

Linde PLC - Climate Change 2019

C0. Introduction

C0.1

(C0.1) Give a general description and introduction to your organization.

Linde plc is a public limited company formed under the laws of Ireland with its principal offices in the United Kingdom. Linde plc was formed in 2017 in accordance with the requirements of the business combination agreement, dated June 1, 2017, as amended, between Linde plc, Praxair, Inc. ("Praxair") and Linde Aktiengesellschaft ("Linde AG"). Effective October 31, 2018, the business combination was completed and Linde plc is now comprised of the businesses of Praxair and Linde AG (hereinafter the combined group will be referred to as "the company" or "Linde").

Linde is the largest industrial gas company worldwide. It is a major technological innovator in the industrial gases industry. Its primary products in its industrial gases business are atmospheric gases (oxygen, nitrogen, argon, and rare gases) and process gases (carbon dioxide, helium, hydrogen, electronic gases, specialty gases, and acetylene). The company also designs, engineers, and builds equipment that produces industrial gases primarily for internal use and offers its customers a wide range of gas production and processing services such as olefin plants, natural gas plants, air separation plants, hydrogen and synthesis gas plants and other types of process plants. The surface technologies segment supplies wear-resistant and high-temperature corrosion-resistant metallic and ceramic coatings and powders.

Linde serves a diverse group of industries including healthcare, petroleum refining, manufacturing, food, beverage carbonation, fiber-optics, steel making, aerospace, chemicals and water treatment.

In 2018, the companies, Praxair and Linde AG, entered into various agreements with regulatory authorities to satisfy antitrust requirements to secure approval to consummate the business combination. These agreements required the sale of the majority of Praxair's European industrial gases business (completed on December 3, 2018), the majority of Linde AG's Americas industrial gases business (completed on March 1, 2019), as well as certain divestitures of other Praxair and Linde AG businesses in Asia that are expected to be sold in 2019. As of December 31, 2018 and until the completion of the majority of such divestitures, Linde AG and Praxair were obligated to operate their businesses globally as separate and independent companies, and not coordinate any of their commercial operations. The U.S. Federal Trade Commission's (the "FTC") hold separate order ("HSO") restrictions were lifted March 1, 2019, concurrent with the sale of the required merger-related divestitures in the United States.

Praxair was determined to be the accounting acquirer in the business combination (also called the "successor in interest"). Accordingly, the historical financial statements of Praxair for the periods prior to the business combination are considered to be the historical financial statements of the company. The results of Linde AG are included in Linde's consolidated results from the date of the completion of the business combination forward (i.e., for November and December of 2018).

Since Praxair was the accounting acquirer, and since Praxair and Linde AG businesses were obligated to operate as separate and independent entities until March 1, 2019, we provide in this response mostly Praxair-only information for 2018 (legacy Praxair operations accounted for 80 percent of Linde plc reported revenue for 2018). Because of the HSO, Board and management decisions could not be made prior to issuing this response on a combined sustainable development strategy or related KPIs and targets; nor could we start work on aligning methodologies. In these circumstances, we made the decision to report 2018 sustainable development performance against targets using Praxair's Sustainable Development 2020 (SD 2020) targets and reporting for Praxair only. We provide, as appropriate, combined data for 2018 for Linde plc in the Comments fields, using the same accounting methodology as the financial performance data (12 months Praxair plus two months Linde AG).

Where combined governance has already been established, and where information is sourced from the most recent annual report, we reference policies and practices of the new Linde plc as these now fully represent what was the company known as Praxair. Most relevantly to this CDP response, this applies to Linde's 2018 financial filings, which include information on its governance structure, Board of Directors and Board charters, and executive compensation structure as reported in its Proxy, and its significant financial risks including Climate Change as reported in its 2018 10k and its 2018 Annual Report and Directors' Statement.

C0.2

(C0.2) State the start and end date of the year for which you are reporting data.

	Start date	End date	Indicate if you are providing emissions data for past reporting years	Select the number of past reporting years you will be providing emissions data for
Row 1	January 1 2018	December 31 2018	No	<Not Applicable>

C0.3

(C0.3) Select the countries/regions for which you will be supplying data.

- Argentina
- Australia
- Bahrain
- Belgium
- Bolivia (Plurinational State of)
- Brazil
- Canada
- Chile
- China
- Colombia
- Costa Rica
- Denmark
- Dominican Republic
- Germany
- India
- Ireland
- Italy
- Japan
- Mexico
- Netherlands
- Norway
- Panama
- Paraguay
- Peru
- Portugal
- Puerto Rico
- Republic of Korea
- Russian Federation
- Spain
- Sweden
- Taiwan, Greater China
- Thailand
- United Arab Emirates
- United Kingdom of Great Britain and Northern Ireland
- United States of America
- Uruguay

C0.4

(C0.4) Select the currency used for all financial information disclosed throughout your response.

- USD

C0.5

(C0.5) Select the option that describes the reporting boundary for which climate-related impacts on your business are being reported. Note that this option should align with your consolidation approach to your Scope 1 and Scope 2 greenhouse gas inventory.

Financial control

C-CH0.7

(C-CH0.7) Which part of the chemicals value chain does your organization operate in?

Row 1

Bulk organic chemicals

Please select

Bulk inorganic chemicals

Hydrogen

Oxygen

Other industrial gasses

Other chemicals

Specialty chemicals

C1. Governance

C1.1

(C1.1) Is there board-level oversight of climate-related issues within your organization?

Yes

C1.1a

(C1.1a) Identify the position(s) (do not include any names) of the individual(s) on the board with responsibility for climate-related issues.

Position of individual(s)	Please explain
Director on board	Praxair's Board operated until October 31, 2018. The Chairperson of the Board Committee on Technology, Safety and Sustainability (TSS) was a Director on Praxair's Board. This committee was responsible for sustainability and environmental matters, including climate change. The TSS Committee assessed current and emerging risks, and provided oversight and guidance on certain enterprise risks that are not otherwise reviewed by the full Board of Directors or its other committees, including natural disasters and plant control systems security. Linde plc's Board was formed on October 31, 2018. Its Nomination & Governance Committee has responsibility to periodically review the company's guidelines and policies governing its response to important issues in the area of corporate social responsibility, which includes climate change. Its Audit Committee reviews the guidelines and policies by which Linde undertakes enterprise risk assessment and risk management.

C1.1b

(C1.1b) Provide further details on the board’s oversight of climate-related issues.

Frequency with which climate-related issues are a scheduled agenda item	Governance mechanisms into which climate-related issues are integrated	Please explain
Scheduled – all meetings	Reviewing and guiding strategy Reviewing and guiding major plans of action Reviewing and guiding risk management policies Monitoring implementation and performance of objectives Monitoring and overseeing progress against goals and targets for addressing climate-related issues	During 2018, Praxair’s full Board discussed the key enterprise risks identified by management, management accountability for managing or mitigating each risk, the steps being taken to manage each risk, and which Board Committees oversee each risk area on an ongoing basis. Each Committee’s calendar of recurring meeting agenda topics addressed risk areas pertinent to the Committee’s subject-matter responsibilities. For the Technology, Safety and Sustainability (TSS) Committee, these areas included a regular review of the Company’s sustainability program and current and emerging risks and issues related to sustainability and the environment. Other risk areas were regularly reviewed by the full Board, including safety and environmental risk (covered at each Board meeting). In addition, risk assessments and energy cost forecasts were performed for capital investments in productive capacity; results were reported to the Board annually. Beginning in mid-2019, the Linde plc Board has responsibility to review environmental risk at each meeting. The CSO reported to the full Board in mid-2019, including on matters related to climate change. How one of the governance mechanisms contributes to the Board’s oversight: The Chief Sustainability Officer (CSO) reported to the TSS Committee in June 2018. This report included a description of the alignment between the KPIs and targets at both legacy companies (including on Climate Change), and the non-financial reporting requirements that would be required for Linde plc’s annual reporting under Irish Law, that include climate change. This presentation helped the Praxair Board monitor progress against its current five-year sustainable development targets, including those related to energy and climate change. As half the inaugural Linde plc Board was drawn from Praxair, this also helped to provide continuity for the Linde plc Board in 2019.

C1.2

(C1.2) Provide the highest management-level position(s) or committee(s) with responsibility for climate-related issues.

Name of the position(s) and/or committee(s)	Responsibility	Frequency of reporting to the board on climate-related issues
Chief Operating Officer (COO)	Both assessing and managing climate-related risks and opportunities	Quarterly

C1.2a

(C1.2a) Describe where in the organizational structure this/these position(s) and/or committees lie, what their associated responsibilities are, and how climate-related issues are monitored (do not include the names of individuals).

Where in the org structure the position lies: In 2018, Praxair's Senior Vice President (SVP) was equivalent to what CDP calls the chief operating officer. Praxair's SVP was the highest-ranking executive officer responsible for sustainability, including climate change, and was a member of the Office of the Chairman, reporting directly to the CEO. At Linde plc, Praxair's SVP is now an executive vice president (EVP) and holds the same responsibilities.

Why responsibilities for climate change have been assigned to this position: Linde's EVP is responsible for R&D; Global Market Development; the Centers of Excellence; Procurement; Digitalization; Sustainable Development; Safety, Health, Environment and Quality (SHEQ); Praxair Surface Technologies; Global Helium and Rare Gases; and Electronic Materials. The EVP is the position with ultimate responsibility for climate change because climate change, like other sustainable development issues, are integral to Linde's operations. The EVP has oversight over all key aspects of operations.

Specific responsibilities of EVP w/regard to assessment and management of climate-related issues: Under the EVP's direction, Linde routinely conducts sensitivity analyses for operational risk. For example, Climate Change Risks, including risks from natural disasters, are routinely assessed and mitigation actions identified. In addition, the Chief Sustainability Officer (CSO) monitors climate-related issues, including by regularly tracking and reporting to the EVP on progress against Praxair's 2020 sustainable development targets, which include several targets related to energy and climate change. Responsibility for achieving these targets rests with the businesses. Operational targets relating to climate change are reported by all businesses monthly against the targets into the Centers of Excellence and to the CSO. Close monitoring of the achievement of these targets provides regular insight into the company's overall performance in the areas of energy management, GHG emissions intensity, the amount of renewable energy sourced, the benefits to customers in avoiding their GHG emissions from the use of Praxair/Linde products and applications, and the amount of revenue the company earns from products with climate change and other environmental and health benefits. These targets directly address the key climate-related risks and opportunities identified by Linde's Board of Directors in the 2018 Annual Report as material to the business.

C1.3

(C1.3) Do you provide incentives for the management of climate-related issues, including the attainment of targets?

Yes

C1.3a

(C1.3a) Provide further details on the incentives provided for the management of climate-related issues (do not include the names of individuals).

Who is entitled to benefit from these incentives?

Corporate executive team

Types of incentives

Monetary reward

Activity incentivized

Efficiency target

Comment

Selected key strategic and non-financial outcomes were included in variable compensation to recognize that these are also critical to measuring our businesses' health and the potential for future success. The strategic and non-financial goals in 2018 included environmental performance and sustainability, which include key energy and GHG KPIs. Praxair's Compensation Committee determined that Praxair's performance with respect to the non-financial goals was favorable and awarded a positive 35% adjustment. Examples of actions in determining 2018 variable compensation payouts included receiving recognition on the DJSI World Index and consistently being listed on various ESG investment indices. Going forward, the Board has not set KPIs for executive non-financial compensation, but the April 2019 Proxy notes that the Board has set Strategic Business Objectives, which include to achieve best in class performance in environmental responsibility, and that annual payout of variable compensation is impacted by nonfinancial performance in these areas.

C2. Risks and opportunities

C2.1

(C2.1) Describe what your organization considers to be short-, medium- and long-term horizons.

	From (years)	To (years)	Comment
Short-term	0	2	
Medium-term	2	5	
Long-term	5	100	

C2.2

(C2.2) Select the option that best describes how your organization's processes for identifying, assessing, and managing climate-related issues are integrated into your overall risk management.

Integrated into multi-disciplinary company-wide risk identification, assessment, and management processes

C2.2a

(C2.2a) Select the options that best describe your organization's frequency and time horizon for identifying and assessing climate-related risks.

	Frequency of monitoring	How far into the future are risks considered?	Comment
Row 1	Six-monthly or more frequently	>6 years	Linde's full Board of Directors has responsibility to review environmental risk at each Board meeting.

C2.2b

(C2.2b) Provide further details on your organization's process(es) for identifying and assessing climate-related risks.

COMPANY LEVEL RISK/OPPORTUNITY ASSESSMENT: During 2018, Praxair collected responses to the annual enterprise risk survey to business management and functional leads worldwide, including sustainable development. To assess the potential size and scope of identified risks, respondents identified risks in their area against an incidence/ severity index. The results were subjected to a range of analyses to establish significance/ priority concerns. Risks and opportunities were evaluated based on their potential financial implications up to the highest consequence, i.e., loss of life as well as the probability of occurrence. **Substantive financial impact** includes, for example, the replacement cost of a single large production facility, which could be more than \$100 million.

Risks were reviewed by the full Board of Directors, as they have done annually. As part of that review, the Board decided which Board Committees would oversee each risk area on an ongoing basis. Each Committee then addressed its risk areas during its recurring meetings.

ASSET LEVEL RISK/OPPORTUNITY ASSESSMENT: The company level risk assessment took into account information from the field. In addition, risks to physical assets were monitored with periodic and at least annual evaluations from external risk assessors. These risk assessments evaluated each facility worldwide over a certain size, its vulnerability to risks from severe weather, and the potential monetary risk. The data was analyzed to help determine the scope and limit of Praxair's catastrophic insurance coverage. Risk maps were also developed to identify areas prone to severe weather events, where Praxair also had assets. Finally, Praxair performed long-term assessments of energy supply reliability, costs and volatility, which are material to capital investment projects.

C2.2c

(C2.2c) Which of the following risk types are considered in your organization's climate-related risk assessments?

	Relevance & inclusion	Please explain
Current regulation	Relevant, always included	Linde plc's 2018 Annual Report identifies governmental regulations as a risk in Section 1A Risk Factors. This risk was identified as part of the annual company-level risk assessment process. Linde is subject to regulations in a number of areas such as environmental protection, including climate change (for example, certain Linde sites are subject to California's cap and trade program). Legislation that limits GHG emissions may impact growth by increasing capital, compliance, operating and maintenance costs and/or decreasing demand. Violations of these laws could result in substantial penalties or sanctions. Therefore, Linde assesses risks associated with both current and emerging regulations. At an asset level, sites evaluate compliance risks related to existing regulations, including those related to limiting GHG emissions, through the implementation of a Responsible Care(R) management system. NOTE: For all risks in this section, we refer to risks identified in Linde plc's 2018 Annual Report. The risk assessment completed for this report applied equally to legacy Praxair and legacy Linde AG operations. While we report legacy Praxair performance data in other sections, here we can report as Linde plc, as there is no difference in the risks identified if we were to only report as Praxair.
Emerging regulation	Relevant, always included	Linde plc's 2018 Annual Report identifies governmental regulations as a risk in Section 1A Risk Factors. This risk was identified as part of the annual company-level risk assessment process. Linde is subject to regulations in a number of areas such as environmental protection, including climate change (for example, certain Linde sites may become subject to the carbon tax that will come into force in Argentina in 2019). Legislation that limits GHG emissions may impact growth by increasing capital, compliance, operating and maintenance costs and/or decreasing demand. Violations of these laws could result in substantial penalties or sanctions. Therefore, Linde assesses risks associated with both current and emerging regulations. At an asset level, sites evaluate compliance risks related to emerging regulations, including those related to limiting GHG emissions, through the implementation of a Responsible Care(R) management system. NOTE: For all risks in this section, we refer to risks identified in Linde plc's 2018 Annual Report. The risk assessment completed for this report applied equally to legacy Praxair and legacy Linde AG operations. While we report legacy Praxair performance data in other sections, here we can report as Linde plc, as there is no difference in the risks identified if we were to only report as Praxair.
Technology	Relevant, always included	Linde plc's 2018 Annual Report identifies technological advances as a risk in Section 1A Risk Factors. This risk was identified as part of the annual company-level risk assessment process. If Linde fails to keep pace with technological advances in the industry, including those related to the transition to a low carbon economy, customers may not continue to buy the company's products and results of operations could be adversely affected. Therefore, Linde assesses risks related to both R&D and changing customer behavior (e.g., increasing demand for low carbon products), and actively works to drive innovation and increase revenue from products that bring customers or end-user environmental or social benefit. NOTE: For all risks in this section, we refer to risks identified in Linde plc's 2018 Annual Report. The risk assessment completed for this report applied equally to legacy Praxair and legacy Linde AG operations. While we report legacy Praxair performance data in other sections, here we can report as Linde plc, as there is no difference in the risks identified if we were to only report as Praxair.

