e and more than $1 million from energy efficiency, i.e., reduced energy demand. The projects realized an additional more than $1 million in incremental revenue from customer rebates that were incentives to Praxair's investments in capital improvements.

One example illustrates this: In 2014, Praxair participated in the Northern Indiana Public Service Company's (NIPSCO) energy-efficiency program. Praxair is one of NIPSCO's largest customers and this program helps the utility meet Indiana's energy efficiency requirements, which call for a two percent a year reduction in electricity sales by 2019. Praxair's energy conservation activities in the Calumet area of northwest Indiana in 2014 included upgrades to its base load air compression and cooling water systems. These projects are reducing Praxair's energy consumption by approximately 20 million kilowatt hours per year—equivalent to the amount of electricity used by 2,000 U.S. homes a year—and thereby reducing GHG emissions by 12,000 MT of CO2e per year.

The success of our engagement with contract drivers is measured by improvements in fuel efficiency. For example, in Germany, Praxair partnered with contract drivers to install on-board computers in all contract carrier trucks. These contract carriers reported a 3-5 percent average reduction in fuel consumption.

CC14.4b 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
25	30%	Praxair has major contracts with at least 25 major U.S. utility company suppliers that collectively account for almost 1/3 of Praxair's global power consumption and more than 90% of Praxair's U.S. power spend, or over $400 million.

CC14.4c 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
Identifying GHG sources to prioritize for reduction actions	We have prioritized GHG emissions from driving for reduction activities. Drivers drive Praxair product around the world about 30Xs a day, and half of this is done by contract drivers. We track and manage GHG emissions in trucking for both Praxair drivers and contract drivers, to help us improve distribution efficiency around the world. We invest in technology such as route optimization and on-board computers (OBCs), and in training in fuel-efficient driving techniques. Praxair began a pilot program in Germany, installing OBCs in all contract carrier trucks. These contract carriers reported a 75% reduction in driving-related critical safety events and a 3-5 percent average reduction in fuel consumption. Due to the success of this program, OBCs are now being installed in contract carrier fleets across Europe. Beginning in 2014, we began evaluating the data from our contract carriers to identify any gaps and determine whether it would be feasible to extend our 1.5% per year target for improving driving GHG intensity to our worldwide contract drivers. We are still in the process of this evaluation. In addition, suppliers are annually engaged in a series of steps starting with the communication of Praxair's supplier expectations, including environmental improvement. 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. In South America, Praxair hosted the third annual Suppliers' Forum to engage suppliers in sustainability and innovation initiatives. Praxair South America presented the first Sustainability Innovation Supplier Award to a supplier providing forwarding and logistics services. This supplier was chosen for the award for monitoring its GHG footprint and using that information to develop strategies to reduce GHG emissions from trucking.

Further Information

Praxair's verification letter is available on our website at www.praxair.com/our-company/safety-and-environment/environment/environmental-management-system

Module: Sign Off

Page: CC15. Sign Off

CC15.1 Please provide the following information for the person that has signed off (approved) your CDP climate change response

Name	Job title	Corresponding job category
Anne K. Roby	Senior Vice President, Office of the Chairman	Chief Operating Officer (COO)

Further Information

CDP 2015 Climate Change 2015 Information Request