	Relevance & inclusion	Please explain
Legal	Relevant, always included	Linde plc's 2018 Annual Report identifies litigation and governmental investigations as a risk in Section 1A Risk Factors. This risk was identified as part of the annual company-level risk assessment process and includes all types of litigation, including those related to environmental regulations. The outcome of a litigation action may adversely affect the company's financial results. Linde's subsidiaries are party to various lawsuits and governmental investigations arising in the ordinary course of business. We consider legal risks as they relate to climate change to be minimal. We have not experienced and do not anticipate legal actions related to climate change to have a substantive impact on operations. NOTE: For all risks in this section, we refer to risks identified in Linde plc's 2018 Annual Report. The risk assessment completed for this report applied equally to legacy Praxair and legacy Linde AG operations. While we report legacy Praxair performance data in other sections, here we can report as Linde plc, as there is no difference in the risks identified if we were to only report as Praxair.
Market	Relevant, always included	Markets for sourcing raw materials and energy: Linde plc's 2018 Annual Report identifies the cost and availability of raw materials and energy as a risk in Section 1A Risk Factors. This risk was identified as part of the annual company-wide risk assessment process. Energy is the single largest cost item in the production and distribution of industrial gases. Most of Linde's energy requirements are in the form of electricity, natural gas and diesel fuel for distribution. Linde attempts to minimize the financial impact of variability in these costs through the management of customer contracts and reducing demand through operational productivity and energy efficiency. Large customer contracts typically have escalation and pass-through clauses to recover energy and feedstock costs. Such attempts may not successfully mitigate cost variability which could negatively impact its financial condition or results of operations. For carbon dioxide, carbon monoxide, helium, hydrogen, specialty gases and surface technologies, raw materials are largely purchased from outside sources. Where feasible, Linde sources several of these raw materials, including carbon dioxide, hydrogen and calcium carbide, as chemical or industrial byproducts. In addition, Linde 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. NOTE: For all risks in this section, we refer to risks identified in Linde plc's 2018 Annual Report. The risk assessment completed for this report applied equally to legacy Praxair and legacy Linde AG operations. While we report legacy Praxair performance data in other sections, here we can report as Linde plc, as there is no difference in the risks identified if we were to only report as Praxair.
Reputation	Relevant, always included	Linde plc's 2018 Annual Report identifies potential product defects or inadequate customer care as risks in Section 1A Risk Factors. These risks were identified as part of the annual company-level risk assessment process. Linde operates in a highly competitive environment. Risks associated with products and services may result in potential liability claims, the loss of customers or damage to Linde's reputation. We monitor evolving attitudes toward climate-related issues and the associated expectations that may impact how Linde's actions and products are viewed. NOTE: For all risks in this section, we refer to risks identified in Linde plc's 2018 Annual Report. The risk assessment completed for this report applied equally to legacy Praxair and legacy Linde AG operations. While we report legacy Praxair performance data in other sections, here we can report as Linde plc, as there is no difference in the risks identified if we were to only report as Praxair.
Acute physical	Relevant, always included	Linde plc's 2018 Annual Report identifies catastrophic events such as extreme weather including hurricanes and floods, as a risk in Section 1A Risk Factors. This risk was identified as part of the annual company-level risk assessment process. The occurrence of catastrophic events or natural disasters, such as hurricanes and floods, could disrupt or delay Linde's ability to produce and distribute its products to customers and could potentially expose Linde to third-party liability claims. In addition, such events could impact Linde's customers and suppliers resulting in temporary or long-term outages and/or the limitation of supply of energy and other raw materials used in normal business operations. At an asset level, risks to physical assets (such as facilities over a certain size) are evaluated by external risk assessors to assess vulnerability to risks from severe weather, and the potential monetary risk. NOTE: For all risks in this section, we refer to risks identified in Linde plc's 2018 Annual Report. The risk assessment completed for this report applied equally to legacy Praxair and legacy Linde AG operations. While we report legacy Praxair performance data in other sections, here we can report as Linde plc, as there is no difference in the risks identified if we were to only report as Praxair.
Chronic physical	Relevant, always included	Linde's 2018 Annual Report identifies catastrophic events such as extreme weather as a risk in Section 1A Risk Factors. This risk was identified as part of the company-level risk assessment process. The occurrence of catastrophic events, such as chronic extreme weather events, could disrupt or delay Linde's ability to produce and distribute its products to customers and could potentially expose Linde to third-party liability claims. In addition, such events could impact Linde's customers and suppliers resulting in temporary or long-term outages and/or the limitation of supply of energy and other raw materials used in normal business operations. A detailed technical and commercial evaluation of the impacts of rising ambient temperature on our production plants was carried out, with a special focus on changes in energy demand. The SHEQ team is integrating this tool into their pre-investment environmental assessments of asset-level capital projects. NOTE: For all risks in this section, we refer to risks identified in Linde plc's 2018 Annual Report. The risk assessment completed for this report applied equally to legacy Praxair and legacy Linde AG operations. While we report legacy Praxair performance data in other sections, here we can report as Linde plc, as there is no difference in the risks identified if we were to only report as Praxair.
Upstream	Relevant, always included	Linde has identified upstream risks in a variety of other categories. For example, see market risks, where the cost and availability of raw materials coming from upstream suppliers could impact Linde operations. This risk was identified as part of the annual company-level risk assessment process. NOTE: For all risks in this section, we refer to risks identified in Linde plc's 2018 Annual Report. The risk assessment completed for this report applied equally to legacy Praxair and legacy Linde AG operations. While we report legacy Praxair performance data in other sections, here we can report as Linde plc, as there is no difference in the risks identified if we were to only report as Praxair.
Downstream	Relevant, always included	Linde has identified downstream risks in a variety of other categories. For example, see technology where the ability of Linde to innovate to meet customer demands is crucial for the company's success. This risk was identified as part of the annual company-level risk assessment process. NOTE: For all risks in this section, we refer to risks identified in Linde plc's 2018 Annual Report. The risk assessment completed for this report applied equally to legacy Praxair and legacy Linde AG operations. While we report legacy Praxair performance data in other sections, here we can report as Linde plc, as there is no difference in the risks identified if we were to only report as Praxair.

(C2.2d) Describe your process(es) for managing climate-related risks and opportunities.

Process for managing climate risks: During Praxair's 2018 annual enterprise risk assessment process, Praxair business management and functional leads responded to an annual risk survey to identify risks in their area against an incidence/ severity index. The results were subjected to a range of analyses and combined with the results of external stakeholder engagement to establish priority concerns. Those risks considered most significant were identified and reported at least annually to executive management and to the Board, and then to shareholders in Linde's Annual Report, see ITEM 1A RISK.

The list of risks in Linde's 2018 10k identified climate change risk in the areas of rising energy prices; emerging environmental and GHG regulation; and risks of catastrophic events such as extreme weather. For Praxair, the Board decided which Board Committees would oversee each risk area on an ongoing basis. Each Committee then addressed its risk areas during its recurring meetings.

All of our risk management methods, including our targets, are intended to limit the likelihood and magnitude of increased costs (e.g., from new regulation) and reduce risks to the company over the target period (5 years).

Because climate change risks were identified by the annual 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 reviewed all the issues potentially applicable to the company and ranked the materiality of these issues (both risks and opportunities are considered). During this process, Praxair consolidated findings from key sustainability research organizations plus information from other stakeholders.

For the most recent SDMA in 2018, as part of internal merger integration discussions, both legacy companies (Praxair and Linde AG) confirmed alignment on sustainability priority factors and KPIs. "Energy and Climate Change" is one of these six priority factors. Internal reviews of the KPIs and targets included meetings with the integration team, with segment and regional business leaders, functional directors, with the Praxair Board Committee on Technology, Safety and Sustainability, with the Linde Management Committee (as individuals and a group), and in mid-2019 with the full Linde Board.

Praxair has a set of 2020 sustainable development targets to manage the risks related to the priority factors. In the area of climate change, Praxair established targets related to renewable energy purchases, energy savings, greenhouse gas efficiency, the amount of revenue Praxair earns from products that provide an environmental (e.g., GHG or energy savings) or health benefit, and product stewardship (avoiding more GHG from the use of certain applications by our customers than Praxair emits). Progress against these targets is monitored regularly and results are reported at various levels, including to the Board. Executive compensation was also directly tied to achievement of these targets. The Linde Board will establish non-financial incentives, including in environmental responsibility, in executive variable compensation for 2019 and going forward.

Process for managing climate opportunities: The process for managing opportunities is the same as the process for risk. Targets identified to take advantage of climate-related opportunities include earning at least 50% of revenue from Praxair's sustainable development portfolio, which includes products that bring customers environmental and social benefits (environmental benefits include energy savings and GHG emissions avoidance); and ensuring Praxair provides at least two times net benefit in GHG emissions, meaning our products help customers avoid at least twice our calculated scopes 1 and 2 emissions.

Case studies: Praxair's process for managing **physical risks and opportunities** (related to extreme weather events and shifts in climate patterns) include regular assessments of assets. In 2018-2019, a detailed technical and commercial evaluation was carried out of the impact of rising ambient temperatures on our production plants, with a special focus on changes in energy demand. The SHEQ team is integrating this tool into their pre-investment environmental assessments of capital projects.

Praxair's process for managing **transitional risks and opportunities** (such as regulation, market and reputation) includes escalation and pass-through clauses in large customer contracts to recover costs associated with greenhouse gas regulations, including energy and feedstock costs, to mitigate cost variability. Praxair also has a public target to increase revenue from the company's sustainable

development portfolio, which includes products and applications that help customers reduce or avoid GHG emissions. In 2018, 59% (up from 58% in 2017) of Praxair revenue came from its sustainable development portfolio.

C2.3

(C2.3) Have you identified any inherent climate-related risks with the potential to have a substantive financial or strategic impact on your business?

Yes

C2.3a

(C2.3a) Provide details of risks identified with the potential to have a substantive financial or strategic impact on your business.

Identifier

Risk 1

Where in the value chain does the risk driver occur?

Direct operations

Risk type

Transition risk

Primary climate-related risk driver

Policy and legal: Enhanced emissions-reporting obligations

Type of financial impact

<Not Applicable>

Company- specific description

Linde operates in jurisdictions that have, or are developing, laws and/or regulations to reduce or mitigate the perceived adverse effects of greenhouse gas ("GHG") emissions and faces a highly uncertain regulatory environment in this area. For example, the U.S. Environmental Protection Agency ("EPA") has promulgated rules requiring reporting of GHG emissions, and Linde 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 Linde suppliers or customers. In addition to these developments in the United States, GHGs are regulated in the European Union under the Emissions Trading System, which has wide implications for the company's customers and may impact certain operations of Linde in Europe. There are also requirements for mandatory reporting in Canada, which apply to certain Linde operations and will be used in developing cap-and-trade regulations on GHG emissions. These regulations are expected to impact certain Linde facilities in Canada. Climate change and energy efficiency laws and policies are also being widely introduced in jurisdictions throughout South America, Mexico and parts of Asia. China has announced plans to launch a national carbon emissions trading system, though it does not appear the regulations will have a direct impact on GHG emissions from Linde facilities. Among other impacts, such regulations are expected to raise the costs of energy, which is a significant cost for Linde. Legislation that limits GHG emissions may impact growth by increasing operating costs and/or decreasing demand. NOTE: We provide descriptions of risks from Linde's 10k, Item 1A Risk Factors. The 10k applies to 100% of legacy Praxair. These risks were identified by Praxair in previous years and continue to remain relevant to Linde plc. As this response focuses on legacy Praxair (which represented 80% of Linde by reported revenue in 2018), we provide details below on the risks and projected risks as they relate to Praxair only. We will report combined Linde plc information next year, once we have had a full year of operating as a combined company.

Time horizon

Short-term

Likelihood

About as likely as not

Magnitude of impact

Low

Are you able to provide a potential financial impact figure?

Yes, a single figure estimate

Potential financial impact figure (currency)

10000000

Potential financial impact figure – minimum (currency)

<Not Applicable>

Potential financial impact figure – maximum (currency)

<Not Applicable>

Explanation of financial impact figure

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 1%, energy costs to Praxair would rise proportionally and could exceed \$10 million.

Management method

To manage risks from current and potential GHG emission regulation, Praxair actively monitors regulatory developments, increases relevant resources and training as needed; consults with vendors, insurance providers and industry experts; incorporates GHG provisions in commercial agreements; 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 focuses on operational productivity and energy efficiency and has corporate energy and GHG targets to minimize the impact of variability in energy costs and to manage the risks of an uncertain regulatory environment. These targets drive us to continuously seek opportunities to reduce energy use and GHG emissions. For example: we have a target to save 7 million MWH of electricity and avoid 4 million MT CO_{2e}, 2009-2020. Through lighting retrofits, etc., we are on track for achieving this target. All of our risk management methods, including our targets, are intended to limit the likelihood and magnitude of increased cost from new regulation and reduce the risks over the target period (5 years), although there is no guarantee that they will do so.

Cost of management

100000

Comment

Praxair believes it will continue to mitigate potential costs through the pass-through clauses of its customer 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.

Identifier

Risk 2

Where in the value chain does the risk driver occur?

Direct operations

Risk type

Physical risk

Primary climate-related risk driver

Acute: Increased severity of extreme weather events such as cyclones and floods

Type of financial impact

Write-offs, asset impairment, and early retirement of existing assets due to policy changes

Company- specific description

The occurrence of catastrophic events or natural disasters such as extreme weather, including hurricanes and floods, could disrupt or delay Linde'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 Linde'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. NOTE: We provide descriptions of risks from Linde's 10k, Item 1A Risk Factors. The 10k applies to 100% of legacy Praxair. These risks were identified by Praxair in previous years and continue to remain relevant to Linde plc. As this response focuses on legacy Praxair (which represented 80% of Linde by reported revenue in 2018), we provide details below on the risks and projected risks as they relate to Praxair only. We will report combined Linde plc information next year, once we have had a full year of operating as a combined company.

Time horizon

Medium-term

Likelihood

About as likely as not

Magnitude of impact

Low

Are you able to provide a potential financial impact figure?

Yes, a single figure estimate

Potential financial impact figure (currency)

3000000

Potential financial impact figure – minimum (currency)

<Not Applicable>

Potential financial impact figure – maximum (currency)

<Not Applicable>

Explanation of financial impact figure

On a long-term average annual basis, the Praxair, Inc. portfolio could sustain potentially over \$3 million in hurricane losses.

Management method

To manage these risks, Praxair evaluates direct and indirect business risks through business impact analysis, then establishes appropriate priorities and policies; invests in facilities with suitably resilient design and technology; consults with vendors, insurance providers and industry experts; and conducts regular reviews of the business risks with management. Finally, 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 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: Based on information from our insurance provider and past investments in resilient design, some of our newest plants are built to withstand winds of 118 mph and critical equipment is raised to specific flood level standards. 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 less than one year.

Cost of management

20000

Comment

Praxair annually spends in excess of \$20,000 above normal business costs to study its natural catastrophe risk. The risk analysis service provides, among other items, detailed evaluations by geography of emerging hurricane and flooding vulnerability and likelihood of incidence of extreme weather.

Identifier

Risk 3

Where in the value chain does the risk driver occur?

Customer

Risk type

Transition risk

Primary climate-related risk driver

Reputation: Shifts in consumer preferences

Type of financial impact

<Not Applicable>

Company- specific description

If Linde's research and development activities do not keep pace with competitors or if Linde does not create new technologies that benefit customers, future results of operations could be adversely affected. Linde 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 of our customers are seeking to reduce GHG emissions in their supply chain and ask Linde to provide information, e.g. through the CDP Supply Chain program, and/or to help meet their targets. If Linde does not or cannot meet these expectations the company could lose business from that customer. NOTE: We provide descriptions of risks from Linde's 10k, Item 1A Risk Factors. The 10k applies to 100% of legacy Praxair. These risks were identified by Praxair in previous years and continue to remain relevant to Linde plc. As this response focuses on legacy Praxair (which represented 80% of Linde by reported revenue in 2018), we provide details below on the risks and projected risks as they relate to Praxair only. We will report combined Linde plc information next year, once we have had a full year of operating as a combined company.

Time horizon

Short-term

Likelihood

Unlikely

Magnitude of impact

Low

Are you able to provide a potential financial impact figure?

Yes, a single figure estimate

Potential financial impact figure (currency)

1000000

Potential financial impact figure – minimum (currency)

<Not Applicable>

Potential financial impact figure – maximum (currency)

<Not Applicable>

Explanation of financial impact figure

The estimated financial implication could be over \$1 million in annual sales.

Management method

Praxair manages reputational risks 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. Praxair's carbon productivity was calculated for 5 signature Praxair products: Hydrogen used to make ultra-low sulfur diesel fuel (used in vehicles with diesel particulate filters); Oxygen used to optimize combustion in steelmaking; Krypton to insulate thermal windows; Argon sold for welding; and specialty coatings to make thermal barriers for industrial gas turbine and jet engine efficiency. In 2018, these markets contributed 11% of sales. Praxair applications enabled customers and their end users to avoid 72 million metric tons of CO₂e – an amount that exceeded all Praxair GHG emissions by 50 million metric tons. We promote this research in public communications to help tell our story and manage the reputational risk from our GHG emissions profile (see our Sustainable Development Report, published annually, at <https://www.linde.com/-/media/linde/merger/documents/sustainable-development/2018-sustainability-report.pdf>). 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.

Cost of management

50000

Comment

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

Identifier

Risk 4

Where in the value chain does the risk driver occur?

Supply chain

Risk type

Transition risk

Primary climate-related risk driver

Market: Increased cost of raw materials

Type of financial impact

<Not Applicable>

Company- specific description

Energy is the single largest cost item in the production and distribution of industrial gases. Most of Linde's energy requirements are in the form of electricity, natural gas and diesel fuel for distribution. Linde attempts to minimize the financial impact of variability in these costs through the management of customer contracts and reducing demand through operational productivity and energy efficiency. Large customer contracts typically have escalation and pass-through clauses to recover energy and feedstock costs. Such attempts may not successfully mitigate cost variability, which could negatively impact Linde's financial condition or results of operations. The supply of energy has not been a significant issue in the geographic areas where Linde conducts business. However, regional energy conditions are unpredictable and may pose future risk. For carbon dioxide, carbon monoxide, helium, hydrogen, specialty gases and surface technologies, raw materials are largely purchased from outside sources. Where feasible, Linde sources several of these raw materials, including carbon dioxide, hydrogen and calcium carbide, as chemical or industrial byproducts. In addition, Linde 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 Linde's ability to meet contractual supply commitments. NOTE: We provide descriptions of risks from Linde's 10k, Item 1A Risk Factors. The 10k applies to 100% of legacy Praxair. These risks were identified by Praxair in previous years and continue to remain relevant to Linde plc. As this response focuses on legacy Praxair (which represented 80% of Linde by reported revenue in 2018), we provide details below on the risks and projected risks as they relate to Praxair only. We will report combined Linde plc information next year, once we have had a full year of operating as a combined company.

Time horizon

Short-term

Likelihood

Unlikely

Magnitude of impact

Low

Are you able to provide a potential financial impact figure?

Yes, a single figure estimate

Potential financial impact figure (currency)

10000000

Potential financial impact figure – minimum (currency)

<Not Applicable>

Potential financial impact figure – maximum (currency)

<Not Applicable>

Explanation of financial impact figure

Energy availability and price is unpredictable and may pose unforeseen future risks. For example, if energy prices rise 1%, energy costs to Praxair would rise proportionally and could exceed \$10 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.

Management method

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 many 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 that provides security of supply. 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 pursues energy efficiency, invests in renewable energy and has energy and GHG targets to mitigate risks related to energy cost and availability. We have targets in each of these areas that we report on annually on our website. Praxair's management methods reduce the likelihood that disruptions in the supply of energy will have a major impact on operational cost. These investments may also reduce the potential magnitude of such disruptions. We make investments in energy efficiency and renewable energy annually, which mitigates potential risk on an ongoing basis.

Cost of management

100000

Comment

Praxair believes it will continue to mitigate potential costs through the pass-through clauses of its customer contracts. For the most part, the management of these potential risks has minimal 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.

C2.4

(C2.4) Have you identified any climate-related opportunities with the potential to have a substantive financial or strategic impact on your business?

Yes

(C2.4a) Provide details of opportunities identified with the potential to have a substantive financial or strategic impact on your business.

Identifier

Opp1

Where in the value chain does the opportunity occur?

Customer

Opportunity type

Products and services

Primary climate-related opportunity driver

Development and/or expansion of low emission goods and services

Type of financial impact

Increased revenue through demand for lower emissions products and services

Company-specific description

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 Linde 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 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 also supplies Silane, a key raw material for the thin film deposition of amorphous and polysilicon films in the solar industry. Solar energy: Praxair sales are forecasted to grow from \$60 million at ~ 5% per year. 2nd generation biofuels use industrial and specialty gases at many points in their supply chain and provided a potential ~\$100 million gases market in 2018. These markets are projected to grow to 33% of revenue by 2020, from 27% currently. In 2018 revenue terms, this increase is equivalent to \$600 million.

Time horizon

Short-term

Likelihood

More likely than not

Magnitude of impact

Medium

Are you able to provide a potential financial impact figure?

Yes, a single figure estimate

Potential financial impact figure (currency)

10000000

Potential financial impact figure – minimum (currency)

<Not Applicable>

Potential financial impact figure – maximum (currency)

<Not Applicable>

Explanation of financial impact figure

Praxair's sustainable growth portfolio – applications that help customers improve their sustainability performance – was \$7.1 billion. 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. Wastewater is an \$80 million end market for Praxair and is growing at more than 10% per year. This represented a market opportunity of about \$10 million in 2018.

Strategy to realize opportunity

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 2016-2020 that Praxair's sustainability portfolio should exceed 50% of revenue. In 2018, Praxair's sustainability portfolio was 59% of

revenue, or \$7.1 billion. By setting targets for our sustainable growth portfolio, Praxair is able to increase the likelihood and magnitude of new environmental regulations leading to increased demand for our products and applications. We expect these opportunities to materialize within the next 3 years. For example, in 2018, Praxair made a low-carbon investment in carbon capture, utilization and storage commercial demonstration project that enables customers and business partners to 1) achieve a reduction in GHG emissions by permanently sequestering CO₂ in concrete, and 2) improve process efficiency resulting in less fuel consumption and less cement production required. Worldwide adoption of this technology could result in over 30 million metric tons of CO₂ sequestration and CO₂ reductions from process efficiency improvements of 150 million metric tons.

Cost to realize opportunity

0

Comment

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 2018 (\$113 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.

Identifier

Opp2

Where in the value chain does the opportunity occur?

Customer

Opportunity type

Markets

Primary climate-related opportunity driver

Access to new markets

Type of financial impact

Increased revenues through access to new and emerging markets (e.g., partnerships with governments, development banks)

Company-specific description

Changes in precipitation extremes are 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 a market opportunity for Praxair to increase revenue through access to new markets 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. We offer a wide range of applications that treat and reuse process water, all while maximizing treatment capacity, reducing VOC emissions, improving safety and reducing costs. Also, as the global demand for potable water continues to rise and fresh water supplies are quickly depleting, we are 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 310 million people around the world.

Time horizon

Short-term

Likelihood

More likely than not

Magnitude of impact

Medium

Are you able to provide a potential financial impact figure?

Yes, a single figure estimate

Potential financial impact figure (currency)

10000000

Potential financial impact figure – minimum (currency)

<Not Applicable>

Potential financial impact figure – maximum (currency)

<Not Applicable>

Explanation of financial impact figure

The potential financial implications can be calculated from the size of the market and the size of Praxair's opportunity. The major factors driving the industrial wastewater treatment market include depleting freshwater resources and stringent regulations pertaining to emission and treatment of industrial waste. According to the new market research report, "Industrial Wastewater

Treatment Market by Type (Coagulants, Flocculants, Biocides & Disinfectants), End-Use Industry (Power Generation, Mining, Chemical) and Region (APAC, Europe, North America, MEA, South America) - Global Forecast to 2024", published by MarketsandMarkets™, the Industrial Wastewater Treatment Market is expected to grow from USD 11.3 billion in 2019 to USD 15.0 billion by 2024, at a CAGR of 5.8%. Wastewater is an important end market for Praxair and now for Linde and is growing at more than 10% per year. This represented a market opportunity of about \$10 million in 2018.

Strategy to realize opportunity

Praxair's water technology offerings are supported by a business development group, which is actively investing in innovation and business development. Praxair has identified the need for large-scale urban 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 sustainability portfolio should exceed 50% of sales, 2016-2020. In 2018, our sustainability portfolio was 59% of revenue or \$7.1 billion. By setting a target for our sustainability portfolio, Praxair is able to increase the likelihood and magnitude of our opportunity to increase demand for products and applications that help companies manage changes in precipitation extremes. We expect these opportunities to materialize within the next 3 years.

Cost to realize opportunity

0

Comment

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 2018 (\$113 million) went to develop the applications and processes described in this section.

Identifier

Opp3

Where in the value chain does the opportunity occur?

Customer

Opportunity type

Products and services

Primary climate-related opportunity driver

Shift in consumer preferences

Type of financial impact

Better competitive position to reflect shifting consumer preferences, resulting in increased revenues

Company-specific description

As companies and individuals address climate change and its impacts, they are demanding 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 place Praxair in a better market position, 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 Linde's end-markets in electronics (9% revenue), aerospace (4%) and "other" (9%), and that provide growth opportunities as markets continue to grow for climate-related technologies. Many of these applications are part of Praxair's strategic focus on faster growing resilient end-markets, which include food, beverage, healthcare, specialty gases, environmental and aerospace. Overall, these end-markets have expanded to 27% of our sales, with several countries, like Brazil and Canada, already close to our projected growth of 33%.

Time horizon

Current

Likelihood

More likely than not

Magnitude of impact

Medium

Are you able to provide a potential financial impact figure?

Yes, a single figure estimate

Potential financial impact figure (currency)

600000000

Potential financial impact figure – minimum (currency)

<Not Applicable>

Potential financial impact figure – maximum (currency)

<Not Applicable>

Explanation of financial impact figure

Solar energy: Praxair sales are forecasted to grow from \$60 million at ~ 5% per year. 2nd generation biofuels use industrial and specialty gases at many points in their supply chain and provided a potential ~\$100 million gases market in 2018. Resilient markets are projected to grow to 33% of revenue by 2020, from 27% currently. In 2018 revenue terms, this increase is equivalent to \$600 million.

Strategy to realize opportunity

Praxair is actively investing in innovation and business development in order to meet customer demand for products with a lower carbon footprint. For example, to maintain an environmental innovation stream, Praxair has a target that our sustainability portfolio - applications that bring customers sustainability benefits - should exceed 50% of revenue, 2016-2020. In 2018, Praxair's sustainability portfolio was 59% of revenue, or \$7.1 billion. This focus on environmental innovation is yielding positive market results. Praxair's Global Market Development organization raises awareness of applications within our sustainability 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 sustainability 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 towards the sustainability portfolio target, Praxair is able to increase the likelihood and magnitude of our 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 sustainable growth portfolio.

Cost to realize opportunity

0

Comment

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 2018 (\$113 million) went to develop the applications and processes described in this section.

C2.5

(C2.5) Describe where and how the identified risks and opportunities have impacted your business.

	Impact	Description
Products and services	Impacted	Praxair identified expansion of low emission products and services as an opportunity in C2.4a. This opportunity is integrated into Praxair's business strategy through the establishment of a 5-year target to earn more than 50% of revenue from products with an environmental and health benefit (sustainable development portfolio). Low Magnitude of Impact: Percent revenue from this portfolio increased by 1% between 2017 and 2018. In 2018, 59% of revenue was from this portfolio.
Supply chain and/or value chain	Not yet impacted	Praxair identified increased cost of raw materials and energy as a risk in C2.3a. As we describe in the 2018 Annual Report, the potential for supply chain disruption exists in some areas and could impact our own operations as well as our suppliers and customers. This may be a reason why we have historically been asked by customers to fill out CDP's supply chain survey, which we have done. Low Magnitude of Impact: To date, 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 pose future risk. Praxair has not experienced a disruption in supply of raw materials that could have a substantive financial impact. However, there is a medium likelihood this could occur in the short term, i.e., over the next 1 to 2 years.
Adaptation and mitigation activities	Impacted for some suppliers, facilities, or product lines	Praxair identified extreme weather as a risk in C2.3a. As a result of the effects of hurricanes, Praxair runs disaster planning exercises as part of crisis management. In response to the risk of rising ambient temperatures, a detailed technical and commercial evaluation of the impacts of rising ambient temperature on our production plants was carried out, with a special focus on changes in energy demand. The Safety, Health, Environment and Quality (SHEQ) team is integrating this tool into their pre-investment environmental assessments of capital projects. The magnitude of the impact was low as there was no loss of production time.
Investment in R&D	Impacted	Praxair identified expansion of low emission products and services as an opportunity in C2.4a. This opportunity is integrated into Praxair's business strategy through the establishment of a 5-year target to earn more than 50% of revenue from products with an environmental and health benefit (sustainable development portfolio). Achievement of this target is reliant on the ability of the R&D organization to continue to innovate to find low carbon solutions for Praxair customers. Low Magnitude of Impact: Percent revenue from this portfolio increased by 1% between 2017 and 2018. In 2018, 59% of revenue was from this portfolio.
Operations	Impacted	Praxair's operations are impacted by climate risk in 2 areas: compliance with laws and regulations and sustainable productivity. 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. This risk is identified in C2.3a (policy and legal). New regulations could impact the cost of operations, particularly the cost of energy. The magnitude of the impact is medium - e.g., up to \$100,000,000 - as new regulations could significantly increase the cost of energy.
Other, please specify	Please select	

C2.6

(C2.6) Describe where and how the identified risks and opportunities have been factored into your financial planning process.

	Relevance	Description
Revenues	Impacted	Praxair identified expansion of low emission products and services as an opportunity in C2.4a. This opportunity is integrated into Praxair's business strategy through the establishment of a 5-year target to earn more than 50% of revenue from products with an environmental and health benefit (sustainable development portfolio). Achievement of this target is reliant on the ability of the R&D organization to continue to innovate to find low carbon solutions for Praxair customers. Source of revenue is regularly factored into financial planning. Low Magnitude of Impact: Percent revenue from this portfolio increased by 1% between 2017 and 2018. In 2018, 59% of revenue was from this portfolio.
Operating costs	Impacted	To mitigate the risks identified in C2.3a related to operations (such as increased operating costs from new regulation), Praxair tracks and sets targets related to sustainable productivity. This includes the energy and GHG savings from improving processes. These projects are regularly factored into financial planning. Medium Magnitude of Impact: In 2018, these projects saved more than \$100 million in operating costs.
Capital expenditures / capital allocation	Impacted for some suppliers, facilities, or product lines	Praxair identified extreme weather as a risk in C2.3a. As a result of the effects of hurricanes, Praxair runs disaster planning exercises as part of crisis management. Allocation of capital for maintaining and improving fixed assets is regularly factored into financial planning. In response to the risk of rising ambient temperatures, a detailed technical and commercial evaluation of the impacts of rising ambient temperature on our production plants was carried out, with a special focus on changes in energy demand. The SHEQ team is integrating this tool into their pre-investment environmental assessments of capital projects. The magnitude of the impact on manufactured capital was low as there was no loss of production time.
Acquisitions and divestments	Impacted	Linde identified failure to realize the anticipated strategic and financial benefits from the merger of Praxair and Linde AG as a risk in the 2018 Annual Report. Linde has been working on issuing new corporate policies that apply to the merged company as well as developing combined KPIs and new combined targets. This work will continue through 2019. Climate risks and opportunities can impact the success of the merger. For example, both legacy companies have applications that enable customers or their end users to reduce GHG emissions. Linde calculated that in 2018, several applications enabled customers to avoid 94 million MT CO2e. This is more than twice the combined footprint of both companies for all of 2018. Revenue opportunities from these products and markets are regularly factored into financial planning. Continuing to develop these types of applications and innovate for new low carbon markets will help Linde realize the success of the business combination. The magnitude of impact on future revenue from the sustainable development portfolio is high. 2018 revenue from this portfolio was \$7.1 billion, or 59% of revenue. This could increase significantly once the portfolio is applied to a full year of revenue for the much larger Linde plc.
Access to capital	Not impacted	Other factors besides climate risks and opportunities impact Praxair's ability to access capital. Praxair has not had any challenges accessing capital and does not expect any in the future.
Assets	Impacted for some suppliers, facilities, or product lines	Praxair identified extreme weather as a risk in C2.3a. As a result of the effects of hurricanes, Praxair runs disaster planning exercises as part of crisis management. The operation of Praxair plants, a primary company asset, is regularly factored into financial planning. In response to the risk of rising ambient temperatures, a detailed technical and commercial evaluation of the impacts of rising ambient temperature on our production plants was carried out, with a special focus on changes in energy demand. The SHEQ team is integrating this tool into their pre-investment environmental assessments of capital projects. The magnitude of the impact on manufactured capital was low as there was no loss of production time.
Liabilities	Impacted for some suppliers, facilities, or product lines	Liabilities are regularly factored into financial planning. Praxair pays for insurance and insurance services to assess sites in areas prone to natural disaster. These services are obtained at reasonable cost and have influenced certain siting decisions when considering building new plants. There is a medium magnitude of impact as only certain facilities are impacted.
Other	Please select	

C3. Business Strategy

C3.1

(C3.1) Are climate-related issues integrated into your business strategy?

Yes

C3.1a

(C3.1a) Does your organization use climate-related scenario analysis to inform your business strategy?

Yes, qualitative

(C-AC3.1b/C-CE3.1b/C-CH3.1b/C-CO3.1b/C-EU3.1b/C-FB3.1b/C-MM3.1b/C-OG3.1b/C-PF3.1b/C-ST3.1b/C-TO3.1b/C-TS3.1b)
Indicate whether your organization has developed a low-carbon transition plan to support the long-term business strategy.
In development, we plan to complete it within the next 2 years

C3.1c

(C3.1c) Explain how climate-related issues are integrated into your business objectives and strategy.

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

Linde has a Sustainable Development Management System (SDMS) 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 our overall SD strategy. Energy & GHG emissions performance, risks and opportunities were considered in the development of Praxair's SD targets.

The Chief Sustainability Officer 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.

ii. Link of Business Strategy to Emissions Reduction Target: All of Linde's 2020 targets related to climate change are linked to the company's business strategy. For example, the Annual Report identifies cost of energy in Item 1A Risk Factors because energy is a large cost item for Linde. Energy influences our corporate strategy, which led us to set an energy savings target for Praxair to save 7 million MWH of electricity (cumulative), 2009-2020. At the end of 2018, we have saved 5.8 million MWH of electricity (cumulative).

iii. Business Decisions: Praxair has a 20% stake in Uno-X Hydrogen, which operates hydrogen fueling stations in Norway. Norway is considering a ban on gas and diesel vehicles by 2025. Praxair's extensive hydrogen production and distribution capabilities will play an important role in establishing a supply network for a future hydrogen car fleet in Norway. In 2016, Praxair signed a strategic alliance with Uno-X to install 20 hydrogen fueling stations across Norway by 2020. The investment in the joint venture was a significant business decision influenced by regulatory risks and the emerging market for hydrogen for fuel cell applications. This investment decision is relevant in each year between 2016 and 2020 as the hydrogen fueling stations are being built.

iv. Aspects: Linde's sustainable development strategy has been influenced by regulatory changes in the U.S. and around the world, which require GHG reporting and/or cap and trade; the identified regulatory, physical and reputational risks including cost and availability of energy; and the opportunities to Linde's business from applications that enable CO₂ emissions to be avoided.

v. Short-Term Strategy: Climate change concerns have influenced Linde's short- and medium-term (0-5 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.

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 is challenged to save more than 5% off our gross cost stack each year. In 2010 we started to report the environmental savings from productivity projects. In 2018, we realized more than \$100 million gross savings from GHG and energy projects, totaling 400,000 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.

vi. 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 mitigation. 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 more than 50% revenue should come from our sustainability portfolio, 2016-2020, i.e., from products that bring sustainability benefit. In 2018, our sustainability portfolio was 59% of revenue, or \$7.1 billion.

Climate change concerns have also influenced our long-term risk mitigation practices. 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 cumulative savings in excess of \$400 million, 7 million MWH and 4 million MT CO₂e. Through 2018, cumulative savings were \$450 million, 5.8 million MWH and 3.9 million MT CO₂e avoided, on track for meeting this goal. We also perform energy cost forecasts and risk assessments for capital projects to manage risks associated with the long-term reliability of energy supplies.

vii. Strategic Advantage: The focus on energy efficiency and GHG emissions reductions reduces Linde's risk from higher energy costs and is a significant contributor to our operational and financial results and Linde'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 than they typically 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., 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. Employees at all levels work to help Praxair achieve the company-wide GHG targets. 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.

C3.1d

(C3.1d) Provide details of your organization’s use of climate-related scenario analysis.

Climate-related scenarios	Details
2DS	<p>Linde's newly formed Climate Change Council, led by the CSO and including the heads of engineering, R&D, technology planning, environment, risk management, government relations, procurement, business development, and efficiency and cost reduction, has reviewed various existing scenarios and chosen 2DS as the primary scenario to inform Linde's overall business strategy going forward. Linde's scenario analysis confirms the main levers of 2DS. The Council's recommendation will be presented to the Management Committee in the 2nd half of 2019. Quantitative analysis using 2DS assumptions includes projecting GHG emissions to 2030 assuming BAU vs. increased investments in renewable energy, a strong R&D and innovation strategy, CCS and energy efficiency. Qualitative and quantitative analyses are also underway to review potential future regulatory changes, such as impacts of increased carbon taxes. How scenario analysis was selected and results: Linde chose 2DS. The scenario assumes energy sector emissions peak by around 2020 while maintaining economic growth. Linde's emissions also continue to increase but are more than offset by the benefits we provide to our customers. The scenario also assumes energy efficiency contributes 49% of the GHG savings in 2030. Our research has shown that energy efficiency has a faster ROI than investing in renewable energy. This scenario allows for a more gradual shift to renewable energy, which is in line with Linde's current strategy. We do not anticipate reputational or regulatory risk based on this scenario. However, in terms of physical risks, severe weather events such as hurricanes may become more prevalent. Our contingency and emergency response plans have been updated and protect against a loss in revenue due to such events. Despite this, increased spending on resiliency may become necessary. Time Horizon considered: now to 2030. 2020 is consistent with Praxair's current sustainable development strategy and targets. Looking beyond 2020, Linde will consider the results of the scenario analysis when establishing the next set of 5-year targets (2021-2025). Business Areas considered as part of the scenario analysis: All business units are considered as part of the scenario analysis, with particular focus on air separation and hydrogen plants. How results informed strategy/ Case study: The results of the scenario analysis reinforced the selection of Linde's priority factors as part of the Sustainable Development Materiality Assessment and the current focus on GHG efficiency, renewable energy purchases, helping customers avoid emissions and sustainable productivity/energy savings. The results are also informing the development of the next set of 5-year targets. Linde is considering a range of options to reduce the carbon footprint of our operations, taking into account the impact of the levers in the 2D scenario. Case Study: Business decisions are already being influenced by the scenario, as pre-investment capital budget decisions will consider GHG forecasts for the first time and we will implement a shadow carbon price for investment decisions. For example, forecasts help to determine the impact of further investments in energy efficiency or renewable energy on a new plant's carbon footprint. Linde also continues to focus on innovation and R&D to provide customers with products that reduce their carbon footprints. We continue to increase % revenue from the sustainable growth portfolio. For legacy Praxair, revenue from the portfolio was 59% in 2018, up from 58% in 2017.</p>

C4. Targets and performance

C4.1

(C4.1) Did you have an emissions target that was active in the reporting year?

Both absolute and intensity targets

C4.1a

(C4.1a) Provide details of your absolute emissions target(s) and progress made against those targets.

Target reference number

Abs 1

Scope

Scope 1+2 (location-based)

% emissions in Scope

100

Targeted % reduction from base year

100

Base year

2016

Start year

2016

Base year emissions covered by target (metric tons CO2e)

21300000

Target year

2020

Is this a science-based target?

No, and we do not anticipate setting one in the next 2 years

% of target achieved

100

Target status

Achieved

Please explain

Praxair has a 5-year target, running from beginning of 2016 to the end of 2020 (inclusive) to enable annually two times the amount of our own calculated Scope 1+2 GHG emissions to be avoided by customers or their end users from certain signature products. We must achieve this target each year. Since the target must be met anew each year, we record base year emissions as 2018 emissions. We update the base year emissions each year. In 2018, our emissions were 21,300,000 MT, meaning our target was to enable at least 42,600,000 MT to be avoided. ($21,300,000 \text{ MT CO}_2\text{e} * 2 = 42,600,000 \text{ MT CO}_2\text{e}$). We calculated the carbon productivity of 5 signature products in 5 markets, including Hydrogen sold to make ultra-low sulfur fuel (used in vehicles with diesel particulate filters), Oxygen sold to optimize combustion in steelmaking, Krypton sold to insulate windows, Argon for welding, and specialty coatings to make thermal barriers for industrial gas turbine and jet engine efficiency. These markets contributed 11% of sales in 2018 and enabled customers to avoid 72 million metric tons CO₂e in 2018, which means we met the target for 2018. Praxair does not calculate customer GHG emissions. So we express this target as 100% reduction of twice our 2018 emissions (Scope 1+2). % emissions in scope is 100, since the target is measured against our total Scope 1+2 footprint. This target is part of Praxair's 5-year sustainable development targets, which run 2016 to 2020. The target year is 2020 because we must achieve this target each of the 5 years. We report 100% achievement because the target was achieved in 2018.

C4.1b

(C4.1b) Provide details of your emissions intensity target(s) and progress made against those target(s).

Target reference number

Int 1

Scope

Scope 1

% emissions in Scope

89

Targeted % reduction from base year

2

Metric

Metric tons CO2e per metric ton of product

Base year

2015

Start year

2016

Normalized base year emissions covered by target (metric tons CO2e)

100

Target year

2020

Is this a science-based target?

No, and we do not anticipate setting one in the next 2 years

% of target achieved

100

Target status

Achieved

Please explain

The scope of this target is all 22 of legacy Praxair hydrogen plants, which accounted for 89% of Praxair's 2018 scope 1 emissions. (Hydrogen plants were not part of the divestments Praxair made as required by the merger, meaning the scope of the target remains unchanged from previous years.) By the end of 2019, new targets will be established for Linde plc that cover both legacy Praxair and legacy Linde AG GHG emissions. For 2016-2020, legacy Praxair had a target to improve the Scope 1 GHG intensity of hydrogen plants by 2%. We consider product intensity by business unit to be business confidential, so we report performance against this target in terms of % improvement off a baseline of 100. A two percent intensity improvement would be shown as 98. When we established the 2020 target for Praxair's hydrogen plants, we expected emissions intensity to deteriorate in 2016 and 2017, then improve 2018 through 2020. As part of our efforts to achieve this target, Praxair invested in more by-product hydrogen, which is less GHG-intensive than other sources of hydrogen. These sources, coupled with Praxair's energy efficiency efforts, improved the GHG intensity of Praxair's hydrogen plants. In 2018, Praxair achieved a 6.45% improvement over 2017, and 6.2 percent over the 2015 baseline. We achieved - and even surpassed - our goal of 2 percent improvement, resulting in performance against a baseline of 100 of 93.8.

% change anticipated in absolute Scope 1+2 emissions

7

% change anticipated in absolute Scope 3 emissions

0

Target reference number

Int 2

Scope

Scope 1

% emissions in Scope

3

Targeted % reduction from base year

7.5

Metric

Metric tons CO2e per metric ton of product

Base year

2015

Start year

2016

Normalized base year emissions covered by target (metric tons CO2e)

100

Target year

2020

Is this a science-based target?

No, and we do not anticipate setting one in the next 2 years

% of target achieved

83

Target status

Underway

Please explain

For 2016-2020, Praxair has a target to improve GHG efficiency from Scope 1 trucking by 7.5%. This target combines weighted results for bulk and packaged gas trucking performance. We report performance against this target in terms of % improvement off a baseline of 100. We expect the amount of product to be delivered to increase over time, proportional to our increase in products produced. At the same time, we are making great strides at delivering these products more efficiently. These factors are expected to offset each other, resulting in no significant change in Scope 1 emissions from trucking through 2020. Praxair is on track to achieving our trucking GHG intensity target. Our combined bulk and packaged gas trucking achieved a 1.2% improvement in efficiency in 2018 compared to 2017 and a cumulative 6.2% improvement over the baseline.

% change anticipated in absolute Scope 1+2 emissions

0

% change anticipated in absolute Scope 3 emissions

0

C4.2

(C4.2) Provide details of other key climate-related targets not already reported in question C4.1/a/b.

Target

Renewable electricity consumption

KPI – Metric numerator

500,000 MWH

KPI – Metric denominator (intensity targets only)

n/a

Base year

2015

Start year

2016

Target year

2020

KPI in baseline year

498000

KPI in target year

500000

% achieved in reporting year

100

Target Status

Achieved

Please explain

Praxair's renewable energy target is to source more than 500,000 MWH of renewable electricity annually, 2016-2020. We count renewable electricity sourced through power purchase agreements that guarantee hydro, wind and solar energy. (Note, we do not include in this target the renewable energy that Praxair consumes from electricity delivered from power grids. In 2018, we estimated about 30% of our total electricity purchases from the grid were from renewable sources.) In 2018, Praxair sourced 548,000 MWh renewable energy, including hydropower in New York state, Mexico and Brazil, and wind power in India. This

amount exceeds our target of 500,000 MWH. This renewable electricity represents about 2% of all Praxair electricity use.

Part of emissions target

N/a

Is this target part of an overarching initiative?

No, it's not part of an overarching initiative

Target

Energy productivity

KPI – Metric numerator

MWH energy saved

KPI – Metric denominator (intensity targets only)

n/a

Base year

2009

Start year

2010

Target year

2020

KPI in baseline year

0

KPI in target year

7000000

% achieved in reporting year

83

Target Status

Revised

Please explain

This long-term target is to achieve cumulative energy savings in excess of \$400 million, 7 million MWH and 4 million MT CO₂e from a baseline of 2009. Praxair is on track to meeting this target. At the end of 2018, Praxair achieved a cumulative \$450 million in savings from energy efficiency, 5.8 million MWH electricity and 3.9 million MT CO₂e avoided. Due to Praxair's merger with Linde AG to form Linde plc, certain plants, mainly in Europe, were divested at the end of 2018. This target has been adjusted to reflect the effects of these divestments. As a new company that only began operating as a single entity on 1 March 2019, we have not fully aligned the Praxair and Linde AG methodologies for this target. There were substantial benefits from the Linde AG air separation and hydrogen businesses that are not reported here because the calculation methods do not align. We plan to report combined targets next year.

Part of emissions target

int1 - This target supports Praxair's hydrogen intensity target. Performance against this target is measured from efficiencies in hydrogen and air separation plants.

Is this target part of an overarching initiative?

No, it's not part of an overarching initiative

C4.3

(C4.3) Did you have emissions reduction initiatives that were active within the reporting year? Note that this can include those in the planning and/or implementation phases.

Yes

C4.3a

(C4.3a) Identify the total number of initiatives at each stage of development, and for those in the implementation stages, the estimated CO2e savings.

	Number of initiatives	Total estimated annual CO2e savings in metric tonnes CO2e (only for rows marked *)
Under investigation	0	
To be implemented*	60	10000
Implementation commenced*	540	182000
Implemented*	1164	218000
Not to be implemented	0	

C4.3b

(C4.3b) Provide details on the initiatives implemented in the reporting year in the table below.

Initiative type

Energy efficiency: Processes

Description of initiative

Process optimization

Estimated annual CO2e savings (metric tonnes CO2e)

270000

Scope

Scope 2 (location-based)

Voluntary/Mandatory

Voluntary

Annual monetary savings (unit currency – as specified in C0.4)

55000

Investment required (unit currency – as specified in C0.4)

48500000

Payback period

1-3 years

Estimated lifetime of the initiative

>30 years

Comment

Process optimizations were completed for 654 projects in 21 countries that provided permanent improvements to energy requirements for primary process equipment.

Initiative type

Energy efficiency: Building services

Description of initiative

Lighting

Estimated annual CO2e savings (metric tonnes CO2e)

1000

Scope

Scope 2 (location-based)

Voluntary/Mandatory

Voluntary

Annual monetary savings (unit currency – as specified in C0.4)

280000

Investment required (unit currency – as specified in C0.4)

750000

Payback period

4 - 10 years

Estimated lifetime of the initiative

>30 years

Comment

27 projects in 9 countries provided permanent reductions in power consumption from lighting retrofits and building power improvements.

C4.3c

(C4.3c) 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 2018, energy and GHG efficiency projects resulted in savings of more than \$100 million and 400,000 MT CO ₂ e avoided (counting both implemented projects and projects where implementation has commenced but full benefits will accrue in 2019). These projects contributed to a reduction in electricity use as well as reductions in natural gas and fuel use. Each business unit has a significant capital budget for energy efficiency projects, which in 2018 was around \$100 million.

C4.5

(C4.5) Do you classify any of your existing goods and/or services as low-carbon products or do they enable a third party to avoid GHG emissions?

Yes

C4.5a

(C4.5a) Provide details of your products and/or services that you classify as low-carbon products or that enable a third party to avoid GHG emissions.

Level of aggregation

Group of products

Description of product/Group of products

Praxair has a target to demonstrate and validate customer carbon productivity for selected products. Praxair's carbon productivity has been calculated for five signature Praxair products in five markets: 1) 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. 2) Krypton sold to insulate thermal windows. 3) Oxygen (O₂) sold to optimize combustion in steel making. 4) Argon for welding. 5) Specialty coatings to make thermal barriers for industrial gas turbine and jet engine efficiency. These applications allow Praxair customers and their end users to avoid Scope 1 and Scope 2 energy-related GHG emissions.

Are these low-carbon product(s) or do they enable avoided emissions?

Avoided emissions

Taxonomy, project or methodology used to classify product(s) as low-carbon or to calculate avoided emissions

Other, please specify (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/white-papers>.)

Other: 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/white-papers>.

% revenue from low carbon product(s) in the reporting year

11

Comment

The percent revenue reflects percent of Praxair revenue, as reported in the Annual Report. These five applications enabled customers and their end users to avoid 72 million metric tons of their Scope 1+2 CO₂e in 2018. This includes 9.5 million MT avoided by the use of oxygen in steel making, 44 million MT avoided by the use of hydrogen in ultra-low sulfur diesel, 16.5 million MT avoided from the use of specialty coatings to make thermal barriers for industrial gas turbine and jet engine efficiency, and 2 million MT avoided from Krypton in windows and Argon in welding.

C5. Emissions methodology

C5.1

(C5.1) Provide your base year and base year emissions (Scopes 1 and 2).

Scope 1

Base year start

January 1 2015

Base year end

December 31 2015

Base year emissions (metric tons CO2e)

8199000

Comment

Praxair has selected 2015 as its base year. While Praxair conducted a GHG inventory prior to 2015, 2015 is the base year for the company's 2020 Sustainable Development Targets. This is the year against which our emissions are tracked. Praxair and Linde AG merged to become Linde plc in October 2018. Praxair was determined to be the accounting acquirer in the business combination. Accordingly, the historical financial statements of Praxair for the periods prior to the business combination are considered to be the historical financial statements of Linde plc. The same is true for GHG data. We retain Praxair's 2015 baseline for GHG reporting for both trends and performance against targets.

Scope 2 (location-based)

Base year start

January 1 2015

Base year end

December 31 2015

Base year emissions (metric tons CO2e)

12640000

Comment

Praxair has selected 2015 as its base year. While Praxair conducted a GHG inventory prior to 2015, 2015 is the base year for the company's 2020 Sustainable Development Targets. This is the year against which our emissions are tracked. Praxair targets related to Scope 2 emissions are tracked using the location-based approach.

Scope 2 (market-based)

Base year start

January 1 2015

Base year end

December 31 2015

Base year emissions (metric tons CO2e)

12530000

Comment

Praxair has selected 2015 as its base year. While Praxair conducted a GHG inventory prior to 2015, 2015 is the base year for the company's 2020 Sustainable Development Targets. This is the year against which our emissions are tracked. Praxair targets related to Scope 2 emissions are tracked using the location-based approach.

C5.2

(C5.2) Select the name of the standard, protocol, or methodology you have used to collect activity data and calculate Scope 1 and Scope 2 emissions.

ISO 14064-1

The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (Revised Edition)

US EPA Mandatory Greenhouse Gas Reporting Rule

Other, please specify (California ARB Reg for Rptg of GHG Emiss)

C5.2a

(C5.2a) Provide details of the standard, protocol, or methodology you have used to collect activity data and calculate Scope 1 and Scope 2 emissions.

Reporting of GHG emissions by major sources is required by the California Global Warming Solutions Act of 2006 (AB 32). The Regulation for the Mandatory Reporting of Greenhouse Gas Emissions (MRR) is applicable to electricity generators, industrial facilities, fuel suppliers, and electricity importers. A summary of reported GHG emissions data reported under MRR are made public each year, and the data used by the Cap-and-Trade Program and included in California Greenhouse Gas Inventory. Certain Praxair sites in California are required to report under this regulation. For these sites, we abide by the reporting requirements of this rule to ensure consistency when reporting this data to all stakeholders.

C6. Emissions data

C6.1

(C6.1) What were your organization's gross global Scope 1 emissions in metric tons CO₂e?

Reporting year

Gross global Scope 1 emissions (metric tons CO₂e)

8325000

Start date

January 1 2018

End date

December 31 2018

Comment

Linde was created to effect the merger, consummated on 31 October 2018, of two companies, Praxair, Inc. ("Praxair") and Linde Aktiengesellschaft ("Linde AG"). In practice, a Hold Separate Order restricting information exchange and collaboration prevented the company from fully consolidating as one until 1 March 2019. At the time of filing this response, not all calculation methodologies had been fully aligned between the two legacy companies. For this reason, and for consistency with previous years, we report legacy Praxair GHG and energy data in sections C6, C7 and C8. In Linde's 2018 Sustainable Development Report, we report combined Linde plc Scope 1 emissions for 2018 as 9.7 million MT CO₂e. Environmental data is reported in a manner consistent with financial reporting. Linde plc's financial filings are for twelve months of Praxair performance, plus two months Linde AG performance following the consummation of the merger (i.e., for November and December). Our reporting removes divestments, which were required on both sides, at the point of divestiture.

C6.2

(C6.2) Describe your organization's approach to reporting Scope 2 emissions.

Row 1

Scope 2, location-based

We are reporting a Scope 2, location-based figure

Scope 2, market-based

We are reporting a Scope 2, market-based figure

Comment

Linde was created to effect the merger, consummated on 31 October 2018, of two companies, Praxair, Inc. ("Praxair") and Linde Aktiengesellschaft ("Linde AG"). In practice, a Hold Separate Order restricting information exchange and collaboration prevented the company from fully consolidating as one until 1 March 2019. At the time of filing this response, not all calculation methodologies had been fully aligned between the two legacy companies. For this reason, and for consistency with previous years, we report legacy Praxair GHG and energy data in sections C6, C7 and C8.

C6.3

(C6.3) What were your organization's gross global Scope 2 emissions in metric tons CO2e?

Reporting year

Scope 2, location-based

12967000

Scope 2, market-based (if applicable)

12824000

Start date

January 1 2018

End date

December 31 2018

Comment

Praxair bases external reporting of Scope 2 emissions on the location-based method. For the purposes of responding to CDP, we report Scope 2 using the market-based approach by calculating the amount of CO2e that we could deduct for the facilities operating under power purchase agreements for renewable energy. We deducted 143,000 metric tons CO2e from our Scope 2 location-based total to arrive at the market-based value. In Linde's 2018 Sustainable Development Report, we include data for both legacy companies. We report combined Linde plc Scope 2 emissions (location-based) for 2018 as 15.2 million MT CO2e. Environmental data is reported in a manner consistent with financial reporting. Linde plc's financial filings are for twelve months of Praxair performance, plus two months Linde AG performance following the consummation of the merger (i.e., for November and December). Our reporting removes divestments, which were required on both sides, at the point of divestiture.

C6.4

(C6.4) Are there 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

C6.4a

(C6.4a) 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

Electricity use at very small sites

Relevance of Scope 1 emissions from this source

No emissions excluded

Relevance of location-based Scope 2 emissions from this source

Emissions are not relevant

Relevance of market-based Scope 2 emissions from this source (if applicable)

Emissions are not relevant

Explain why this source is excluded

Praxair has several very small office sites, many with 1-2 people. We estimated the emissions from these sites and, as they represent less than 1% of our Scope 2 emissions, consider them to be de minimis.

C6.5

(C6.5) Account for your organization's Scope 3 emissions, disclosing and explaining any exclusions.

Purchased goods and services

Evaluation status

Not relevant, explanation provided

Metric tonnes CO2e

<Not Applicable>

Emissions calculation methodology

<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners

<Not Applicable>

Explanation

Praxair's largest purchased good is energy, such as electricity to operate our facilities and natural gas to make hydrogen, which we purchase from byproduct sources where possible. Details on our energy purchases and emissions are provided elsewhere in 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 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 0.1% of our Scope 3 footprint and are considered to be not relevant when compared to our energy-related activities.

Capital goods

Evaluation status

Relevant, calculated

Metric tonnes CO2e

323000

Emissions calculation methodology

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 weight of the carbon steel using a GHG emission factor derived from the U.S. EPA (0.87 MT CO2e/ per MT carbon steel).

Percentage of emissions calculated using data obtained from suppliers or value chain partners

100

Explanation

Fuel-and-energy-related activities (not included in Scope 1 or 2)

Evaluation status

Relevant, calculated

Metric tonnes CO₂e

2210000

Emissions calculation methodology

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 and D loss rate of 7%, based on information from the U.S. Department of Energy. We then added in emissions from upstream natural gas.

Percentage of emissions calculated using data obtained from suppliers or value chain partners

100

Explanation

Upstream transportation and distribution

Evaluation status

Not relevant, explanation provided

Metric tonnes CO₂e

<Not Applicable>

Emissions calculation methodology

<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners

<Not Applicable>

Explanation

In 2013, two transportation projects were evaluated: one very large project in Russia and one medium-sized project in the U.S. For each project, distance traveled 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 were 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 represented less than 1.5% of our Scope 3 footprint in both 2013 and 2014. Therefore, we did not calculate these emissions for subsequent years and deem them not relevant. This decision will be revisited in 2019 when we perform our sustainable development materiality assessment for Linde plc, as the company now includes a significant engineering and construction division.

Waste generated in operations

Evaluation status

Relevant, calculated

Metric tonnes CO₂e

15000

Emissions calculation methodology

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.

Percentage of emissions calculated using data obtained from suppliers or value chain partners

100

Explanation

Business travel

Evaluation status

Not relevant, explanation provided

Metric tonnes CO2e

<Not Applicable>

Emissions calculation methodology

<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners

<Not Applicable>

Explanation

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 has not changed significantly compared to 2013, we did not recalculate these emissions. We do not consider these emissions to be relevant to our Scope 3 footprint.

Employee commuting

Evaluation status

Not relevant, explanation provided

Metric tonnes CO2e

<Not Applicable>

Emissions calculation methodology

<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners

<Not Applicable>

Explanation

Praxair calculated GHG emissions from employee commuting for 2012 through 2014. In each year, emissions totaled less than 2% of total Scope 3 emissions. As emissions from employee commuting are not relevant to our Scope 3 footprint, we did not calculate these emissions for 2018 .

Upstream leased assets

Evaluation status

Not relevant, explanation provided

Metric tonnes CO2e

<Not Applicable>

Emissions calculation methodology

<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners

<Not Applicable>

Explanation

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 measured Scope 3 footprint. Since the square footage of leased office space has not changed significantly compared to 2013, we did not recalculate these emissions. We do not consider these emissions to be relevant to our Scope 3 footprint.

Downstream transportation and distribution

Evaluation status

Relevant, calculated

Metric tonnes CO2e

271000

Emissions calculation methodology

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.

Percentage of emissions calculated using data obtained from suppliers or value chain partners

100

Explanation

Processing of sold products

Evaluation status

Not relevant, explanation provided

Metric tonnes CO2e

<Not Applicable>

Emissions calculation methodology

<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners

<Not Applicable>

Explanation

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 was 8% of our annual reported revenue in 2018. 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.

Use of sold products

Evaluation status

Not relevant, explanation provided

Metric tonnes CO2e

<Not Applicable>

Emissions calculation methodology

<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners

<Not Applicable>

Explanation

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. As noted in CC3.2a, the use of a number of our products/applications helps customers reduce their GHG emissions, i.e., the use of our products does not generate emissions but helps others reduce theirs. 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 was 8% of our annual reported revenue in 2018. 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

Evaluation status

Not relevant, explanation provided

Metric tonnes CO2e

<Not Applicable>

Emissions calculation methodology

<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners

<Not Applicable>

Explanation

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 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 was 8% of our annual reported revenue in 2018. 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

Evaluation status

Not relevant, explanation provided

Metric tonnes CO2e

<Not Applicable>

Emissions calculation methodology

<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners

<Not Applicable>

Explanation

Praxair does not have any downstream leased assets.

Franchises

Evaluation status

Not relevant, explanation provided

Metric tonnes CO2e

<Not Applicable>

Emissions calculation methodology

<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners

<Not Applicable>

Explanation

Praxair does not have any franchises.

Investments

Evaluation status

Not relevant, explanation provided

Metric tonnes CO2e

<Not Applicable>

Emissions calculation methodology

<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners

<Not Applicable>

Explanation

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 and 2015, 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)

Evaluation status

Metric tonnes CO2e

<Not Applicable>

Emissions calculation methodology

<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners

<Not Applicable>

Explanation

Other (downstream)

Evaluation status

Metric tonnes CO2e

<Not Applicable>

Emissions calculation methodology

<Not Applicable>

Percentage of emissions calculated using data obtained from suppliers or value chain partners

<Not Applicable>

Explanation

C6.7

(C6.7) Are carbon dioxide emissions from biologically sequestered carbon relevant to your organization?

No

C6.10

(C6.10) Describe your gross global combined Scope 1 and 2 emissions for the reporting year in metric tons CO2e per unit currency total revenue and provide any additional intensity metrics that are appropriate to your business operations.

Intensity figure

0.00179

Metric numerator (Gross global combined Scope 1 and 2 emissions)

21300000

Metric denominator

unit total revenue

Metric denominator: Unit total

11920000000

Scope 2 figure used

Location-based

% change from previous year

5

Direction of change

Decreased

Reason for change

Denominator: Reported sales were higher in 2018 than 2017 for Praxair by 6% while emissions were relatively stable. For consistency with previous years, we report intensity for Praxair only. If we report intensity comparing Praxair in 2017 to Linde plc in 2018, the GHG intensity improves by 12%. Reported sales were 30% above 2017, primarily driven by the merger.

C7. Emissions breakdowns

C7.1

(C7.1) Does your organization break down its Scope 1 emissions by greenhouse gas type?

Yes

C7.1a

(C7.1a) Break down your total gross global Scope 1 emissions by greenhouse gas type and provide the source of each used greenhouse warming potential (GWP).

Greenhouse gas	Scope 1 emissions (metric tons of CO2e)	GWP Reference
CO2	8270000	IPCC Fourth Assessment Report (AR4 - 100 year)
CH4	1000	IPCC Fourth Assessment Report (AR4 - 100 year)
N2O	29000	IPCC Fourth Assessment Report (AR4 - 100 year)
SF6	0	Please select
Other, please specify (HFCs and PFCs combined)	25000	IPCC Fourth Assessment Report (AR4 - 100 year)

C7.2

(C7.2) Break down your total gross global Scope 1 emissions by country/region.

Country/Region	Scope 1 emissions (metric tons CO2e)
North America	7381000
South America	96000
Europe	60000
Asia, Australasia, Middle East and Africa	788000

C7.3

(C7.3) Indicate which gross global Scope 1 emissions breakdowns you are able to provide.

By business division

C7.3a

(C7.3a) Break down your total gross global Scope 1 emissions by business division.

Business division	Scope 1 emissions (metric ton CO2e)
Air Separation Units (ASUs)	188000
Hydrogen Plants	7443000
CO2 Plants	312000
Packaged Gas	105000
Electronics and Surface Technologies	20000
Helium Plants	0
Trucking	253000
Corporate Offices	4000
Standard Plants (plants at customer sites - we only use electricity at these locations)	0

C-CE7.4/C-CH7.4/C-CO7.4/C-EU7.4/C-MM7.4/C-OG7.4/C-ST7.4/C-TO7.4/C-TS7.4

(C-CE7.4/C-CH7.4/C-CO7.4/C-EU7.4/C-MM7.4/C-OG7.4/C-ST7.4/C-TO7.4/C-TS7.4) Break down your organization's total gross global Scope 1 emissions by sector production activity in metric tons CO2e.

	Gross Scope 1 emissions, metric tons CO2e	Net Scope 1 emissions, metric tons CO2e	Comment
Cement production activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Chemicals production activities	7963000	<Not Applicable>	Emissions from our packaged gas division were deducted from the figure reported in C6.1 as these are not chemical production activities. The Packaged Gas division mainly performs assembly functions and does not produce chemicals. We also deducted corporate offices and trucking, as instructed by CDP's guidance for this question.
Coal production activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Electric utility generation activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Metals and mining production activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Oil and gas production activities (upstream)	<Not Applicable>	<Not Applicable>	<Not Applicable>
Oil and gas production activities (downstream)	<Not Applicable>	<Not Applicable>	<Not Applicable>
Steel production activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Transport OEM activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Transport services activities	<Not Applicable>	<Not Applicable>	<Not Applicable>

C7.5

(C7.5) Break down your total gross global Scope 2 emissions by country/region.

Country/Region	Scope 2, location-based (metric tons CO2e)	Scope 2, market-based (metric tons CO2e)	Purchased and consumed electricity, heat, steam or cooling (MWh)	Purchased and consumed low-carbon electricity, heat, steam or cooling accounted in market-based approach (MWh)
North America	6255000	6184000	12730000	395000
South America	561000	553000	3427000	65000
Europe	1168000	1168000	3314000	0
Asia, Australasia, Middle East and Africa	4983000	4919000	7737000	88000

C7.6

(C7.6) Indicate which gross global Scope 2 emissions breakdowns you are able to provide.

By business division

C7.6a

(C7.6a) Break down your total gross global Scope 2 emissions by business division.

Business division	Scope 2, location-based emissions (metric tons CO2e)	Scope 2, market-based emissions (metric tons CO2e)
Air Separation Units (ASUs)	10577000	10462000
Hydrogen Plants	984000	967000
CO2 Plants	198000	190000
Packaged Gas	117000	117000
Electronics and Surface Technologies	65000	65000
Helium Plants	17000	17000
Trucking	0	0
Corporate Offices	6000	3000
Standard Plants (ASUs on customer sites)	1003000	1003000

C-CE7.7IC-CH7.7IC-CO7.7IC-MM7.7IC-OG7.7IC-ST7.7IC-TO7.7IC-TS7.7

(C-CE7.7IC-CH7.7IC-CO7.7IC-MM7.7IC-OG7.7IC-ST7.7IC-TO7.7IC-TS7.7) Break down your organization's total gross global Scope 2 emissions by sector production activity in metric tons CO2e.

	Scope 2, location-based, metric tons CO2e	Scope 2, market-based (if applicable), metric tons CO2e	Comment
Cement production activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Chemicals production activities	12844000	12704000	Emissions from our packaged gas division were deducted from figure reported in C6.1 as these are not chemical production activities. The Packaged Gas division mainly performs assembly functions and does not produce chemicals. We also deducted corporate offices, as instructed by CDP's guidance for this question.
Coal production activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Metals and mining production activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Oil and gas production activities (upstream)	<Not Applicable>	<Not Applicable>	<Not Applicable>
Oil and gas production activities (downstream)	<Not Applicable>	<Not Applicable>	<Not Applicable>
Steel production activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Transport OEM activities	<Not Applicable>	<Not Applicable>	<Not Applicable>
Transport services activities	<Not Applicable>	<Not Applicable>	<Not Applicable>

C-CH7.8

(C-CH7.8) Disclose the percentage of your organization’s Scope 3, Category 1 emissions by purchased chemical feedstock.

Purchased feedstock	Percentage of Scope 3, Category 1 tCO2e from purchased feedstock	Explain calculation methodology
Natural gas	0	Praxair does not measure Scope 3 emissions from natural gas feedstock. Praxair procures byproduct hydrogen wherever feasible. For example, Praxair's facility in Freeport, Texas, captures and recovers byproduct streams from Dow Chemical and provides high purity hydrogen back to Dow and other customers. By recovering the byproduct hydrogen rather than producing hydrogen from reforming natural gas, Praxair avoids 1.5 million MT GHG per year of direct GHG emissions (Since Praxair is using the byproduct hydrogen, it is not available to Dow for use as a fuel, which means Dow will consume additional natural gas. If we take into account the additional natural gas consumption by Dow, the overall saving is 300,000 MT GHG per year.) Praxair assumes that the avoided emissions from the use of byproduct streams largely offsets the upstream Scope 3 emissions from purchased natural gas. Praxair sourced 22% of hydrogen from byproduct sources in 2018.

C-CH7.8a

(C-CH7.8a) Disclose sales of products that are greenhouse gases.

	Sales, metric tons	Comment
Carbon dioxide (CO2)	0	Praxair considers this information business confidential.
Methane (CH4)	0	Praxair did not sell methane in 2018.
Nitrous oxide (N2O)	0	Praxair considers this information business confidential.
Hydrofluorocarbons (HFC)	0	Praxair did not sell HFCs in 2018.
Perfluorocarbons (PFC)	0	Praxair did not sell PFCs in 2018.
Sulphur hexafluoride (SF6)	0	Praxair considers this information business confidential.
Nitrogen trifluoride (NF3)	0	Praxair considers this information business confidential.

C7.9

(C7.9) How do your gross global emissions (Scope 1 and 2 combined) for the reporting year compare to those of the previous reporting year?

Decreased

C7.9a

(C7.9a) 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.

	Change in emissions (metric tons CO2e)	Direction of change	Emissions value (percentage)	Please explain calculation
Change in renewable energy consumption		<Not Applicable>		
Other emissions reduction activities	400000	Decreased	2	Emissions decreased 2% due to energy efficiency and other GHG emissions reduction activities. This percent was derived by dividing 400,000 MT CO2e saved by Praxair's 2017 Scope 1+2 total of 21,656,000 MT CO2e * 100 to arrive at 2%. We do not count new purchases of renewable energy here, because we are using the location-based method for Scope 2 accounting. For emission reduction activities, we count reductions from projects fully implemented as well as those where implementation has commenced. The majority of our emissions reductions occurred in Scope 1, where byproduct hydrogen sourcing led to a 5% decrease in Scope 1 emissions from hydrogen plants.
Divestment		<Not Applicable>		
Acquisitions		<Not Applicable>		
Mergers	0	Please select		Since we are comparing Praxair emissions 2017 to 2018, we do not account for the impact of the merger with Linde AG.
Change in output		<Not Applicable>		
Change in methodology		<Not Applicable>		
Change in boundary		<Not Applicable>		
Change in physical operating conditions		<Not Applicable>		
Unidentified		<Not Applicable>		
Other		<Not Applicable>		

C7.9b

(C7.9b) Are your emissions performance calculations in C7.9 and C7.9a based on a location-based Scope 2 emissions figure or a market-based Scope 2 emissions figure?

Location-based

C8. Energy

C8.1

(C8.1) What percentage of your total operational spend in the reporting year was on energy?

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

C8.2

(C8.2) Select which energy-related activities your organization has undertaken.

	Indicate whether your organization undertakes this energy-related activity
Consumption of fuel (excluding feedstocks)	Yes
Consumption of purchased or acquired electricity	Yes
Consumption of purchased or acquired heat	No
Consumption of purchased or acquired steam	Yes
Consumption of purchased or acquired cooling	No
Generation of electricity, heat, steam, or cooling	No

C8.2a

(C8.2a) Report your organization’s energy consumption totals (excluding feedstocks) in MWh.

	Heating value	MWh from renewable sources	MWh from non-renewable sources	Total MWh
Consumption of fuel (excluding feedstock)	HHV (higher heating value)	0	3087000	3087000
Consumption of purchased or acquired electricity	<Not Applicable>	548000	25434000	25982000
Consumption of purchased or acquired heat	<Not Applicable>	<Not Applicable>	<Not Applicable>	<Not Applicable>
Consumption of purchased or acquired steam	<Not Applicable>	0	1226000	1226000
Consumption of purchased or acquired cooling	<Not Applicable>	<Not Applicable>	<Not Applicable>	<Not Applicable>
Consumption of self-generated non-fuel renewable energy	<Not Applicable>	<Not Applicable>	<Not Applicable>	<Not Applicable>
Total energy consumption	<Not Applicable>	548000	29747000	30295000

C-CH8.2a

(C-CH8.2a) Report your organization’s energy consumption totals (excluding feedstocks) for chemical production activities in MWh.

	Heating value	Total MWh
Consumption of fuel (excluding feedstock)	HHV (higher heating value)	2080000
Consumption of purchased or acquired electricity	<Not Applicable>	25722000
Consumption of purchased or acquired heat	<Not Applicable>	<Not Applicable>
Consumption of purchased or acquired steam	<Not Applicable>	1226000
Consumption of purchased or acquired cooling	<Not Applicable>	<Not Applicable>
Consumption of self-generated non-fuel renewable energy	<Not Applicable>	<Not Applicable>
Total energy consumption	<Not Applicable>	29028000

C8.2b

(C8.2b) Select the applications of your organization's consumption of fuel.

	Indicate whether your organization undertakes this fuel application
Consumption of fuel for the generation of electricity	Yes
Consumption of fuel for the generation of heat	No
Consumption of fuel for the generation of steam	Yes
Consumption of fuel for the generation of cooling	Yes
Consumption of fuel for co-generation or tri-generation	No

C8.2c

(C8.2c) State how much fuel in MWh your organization has consumed (excluding feedstocks) by fuel type.

Fuels (excluding feedstocks)

Natural Gas

Heating value

HHV (higher heating value)

Total fuel MWh consumed by the organization

2526000

MWh fuel consumed for self-generation of electricity

0

MWh fuel consumed for self-generation of heat

2400000

MWh fuel consumed for self-generation of steam

126000

MWh fuel consumed for self-generation of cooling

0

MWh fuel consumed for self-cogeneration or self-trigeneration

<Not Applicable>

Comment

For question C8.2c, we report Praxair only data. See the Introduction for an explanation of reporting practices.

Fuels (excluding feedstocks)

Fuel Oil Number 2

Heating value

HHV (higher heating value)

Total fuel MWh consumed by the organization

6200

MWh fuel consumed for self-generation of electricity

0

MWh fuel consumed for self-generation of heat

0

MWh fuel consumed for self-generation of steam

6200

MWh fuel consumed for self-generation of cooling

0

MWh fuel consumed for self-cogeneration or self-trigeneration

<Not Applicable>

Comment

For question C8.2c, we report Praxair only data. See the Introduction for an explanation of reporting practices.

Fuels (excluding feedstocks)

Diesel

Heating value

HHV (higher heating value)

Total fuel MWh consumed by the organization

345000

MWh fuel consumed for self-generation of electricity

0

MWh fuel consumed for self-generation of heat

345000

MWh fuel consumed for self-generation of steam

0

MWh fuel consumed for self-generation of cooling

0

MWh fuel consumed for self-cogeneration or self-trigeneration

<Not Applicable>

Comment

For question C8.2c, we report Praxair only data. See the Introduction for an explanation of reporting practices.

Fuels (excluding feedstocks)

Naphtha

Heating value

HHV (higher heating value)

Total fuel MWh consumed by the organization

210000

MWh fuel consumed for self-generation of electricity

0

MWh fuel consumed for self-generation of heat

210000

MWh fuel consumed for self-generation of steam

0

MWh fuel consumed for self-generation of cooling

0

MWh fuel consumed for self-cogeneration or self-trigeneration

<Not Applicable>

Comment

For question C8.2c, we report Praxair only data. See the Introduction for an explanation of reporting practices.

C8.2d

(C8.2d) List the average emission factors of the fuels reported in C8.2c.

Diesel

Emission factor

22.4

Unit

lb CO₂e per gallon

Emission factor source

U.S. EPA AP 42

Comment

Fuel Oil Number 2

Emission factor

223

Unit

lb CO₂ per gallon

Emission factor source

U.S. EPA AP 42

Comment

Naphtha

Emission factor

8.5

Unit

kg CO₂ per gallon

Emission factor source

U.S. EPA AP 42

Comment

Natural Gas

Emission factor

120

Unit

lb CO₂e per 1000 cubic ft³

Emission factor source

U.S. EPA AP 42

Comment

C8.2f

(C8.2f) Provide details on the electricity, heat, steam and/or cooling amounts that were accounted for at a low-carbon emission factor in the market-based Scope 2 figure reported in C6.3.

Basis for applying a low-carbon emission factor

Power Purchase Agreement (PPA) without energy attribute certificates

Low-carbon technology type

Solar PV

Hydropower

Region of consumption of low-carbon electricity, heat, steam or cooling

North America

MWh consumed associated with low-carbon electricity, heat, steam or cooling

395000

Emission factor (in units of metric tons CO₂e per MWh)

0

Comment

Under the market-based approach for Scope 2, we consider emissions from renewable electricity purchased through power purchase agreements to be zero. In 2018, Praxair purchased 331,000 MWh of renewable electricity in 2018 from hydropower through PPAs with utility suppliers in NY state, 1,000 MWh from a solar PPA to power a carport at Praxair's headquarters in Connecticut, and 63,000 MWh from wind and hydro projects through PPAs with utility suppliers in Mexico. This does not include the renewable electricity that is part of the grid mix. We report Praxair-only data for question C8.2f. In Linde's 2018 Sustainable Development report, we report Linde plc's total purchased renewable electricity consumption in 2018 as 827,000 MWh (this does not include renewable electricity that is part of the grid mix). This is about 3% of Linde plc's total electricity consumption. The figure includes 12 months of Praxair data plus Linde AG data after the merger (i.e., November and December 2018).

Basis for applying a low-carbon emission factor

Power Purchase Agreement (PPA) without energy attribute certificates

Low-carbon technology type

Hydropower

Region of consumption of low-carbon electricity, heat, steam or cooling

Other, please specify (South America - Brazil)

MWh consumed associated with low-carbon electricity, heat, steam or cooling

65000

Emission factor (in units of metric tons CO₂e per MWh)

0

Comment

Under the market-based approach for Scope 2, we consider emissions from renewable electricity purchased through power purchase agreements to be zero. In 2018, Praxair purchased 68,000 MWh of renewable electricity in 2018 - from hydropower - through a PPA with a utility supplier in Brazil. This does not include the renewable electricity that is part of the grid mix.

Basis for applying a low-carbon emission factor

Power Purchase Agreement (PPA) without energy attribute certificates

Low-carbon technology type

Wind

Region of consumption of low-carbon electricity, heat, steam or cooling

Asia Pacific

MWh consumed associated with low-carbon electricity, heat, steam or cooling

88000

Emission factor (in units of metric tons CO₂e per MWh)

0

Comment

Under the market-based approach for Scope 2, we consider emissions from renewable electricity purchased through power purchase agreements to be zero. In 2018, Praxair purchased 65,000 MWh of renewable electricity in 2018 - from wind projects - through PPAs with utility suppliers in India. This does not include the renewable electricity that is part of the grid mix.

C-CH8.3

(C-CH8.3) Disclose details on your organization's consumption of feedstocks for chemical production activities.

Feedstocks

Natural gas

Total consumption

142674000

Total consumption unit

cubic feet

Inherent carbon dioxide emission factor of feedstock, metric tons CO2 per consumption unit

0.05

Heating value of feedstock, MWh per consumption unit

0.1

Heating value

HHV

Comment

Total consumption of natural gas represents Praxair data only.

Feedstocks

Other, please specify (Not applicable)

Total consumption

0

Total consumption unit

metric tons

Inherent carbon dioxide emission factor of feedstock, metric tons CO2 per consumption unit

0

Heating value of feedstock, MWh per consumption unit

0

Heating value

HHV

Comment

Praxair (now Linde plc) is an industrial gases company. In 2018, 99% of Praxair's feedstock was ambient air (that is, not derived from fossil fuels). As CDP does not have an option for non-fossil fuel feedstocks, CDP has instructed us to choose "Other, please specify" and to explain that 99% of our feedstock in 2018 could not be classified as fuels. We report natural gas only, as this is half of the remaining feedstock. Other feedstocks (oil, biomass and waste) represent less than 0.5% each of Praxair's 2018 feedstock consumption. No comment is available for C-CH8.3a, but as there is no option for non-fossil fuel feedstocks in that question, we do not account for the 99% of our feedstock that is air. We only account for the 1% of feedstock that is derived from natural gas, oil, biomass and waste. We report Praxair only data here, for comparability with 2017. Linde AG data only covers two months of 2018, while Praxair data covers the entire calendar year. We will report combined Praxair/Linde AG data in next year's CDP response.

C-CH8.3a

(C-CH8.3a) State the percentage, by mass, of primary resource from which your chemical feedstocks derive.

	Percentage of total chemical feedstock (%)
Oil	0.04
Natural Gas	0.5
Coal	0
Biomass	0.1
Waste	0.36
Fossil fuel (where coal, gas, oil cannot be distinguished)	0
Unknown source or unable to disaggregate	0

C9. Additional metrics

C9.1

(C9.1) Provide any additional climate-related metrics relevant to your business.

Description

Land use

Metric value

840000

Metric numerator

Number of trees planted/preserved

Metric denominator (intensity metric only)

n/a

% change from previous year

25

Direction of change

Increased

Please explain

Praxair has a 2020 target to plant or preserve 1 million trees with conservation groups. This is a cumulative target. At the end of 2018, Praxair had planted or preserved 840,000 trees, on track to meeting the target. In 2018, 170,000 trees were planted or preserved. This is a 25% increase from the previous year.

C-CH9.3a

(C-CH9.3a) Provide details on your organization's chemical products.

Output product

Specialty chemicals

Production (metric tons)**Capacity (metric tons)****Direct emissions intensity (metric tons CO₂e per metric ton of product)****Electricity intensity (MWh per metric ton of product)****Steam intensity (MWh per metric ton of product)****Steam/ heat recovered (MWh per metric ton of product)****Comment**

This information is considered business confidential.

C-CH9.6

(C-CH9.6) Disclose your organization's low-carbon investments for chemical production activities.

Investment start date

January 1 2018

Investment end date

December 31 2018

Investment area

R&D

Technology area

Radical process redesign

Investment maturity

Pilot demonstration

Investment figure**Low-carbon investment percentage**

Please select

Please explain

Praxair considers the investment figure and percentage to be business confidential. This low-carbon investment enables a reduction in GHG emissions and NOx. The reduced GHG emissions include 30-50% reduced CO2 emissions versus the traditional methods. This investment is expected to meet Praxair's typical hurdle rates for return on capital.

Investment start date

January 1 2018

Investment end date

December 31 2018

Investment area

R&D

Technology area

Radical process redesign

Investment maturity

Full/commercial-scale demonstration

Investment figure**Low-carbon investment percentage**

Please select

Please explain

Praxair considers the investment figure and percentage to be business confidential. This low-carbon investment enables a reduction in GHG emissions due to power savings. This investment is expected to meet Praxair's typical hurdle rates for return on capital.

Investment start date

January 1 2018

Investment end date

December 31 2018

Investment area

R&D

Technology area

Waste heat recovery

Investment maturity

Full/commercial-scale demonstration

Investment figure**Low-carbon investment percentage**

Please select

Please explain

Praxair considers the investment figure and percentage to be business confidential. This low-carbon investment enables a reduction in GHG emissions due to increased efficiency. This investment is expected to meet Praxair's typical hurdle rates for

return on capital.

Investment start date

January 1 2018

Investment end date

December 31 2018

Investment area

R&D

Technology area

Radical process redesign

Investment maturity

Pilot demonstration

Investment figure

Low-carbon investment percentage

Please select

Please explain

Praxair considers the investment figure and percentage to be business confidential. This low-carbon investment enables a reduction in GHG emissions due to power savings. This investment will also provide project cost savings.

Investment start date

January 1 2018

Investment end date

December 31 2018

Investment area

R&D

Technology area

Carbon capture, utilization and storage (CCUS)

Investment maturity

Full/commercial-scale demonstration

Investment figure

Low-carbon investment percentage

Please select

Please explain

Praxair considers the investment figure and percentage to be business confidential. This low-carbon investment enables customers and business partners to achieve a reduction in GHG emissions by permanently sequestering CO2 in concrete as well as process efficiency improvements resulting in less fuel consumption and less cement production required. Worldwide adoption of this technology could result in over 30 million metric tons of CO2 sequestration. In addition to this, process efficiency improvements could result in reduced CO2 emissions by over 150 million metric tons worldwide. This investment is expected to meet Praxair's typical hurdle rates for return on capital.

C10. Verification

C10.1

(C10.1) Indicate the verification/assurance status that applies to your reported emissions.

	Verification/assurance status
Scope 1	Third-party verification or assurance process in place
Scope 2 (location-based or market-based)	Third-party verification or assurance process in place
Scope 3	Third-party verification or assurance process in place

C10.1a

(C10.1a) Provide further details of the verification/assurance undertaken for your Scope 1 and/or Scope 2 emissions and attach the relevant statements.

Scope

Scope 1

Verification or assurance cycle in place

Annual process

Status in the current reporting year

Complete

Type of verification or assurance

Limited assurance

Attach the statement

FINAL KPI Assurance Statement 2019.pdf

Page/ section reference

1, 2

Relevant standard

ISO14064-3

Proportion of reported emissions verified (%)

100

Scope

Scope 2 location-based

Verification or assurance cycle in place

Annual process

Status in the current reporting year

Complete

Type of verification or assurance

Limited assurance

Attach the statement

FINAL KPI Assurance Statement 2019.pdf

Page/ section reference

1,2

Relevant standard

ISO14064-3

Proportion of reported emissions verified (%)

100

C10.1b

(C10.1b) Provide further details of the verification/assurance undertaken for your Scope 3 emissions and attach the relevant statements.

Scope

Scope 3- at least one applicable category

Verification or assurance cycle in place

Annual process

Status in the current reporting year

Complete

Attach the statement

FINAL KPI Assurance Statement 2019.pdf

Page/section reference

1,2

Relevant standard

ISO14064-3

C10.2

(C10.2) Do you verify any climate-related information reported in your CDP disclosure other than the emissions figures reported in C6.1, C6.3, and C6.5?

Yes

C10.2a

(C10.2a) Which data points within your CDP disclosure have been verified, and which verification standards were used?

Disclosure module verification relates to	Data verified	Verification standard	Please explain
C6. Emissions data	Year on year change in emissions (Scope 1)	The verification protocol employed for verification of Linde plc's 2018 GHG emissions was ISO 14064-3 (2006): Specification with guidance for the validation and verification of greenhouse gas assertions, and is consistent with the requirements for ISAE 3000.	This metric is verified annually as it is connected to hydrogen and trucking intensity targets reported in C4.1b.
C4. Targets and performance	Other, please specify (Renewable electricity purchased (not part of the grid mix))	The verification protocol employed for verification of Linde plc's 2018 GHG emissions was ISO 14064-3 (2006): Specification with guidance for the validation and verification of greenhouse gas assertions, and is consistent with the requirements for ISAE 3000. Consensus protocols for the verification of the KPI metrics, other than GHG emissions, do not currently exist. Carbon Verification Service utilized the same verification principles prescribed by ISO 14064-3 to guide the verification of this data.	Linde verified the amount of renewable electricity purchased through PPAs, as this relates to a SD2020 target, which we report against in C4.2.

C11. Carbon pricing

C11.1

(C11.1) Are any of your operations or activities regulated by a carbon pricing system (i.e. ETS, Cap & Trade or Carbon Tax)?

Yes

C11.1a

(C11.1a) Select the carbon pricing regulation(s) which impacts your operations.

California CaT

Québec CaT

C11.1b

(C11.1b) Complete the following table for each of the emissions trading systems in which you participate.

California CaT

% of Scope 1 emissions covered by the ETS

1

Period start date

January 1 2018

Period end date

December 31 2018

Allowances allocated

64374

Allowances purchased

29209

Verified emissions in metric tons CO₂e

80165

Details of ownership

Facilities we own and operate

Comment

The above information reflects Praxair facilities covered by California's ETS.

Québec CaT

% of Scope 1 emissions covered by the ETS

Period start date

January 1 2018

Period end date

December 31 2018

Allowances allocated

21229

Allowances purchased

24148

Verified emissions in metric tons CO₂e

45377

Details of ownership

Facilities we own and operate

Comment

The above information reflects Praxair facilities covered by Quebec's ETS. Quebec's system requires us to obtain credits for CO₂ that leaves as product. Emissions not including product are substantially lower than the 45,377 MT reported above.

C11.1d

(C11.1d) What is your strategy for complying with the systems in which you participate or anticipate participating?

Praxair is covered by California's Greenhouse Gas Cap and Trade program and Quebec's Cap and Trade program. Praxair's strategy for complying with these systems is imbedded in our overall climate strategy. The company has enterprise-wide energy and climate goals that require GHG intensity improvements at hydrogen plants and energy savings from all business units. These goals are achieved through a range of emissions reduction measures, e.g. use of abatement technology and increase in energy efficiency. Praxair also has a 5-year target to plant or preserve one million trees with conservation groups. These projects help us manage project-based carbon credits and are part of our overall purchase strategy for allowances.

In Quebec's cap and trade program, companies must have allowances for GHG emissions as well as any CO2 leaving as product. Our strategy in Quebec is to minimize the GHG emissions from Praxair's facility through energy efficiency initiatives. Praxair carefully manages its free credit allocation to cover these emissions. Praxair must also plan to purchase either allowances or offset credits to cover CO2 leaving our facility as product.

In California, Praxair purchases some of its allowances as forestry credits from The Nature Conservancy.

C11.2

(C11.2) Has your organization originated or purchased any project-based carbon credits within the reporting period?

Yes

C11.2a

(C11.2a) Provide details of the project-based carbon credits originated or purchased by your organization in the reporting period.

Credit origination or credit purchase

Credit purchase

Project type

Forests

Project identification

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 7th year with this project and 7th purchase of the same number of credits.

Verified to which standard

VCS (Verified Carbon Standard)

Number of credits (metric tonnes CO2e)

667

Number of credits (metric tonnes CO2e): Risk adjusted volume

667

Credits cancelled

Yes

Purpose, e.g. compliance

Voluntary Offsetting

C11.3

(C11.3) Does your organization use an internal price on carbon?

Yes

C11.3a

(C11.3a) Provide details of how your organization uses an internal price on carbon.

Objective for implementing an internal carbon price

Identify and seize low-carbon opportunities

GHG Scope

Scope 1

Scope 2

Application

Praxair's internal carbon price was developed to help communicate to stakeholders the environmental and social impacts from Praxair's hydrogen production for its use in hydrodesulfurization during the production of ultra-low sulfur diesel fuel (ULSD). The hydrogen is used to remove sulfur that otherwise would be emitted into the atmosphere as sulfur dioxide. Moving forward, an internal carbon price may be used to identify and assess low carbon opportunities. We expect this information could be used especially in our ASU and hydrogen businesses when siting new plants to inform emissions control technology and equipment decisions.

Actual price(s) used (Currency /metric ton)

15

Variance of price(s) used

A uniform price is currently being used. As the application of the internal price evolves, the price may also evolve over time. (Note, we reported a price of \$59/ton last year - this was a typo. It should have been \$15/ton.)

Type of internal carbon price

Offsets

Impact & implication

Praxair participated in a project with Villanova University to assess the social and environmental impacts from Praxair's hydrogen production for its use in hydrodesulfurization during the production of Ultra-Low Sulfur Diesel Fuel (ULSD). The hydrogen is used to remove sulfur that otherwise would be emitted into the atmosphere as sulfur dioxide, SO₂. The study concluded that there are social and environmental costs that come from Praxair's production of hydrogen for ULSD, but the use of this hydrogen has far more benefits than the social and environmental costs it takes to produce. Praxair's production of H₂ used in hydrodesulfurization results in a net benefit of \$960 million in social impacts, and \$391 million in environmental impacts, which attests to the beneficial nature of this process. Establishing the internal price of carbon has helped to reveal the true impacts of Praxair's hydrogen production. While the price has not yet impacted our business, we are just beginning to consider how the cost of carbon can be applied to various internal decision-making processes. We expect the internal price could eventually help us set and meet future carbon goals.

C12. Engagement

C12.1

(C12.1) Do you engage with your value chain on climate-related issues?

Yes, our suppliers

C12.1a

(C12.1a) Provide details of your climate-related supplier engagement strategy.

Type of engagement

Innovation & collaboration (changing markets)

Details of engagement

Run a campaign to encourage innovation to reduce climate impacts on products and services

% of suppliers by number

5

% total procurement spend (direct and indirect)

25

% Scope 3 emissions as reported in C6.5

78

Rationale for the coverage of your engagement

Energy providers (utilities) are chosen for engagement because they represent the largest portion of Praxair's Scope 3 GHG footprint. Fuel and energy related emissions represent 78% of Praxair's Scope 3 footprint. Praxair participates in energy efficiency and energy reduction programs offered by electricity suppliers. Praxair is able to implement technology solutions through these programs that otherwise might not be cost effective.

Impact of engagement, including measures of success

Engaging with energy providers is a win-win for Praxair. Many utility companies are required by state renewable portfolio standards to ensure that a percentage of electricity they sell comes from renewable sources. Working with their customers (like Praxair), utilities can achieve this by incentivizing energy efficiency, which can reduce the amount of non-renewable power needed. Praxair, by participating in these programs, reduces energy use and avoids GHG emissions, and saves money. Cost savings is a primary driver for these programs. For Praxair, energy is a large cost factor, representing 25-30 percent of Praxair's operational costs. We measure impact of our engagement by percent improvements in energy efficiency. For example: In 2018, Praxair's Ferndale, Washington, CO2 plant partnered with the local electricity utility Puget Sound Energy (PSE), the largest investor-owned utility in Washington, to develop and commission an automated demand response product. Praxair was the first customer in the utility's history to modulate our load automatically from a signal sent from the utility's grid control center. By allowing the utility to modulate our load, we are able to reduce kWh demand during peak periods and help the utility better balance supply with demand. This helps avoid power interruptions for us and for other PSE customers and decrease use of carbon-based peaker units. Praxair also installed a site energy management and supervisory control system that enabled site energy measurement and optimization in real time. Thanks to these measures, the Ferndale plant improved energy efficiency by 15%.

Comment

C12.3

(C12.3) Do you engage in activities that could either directly or indirectly influence public policy on climate-related issues through any of the following?

Direct engagement with policy makers

Trade associations

C12.3a

(C12.3a) On what issues have you been engaging directly with policy makers?

Focus of legislation	Corporate position	Details of engagement	Proposed legislative solution
Clean energy generation	Support	Praxair met with the U.S. Congress and state and local officials, including in California, to discuss clean energy generation for fuel cell technologies.	Praxair seeks to promote public policies that encourage the use of hydrogen fuel cells as zero-emission sources of energy.
Energy efficiency	Support	Praxair met with the U.S. Congress and state and local officials to discuss energy efficiency.	Continued federal and state funding for fossil fuel energy efficiency technology development.

C12.3b

(C12.3b) Are you on the board of any trade associations or do you provide funding beyond membership?

No

C12.3f

(C12.3f) 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 provides regular reporting on such activities to the Chief Compliance Officer and reports to the General Counsel.

In addition, all Praxair 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.

As of mid-2019, work processes at least equivalent to these are in place or are being planned at Linde for 2019 and going forward.

C12.4

(C12.4) 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

In mainstream reports

Status

Complete

Attach the document

Linde plc 2018 10k.pdf

Page/Section reference

Pages 10, 11 and 13 - description of the risks of increases in the cost of energy and raw materials; catastrophic events such as extreme weather; keeping pace with technological advances; the variety of laws and regulations the company is subject to, including regulations related to environmental protection, including climate change and energy efficiency laws and policies. Page 32 - description of Environmental Matters includes a section on Climate Change

Content elements

Strategy

Risks & opportunities

Comment

Publication

In voluntary sustainability report

Status

Complete

Attach the document

Linde 2018 Sustainable Development Report.pdf

Page/Section reference

5, 10-11, 12, 15-20, 23-25, 47-48, 50-53

Content elements

Governance

Strategy

Emissions figures

Emission targets

Other metrics

Comment

Publication

In other regulatory filings

Status

Complete

Attach the document

non-financial-information.pdf

Page/Section reference

2, 5-7

Content elements

Governance

Risks & opportunities

Other, please specify (Products that offer environmental and social advantages)

Comment

C14. Signoff

C-FI

(C-FI) Use this field to provide any additional information or context that you feel is relevant to your organization's response. Please note that this field is optional and is not scored.

C14.1

(C14.1) Provide details for the person that has signed off (approved) your CDP climate change response.

	Job title	Corresponding job category
Row 1	Chief Sustainability Officer (also the Vice President, Sustainable Development)	Chief Sustainability Officer (CSO)

SC. Supply chain module

SC0.0

(SC0.0) If you would like to do so, please provide a separate introduction to this module.

Linde sees inquiries such as this as opportunities. Building on our technological and business innovation, we are eager to showcase our Eco-Efficiency and Green Technologies portfolio and demonstrate how we might support customers sustainability efforts and help improve environmental performance, increase energy efficiency and increase production process throughput or yield.

For financial reporting for Linde plc, Praxair is considered the successor of interest. Counted over the full calendar year 2018, Praxair contributed 80% of Linde revenue. For reasons explained in the CSO letter in Linde's 2018 Sustainable Development Report, except only for certain metrics where we report for that last 2 months of Linde AG 2018 performance, we report 2018 sustainable development data and performance for the full year, for Praxair only. To be consistent the 2018 annual revenue reported below is for Praxair only.

In 2018, 51% of our revenue came from environmental innovation. Linde has a GHG goal to improve our customer carbon productivity, backed by a target to enable each year greater than 2X the GHG avoided than was emitted in all Linde operations. Sources of direct GHG emissions (Scope 1, principally from H2 production, also other sources including truck driving) and indirect GHG emissions (Scope 2, principally from air separation) totalled 21.3 MM MT CO₂e in 2018 from Praxair's operations. Praxair, a member of the Linde group, measures and validates customer carbon productivity for selected applications, including: argon for welding and krypton for window insulation; oxygen in oxyfuel applications; and hydrogen used by oil refiners to make ultra-low sulfur diesel (ULSD) in trucks fitted with a diesel particulate filter. In 2018, these five applications, which represent 11% of revenue, enabled 72 million MT CO₂e to be avoided, or a 50.7 million MT net benefit. Linde applications therefore can be said to enable more than 2X more GHG emissions to be avoided than were emitted from all global operations, or a >2X carbon productivity. Reference page 15 of the Linde 2018 Sustainable Development Report (SDR), which is located online in our sustainable development reporting center: <https://www.linde.com/en/about-linde/sustainable-development/reporting-center>, and Linde Sustainable Development targets and performance on our web site: <https://www.linde.com/en/about-linde/sustainable-development/targets-and-performance>

SC0.1

(SC0.1) What is your company's annual revenue for the stated reporting period?

	Annual Revenue
Row 1	12027000000

SC0.2

(SC0.2) Do you have an ISIN for your company that you would be willing to share with CDP?

Yes

SC0.2a

(SC0.2a) Please use the table below to share your ISIN.

	ISIN country code (2 letters)	ISIN numeric identifier and single check digit (10 numbers overall)
Row 1	IE	00BZ12WP82

SC1.1

(SC1.1) Allocate your emissions to your customers listed below according to the goods or services you have sold them in this reporting period.

Requesting member

ARKEMA

Scope of emissions

Scope 1

Allocation level

Company wide

Allocation level detail

<Not Applicable>

Emissions in metric tonnes of CO₂e

0.2

Uncertainty (±%)

20

Major sources of emissions

Packaged gases. Atmospheric products (nitrogen, oxygen, argon) are produced by separating air using energy in cooling towers, then liquefying the gas with further cooling and compression for transportation. In addition to the energy cost of the products, which provides an indirect GHG cost, there is the direct GHG cost of transporting the gases in trucks.

Verified

No

Allocation method

Allocation based on the volume of products purchased

Please explain how you have identified the GHG source, including major limitations to this process and assumptions made

For financial reporting for Linde plc, Praxair is considered the successor of interest. Counted over the full calendar year 2018, Praxair contributed 80% of Linde revenue. For reasons explained in the CSO letter in Linde's 2018 Sustainable Development Report, except only for certain metrics where we report for that last 2 months of Linde AG 2018 performance, we report 2018 sustainable development data and performance for the full year, for Praxair only. Due to the divestment process, data from Europe

could not be obtained. This figure represents best effort to allocate distribution miles. For Scope 1 emissions: If product was transported by truck, estimated miles driven to deliver product, if possible. We assumed a fuel rate of 5 miles per gallon and converted gallons to CO2e using the EPA conversion rates. NOTE: This conversion factor will over-estimate the CO2e in two ways: (1) the 5 MPG is conservative; (2) the product being delivered to a particular customer may be part of a less than a full truckload delivery (ie multiple deliveries to several customers from the same truckload of product). Both will improve the impact product CO2e per delivery mile driven. For package/cylinder gases, allocation of miles when there are multiple products and shipments for multiple customers in an area is a significant challenge. In most cases, these emission allocations are not included.

Requesting member

ARKEMA

Scope of emissions

Scope 2

Allocation level

Company wide

Allocation level detail

<Not Applicable>

Emissions in metric tonnes of CO2e

1

Uncertainty (±%)

20

Major sources of emissions

Packaged gases. Atmospheric products (nitrogen, oxygen, argon) are produced by separating air using energy in cooling towers, then liquefying the gas with further cooling and compression for transportation. In addition to the energy cost of the products, which provides an indirect GHG cost, there is the direct GHG cost of transporting the gases in trucks.

Verified

No

Allocation method

Allocation based on the volume of products purchased

Please explain how you have identified the GHG source, including major limitations to this process and assumptions made

For financial reporting for Linde plc, Praxair is considered the successor of interest. Counted over the full calendar year 2018, Praxair contributed 80% of Linde revenue. For reasons explained in the CSO letter in Linde's 2018 Sustainable Development Report, except only for certain metrics where we report for that last 2 months of Linde AG 2018 performance, we report 2018 sustainable development data and performance for the full year, for Praxair only. Due to the divestment process, data from Europe could not be obtained. This figure represents best effort to capture sales volume to customers from disparate systems. For Scope 2 Emissions: Each business provided the volume of product(s) sold to each customer and the primary supply plant. We used a benchmark conversion factor for energy used in the production per unit of product and then country emission factors (EFs) to determine the CO2e per product. Scope 2 emissions are calculated for product nitrogen and oxygen only.

Requesting member

Braskem S/A

Scope of emissions

Scope 1

Allocation level

Company wide

Allocation level detail

<Not Applicable>

Emissions in metric tonnes of CO2e

1908

Uncertainty (±%)

20

Major sources of emissions

Liquid nitrogen, pipeline gaseous nitrogen, pipeline oxygen, liquid carbon dioxide, package gases. Atmospheric products (nitrogen,

oxygen, argon) are produced by separating air using energy in cooling towers, then liquefying the gas with further cooling and compression for transportation. CO2 is sourced as a byproduct and purified, then liquefied for transport. Praxair, a member of the Linde group, has long been a practitioner of what is called "Byproduct Synergy", which is leveraged in our CO2 sourcing. Example: <http://www.praxair.com/news/2015/praxair-and-delaware-city-refining-sign-long-term-supply-agreement> Praxair, a member of the Linde group, also sources a portion of CO2 from ethanol fermentation (a biomass source). In addition to the energy cost of the products, which provides an indirect GHG cost, there is the direct GHG cost of transporting the gases in trucks.

Verified

No

Allocation method

Allocation based on the volume of products purchased

Please explain how you have identified the GHG source, including major limitations to this process and assumptions made

For financial reporting for Linde plc, Praxair is considered the successor of interest. Counted over the full calendar year 2018, Praxair contributed 80% of Linde revenue. For reasons explained in the CSO letter in Linde's 2018 Sustainable Development Report, except only for certain metrics where we report for that last 2 months of Linde AG 2018 performance, we report 2018 sustainable development data and performance for the full year, for Praxair only. This figure represents best effort to allocate distribution miles. For Scope 1 emissions: If product was transported by truck, estimated miles driven to deliver product, if possible. We assumed a fuel rate of 5 miles per gallon and converted gallons to CO2e using the EPA conversion rates. NOTE: This conversion factor will over-estimate the CO2e in two ways: (1) the 5 MPG is conservative; (2) the product being delivered to a particular customer may be part of a less than a full truckload delivery (ie multiple deliveries to several customers from the same truckload of product). Both will improve the impact product CO2e per delivery mile driven. For package/cylinder gases, allocation of miles when there are multiple products and shipments for multiple customers in an area is a significant challenge. In most cases, these emission allocations are not included.

Requesting member

Braskem S/A

Scope of emissions

Scope 2

Allocation level

Company wide

Allocation level detail

<Not Applicable>

Emissions in metric tonnes of CO2e

16018

Uncertainty (±%)

20

Major sources of emissions

Liquid nitrogen, pipeline gaseous nitrogen, pipeline oxygen, liquid carbon dioxide, package gases. Atmospheric products (nitrogen, oxygen, argon) are produced by separating air using energy in cooling towers, then liquefying the gas with further cooling and compression for transportation. CO2 is sourced as a byproduct and purified, then liquefied for transport. Praxair, a member of the Linde group, has long been a practitioner of what is called "Byproduct Synergy", which is leveraged in our CO2 sourcing. Example: <http://www.praxair.com/news/2015/praxair-and-delaware-city-refining-sign-long-term-supply-agreement> Praxair, a member of the Linde group, also sources a portion of CO2 from ethanol fermentation (a biomass source). In addition to the energy cost of the products, which provides an indirect GHG cost, there is the direct GHG cost of transporting the gases in trucks.

Verified

No

Allocation method

Allocation based on the volume of products purchased

Please explain how you have identified the GHG source, including major limitations to this process and assumptions made

For financial reporting for Linde plc, Praxair is considered the successor of interest. Counted over the full calendar year 2018, Praxair contributed 80% of Linde revenue. For reasons explained in the CSO letter in Linde's 2018 Sustainable Development Report, except only for certain metrics where we report for that last 2 months of Linde AG 2018 performance, we report 2018 sustainable development data and performance for the full year, for Praxair only. This figure represents best effort to capture sales volume to customers from disparate systems. For Scope 2 Emissions: Each business provided the volume of product(s) sold to

each customer and the primary supply plant. We used a benchmark conversion factor for energy used in the production per unit of product and then country emission factors (EFs) to determine the CO2e per product. Scope 2 emissions are calculated for product nitrogen and oxygen only.

Requesting member

Caesars Entertainment

Scope of emissions

Scope 1

Allocation level

Company wide

Allocation level detail

<Not Applicable>

Emissions in metric tonnes of CO2e

0.05

Uncertainty (±%)

20

Major sources of emissions

Packaged gases - liquid nitrogen. Atmospheric products (nitrogen, oxygen, argon) are produced by separating air using energy in cooling towers, then liquefying the gas with further cooling and compression for transportation. In addition to the energy cost of the products, which provides an indirect GHG cost, there is the direct GHG cost of transporting the gases in trucks.

Verified

No

Allocation method

Allocation based on the volume of products purchased

Please explain how you have identified the GHG source, including major limitations to this process and assumptions made

For financial reporting for Linde plc, Praxair is considered the successor of interest. Counted over the full calendar year 2018, Praxair contributed 80% of Linde revenue. For reasons explained in the CSO letter in Linde's 2018 Sustainable Development Report, except only for certain metrics where we report for that last 2 months of Linde AG 2018 performance, we report 2018 sustainable development data and performance for the full year, for Praxair only. Due to the divestment process, data from Europe could not be obtained. This figure represents best effort to allocate distribution miles. For Scope 1 emissions: If product was transported by truck, estimated miles driven to deliver product, if possible. We assumed a fuel rate of 5 miles per gallon and converted gallons to CO2e using the EPA conversion rates. NOTE: This conversion factor will over-estimate the CO2e in two ways: (1) the 5 MPG is conservative; (2) the product being delivered to a particular customer may be part of a less than a full truckload delivery (ie multiple deliveries to several customers from the same truckload of product). Both will improve the impact product CO2e per delivery mile driven. For package/cylinder gases, allocation of miles when there are multiple products and shipments for multiple customers in an area is a significant challenge. In most cases, these emission allocations are not included.

Requesting member

Caesars Entertainment

Scope of emissions

Scope 2

Allocation level

Company wide

Allocation level detail

<Not Applicable>

Emissions in metric tonnes of CO2e

0.1

Uncertainty (±%)

20

Major sources of emissions

Packaged gases - liquid nitrogen. Atmospheric products (nitrogen, oxygen, argon) are produced by separating air using energy in cooling towers, then liquefying the gas with further cooling and compression for transportation. In addition to the energy cost of the

products, which provides an indirect GHG cost, there is the direct GHG cost of transporting the gases in trucks.

Verified

No

Allocation method

Allocation based on the volume of products purchased

Please explain how you have identified the GHG source, including major limitations to this process and assumptions made

For financial reporting for Linde plc, Praxair is considered the successor of interest. Counted over the full calendar year 2018, Praxair contributed 80% of Linde revenue. For reasons explained in the CSO letter in Linde's 2018 Sustainable Development Report, except only for certain metrics where we report for that last 2 months of Linde AG 2018 performance, we report 2018 sustainable development data and performance for the full year, for Praxair only. Due to the divestment process, data from Europe could not be obtained. This figure represents best effort to capture sales volume to customers from disparate systems. For Scope 2 Emissions: Each business provided the volume of product(s) sold to each customer and the primary supply plant. We used a benchmark conversion factor for energy used in the production per unit of product and then country emission factors (EFs) to determine the CO2e per product. Scope 2 emissions are calculated for product nitrogen and oxygen only.

Requesting member

Grupo CCR

Scope of emissions

Scope 1

Allocation level

Company wide

Allocation level detail

<Not Applicable>

Emissions in metric tonnes of CO2e

3

Uncertainty (±%)

20

Major sources of emissions

Packaged gases. Atmospheric products (nitrogen, oxygen, argon) are produced by separating air using energy in cooling towers, then liquefying the gas with further cooling and compression for transportation. In addition to the energy cost of the products, which provides an indirect GHG cost, there is the direct GHG cost of transporting the gases in trucks.

Verified

No

Allocation method

Allocation based on the volume of products purchased

Please explain how you have identified the GHG source, including major limitations to this process and assumptions made

For financial reporting for Linde plc, Praxair is considered the successor of interest. Counted over the full calendar year 2018, Praxair contributed 80% of Linde revenue. For reasons explained in the CSO letter in Linde's 2018 Sustainable Development Report, except only for certain metrics where we report for that last 2 months of Linde AG 2018 performance, we report 2018 sustainable development data and performance for the full year, for Praxair only. This figure represents best effort to allocate distribution miles. For Scope 1 emissions: If product was transported by truck, estimated miles driven to deliver product, if possible. We assumed a fuel rate of 5 miles per gallon and converted gallons to CO2e using the EPA conversion rates. NOTE: This conversion factor will over-estimate the CO2e in two ways: (1) the 5 MPG is conservative; (2) the product being delivered to a particular customer may be part of a less than a full truckload delivery (ie multiple deliveries to several customers from the same truckload of product). Both will improve the impact product CO2e per delivery mile driven. For package/cylinder gases, allocation of miles when there are multiple products and shipments for multiple customers in an area is a significant challenge. In most cases, these emission allocations are not included.

Requesting member

Grupo CCR

Scope of emissions

Scope 2

Allocation level

Company wide

Allocation level detail

<Not Applicable>

Emissions in metric tonnes of CO2e

0.02

Uncertainty (±%)

20

Major sources of emissions

Packaged gases. Atmospheric products (nitrogen, oxygen, argon) are produced by separating air using energy in cooling towers, then liquefying the gas with further cooling and compression for transportation. In addition to the energy cost of the products, which provides an indirect GHG cost, there is the direct GHG cost of transporting the gases in trucks.

Verified

No

Allocation method

Allocation based on the volume of products purchased

Please explain how you have identified the GHG source, including major limitations to this process and assumptions made

For financial reporting for Linde plc, Praxair is considered the successor of interest. Counted over the full calendar year 2018, Praxair contributed 80% of Linde revenue. For reasons explained in the CSO letter in Linde's 2018 Sustainable Development Report, except only for certain metrics where we report for that last 2 months of Linde AG 2018 performance, we report 2018 sustainable development data and performance for the full year, for Praxair only. This figure represents best effort to capture sales volume to customers from disparate systems. For Scope 2 Emissions: Each business provided the volume of product(s) sold to each customer and the primary supply plant. We used a benchmark conversion factor for energy used in the production per unit of product and then country emission factors (EFs) to determine the CO2e per product. Scope 2 emissions are calculated for product nitrogen and oxygen only.

Requesting member

Intel Corporation

Scope of emissions

Scope 1

Allocation level

Company wide

Allocation level detail

<Not Applicable>

Emissions in metric tonnes of CO2e

227

Uncertainty (±%)

20

Major sources of emissions

Liquid nitrogen and packaged electronics process gases. Atmospheric products (nitrogen, oxygen, argon) are produced by separating air using energy in cooling towers, then liquefying the gas with further cooling and compression for transportation. In addition to the energy cost of the products, which provides an indirect GHG cost, there is the direct GHG cost of transporting the gases in trucks.

Verified

No

Allocation method

Allocation based on the volume of products purchased

Please explain how you have identified the GHG source, including major limitations to this process and assumptions made

For financial reporting for Linde plc, Praxair is considered the successor of interest. Counted over the full calendar year 2018, Praxair contributed 80% of Linde revenue. For reasons explained in the CSO letter in Linde's 2018 Sustainable Development Report, except only for certain metrics where we report for that last 2 months of Linde AG 2018 performance, we report 2018

sustainable development data and performance for the full year, for Praxair only. This figure represents best effort to allocate distribution miles. For Scope 1 emissions: If product was transported by truck, estimated miles driven to deliver product, if possible. We assumed a fuel rate of 5 miles per gallon and converted gallons to CO₂e using the EPA conversion rates. NOTE: This conversion factor will over-estimate the CO₂e in two ways: (1) the 5 MPG is conservative; (2) the product being delivered to a particular customer may be part of a less than a full truckload delivery (ie multiple deliveries to several customers from the same truckload of product). Both will improve the impact product CO₂e per delivery mile driven. For package/cylinder gases, allocation of miles when there are multiple products and shipments for multiple customers in an area is a significant challenge. In most cases, these emission allocations are not included.

Requesting member

Intel Corporation

Scope of emissions

Scope 2

Allocation level

Company wide

Allocation level detail

<Not Applicable>

Emissions in metric tonnes of CO₂e

7

Uncertainty (±%)

20

Major sources of emissions

Liquid nitrogen and packaged electronics process gases. Atmospheric products (nitrogen, oxygen, argon) are produced by separating air using energy in cooling towers, then liquefying the gas with further cooling and compression for transportation. In addition to the energy cost of the products, which provides an indirect GHG cost, there is the direct GHG cost of transporting the gases in trucks.

Verified

No

Allocation method

Allocation based on the volume of products purchased

Please explain how you have identified the GHG source, including major limitations to this process and assumptions made

For financial reporting for Linde plc, Praxair is considered the successor of interest. Counted over the full calendar year 2018, Praxair contributed 80% of Linde revenue. For reasons explained in the CSO letter in Linde's 2018 Sustainable Development Report, except only for certain metrics where we report for that last 2 months of Linde AG 2018 performance, we report 2018 sustainable development data and performance for the full year, for Praxair only. This figure represents best effort to capture sales volume to customers from disparate systems. For Scope 2 Emissions: Each business provided the volume of product(s) sold to each customer and the primary supply plant. We used a benchmark conversion factor for energy used in the production per unit of product and then country emission factors (EFs) to determine the CO₂e per product. Scope 2 emissions are calculated for product nitrogen and oxygen only.

Requesting member

Kellogg Company

Scope of emissions

Scope 1

Allocation level

Company wide

Allocation level detail

<Not Applicable>

Emissions in metric tonnes of CO₂e

218

Uncertainty (±%)

20

Major sources of emissions

Liquid nitrogen, gaseous nitrogen, carbon dioxide, package gases. Atmospheric products (nitrogen, oxygen, argon) are produced by separating air using energy in cooling towers, then liquefying the gas with further cooling and compression for transportation. CO₂ is sourced as a byproduct and purified, then liquefied for transport. Praxair, a member of the Linde group, has long been a practitioner of what is called "Byproduct Synergy", which is leveraged in our CO₂ sourcing. Example:

<http://www.praxair.com/news/2015/praxair-and-delaware-city-refining-sign-long-term-supply-agreement> Praxair, a member of the Linde group, also sources a portion of CO₂ from ethanol fermentation (a biomass source). In addition to the energy cost of the products, which provides an indirect GHG cost, there is the direct GHG cost of transporting the gases in trucks.

Verified

No

Allocation method

Allocation based on the volume of products purchased

Please explain how you have identified the GHG source, including major limitations to this process and assumptions made

For financial reporting for Linde plc, Praxair is considered the successor of interest. Counted over the full calendar year 2018, Praxair contributed 80% of Linde revenue. For reasons explained in the CSO letter in Linde's 2018 Sustainable Development Report, except only for certain metrics where we report for that last 2 months of Linde AG 2018 performance, we report 2018 sustainable development data and performance for the full year, for Praxair only. Due to the divestment process, data from Europe could not be obtained. This figure represents best effort to allocate distribution miles. For Scope 1 emissions: If product was transported by truck, estimated miles driven to deliver product, if possible. We assumed a fuel rate of 5 miles per gallon and converted gallons to CO₂e using the EPA conversion rates. NOTE: This conversion factor will over-estimate the CO₂e in two ways: (1) the 5 MPG is conservative; (2) the product being delivered to a particular customer may be part of a less than a full truckload delivery (ie multiple deliveries to several customers from the same truckload of product). Both will improve the impact product CO₂e per delivery mile driven. For package/cylinder gases, allocation of miles when there are multiple products and shipments for multiple customers in an area is a significant challenge. In most cases, these emission allocations are not included.

Requesting member

Kellogg Company

Scope of emissions

Scope 2

Allocation level

Company wide

Allocation level detail

<Not Applicable>

Emissions in metric tonnes of CO₂e

1073

Uncertainty (±%)

20

Major sources of emissions

Liquid nitrogen, gaseous nitrogen, carbon dioxide, package gases. Atmospheric products (nitrogen, oxygen, argon) are produced by separating air using energy in cooling towers, then liquefying the gas with further cooling and compression for transportation. CO₂ is sourced as a byproduct and purified, then liquefied for transport. Praxair, a member of the Linde group, has long been a practitioner of what is called "Byproduct Synergy", which is leveraged in our CO₂ sourcing. Example:

<http://www.praxair.com/news/2015/praxair-and-delaware-city-refining-sign-long-term-supply-agreement> Praxair, a member of the Linde group, also sources a portion of CO₂ from ethanol fermentation (a biomass source). In addition to the energy cost of the products, which provides an indirect GHG cost, there is the direct GHG cost of transporting the gases in trucks.

Verified

No

Allocation method

Allocation based on the volume of products purchased

Please explain how you have identified the GHG source, including major limitations to this process and assumptions made

For financial reporting for Linde plc, Praxair is considered the successor of interest. Counted over the full calendar year 2018, Praxair contributed 80% of Linde revenue. For reasons explained in the CSO letter in Linde's 2018 Sustainable Development Report, except only for certain metrics where we report for that last 2 months of Linde AG 2018 performance, we report 2018

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Requesting member

Koninklijke Philips NV

Scope of emissions

Scope 1

Allocation level

Company wide

Allocation level detail

<Not Applicable>

Emissions in metric tonnes of CO₂e

0.5

Uncertainty (±%)

20

Major sources of emissions

Packaged gases - liquid nitrogen. Atmospheric products (nitrogen, oxygen, argon) are produced by separating air using energy in cooling towers, then liquefying the gas with further cooling and compression for transportation. In addition to the energy cost of the products, which provides an indirect GHG cost, there is the direct GHG cost of transporting the gases in trucks.

Verified

No

Allocation method

Allocation based on the volume of products purchased

Please explain how you have identified the GHG source, including major limitations to this process and assumptions made

For financial reporting for Linde plc, Praxair is considered the successor of interest. Counted over the full calendar year 2018, Praxair contributed 80% of Linde revenue. For reasons explained in the CSO letter in Linde's 2018 Sustainable Development Report, except only for certain metrics where we report for that last 2 months of Linde AG 2018 performance, we report 2018 sustainable development data and performance for the full year, for Praxair only. Due to the divestment process, data from Europe could not be obtained. This figure represents best effort to allocate distribution miles. For Scope 1 emissions: If product was transported by truck, estimated miles driven to deliver product, if possible. We assumed a fuel rate of 5 miles per gallon and converted gallons to CO₂e using the EPA conversion rates. NOTE: This conversion factor will over-estimate the CO₂e in two ways: (1) the 5 MPG is conservative; (2) the product being delivered to a particular customer may be part of a less than a full truckload delivery (ie multiple deliveries to several customers from the same truckload of product). Both will improve the impact product CO₂e per delivery mile driven. For package/cylinder gases, allocation of miles when there are multiple products and shipments for multiple customers in an area is a significant challenge. In most cases, these emission allocations are not included.

Requesting member

Koninklijke Philips NV

Scope of emissions

Scope 2

Allocation level

Company wide

Allocation level detail

<Not Applicable>

Emissions in metric tonnes of CO₂e

3

Uncertainty (±%)

20

Major sources of emissions

Packaged gases - liquid nitrogen. Atmospheric products (nitrogen, oxygen, argon) are produced by separating air using energy in cooling towers, then liquefying the gas with further cooling and compression for transportation. In addition to the energy cost of the products, which provides an indirect GHG cost, there is the direct GHG cost of transporting the gases in trucks.

Verified

No

Allocation method

Allocation based on the volume of products purchased

Please explain how you have identified the GHG source, including major limitations to this process and assumptions made

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Requesting member

NRG Energy Inc

Scope of emissions

Scope 1

Allocation level

Company wide

Allocation level detail

<Not Applicable>

Emissions in metric tonnes of CO2e

4

Uncertainty (±%)

20

Major sources of emissions

Packaged gases. Atmospheric products (nitrogen, oxygen, argon) are produced by separating air using energy in cooling towers, then liquefying the gas with further cooling and compression for transportation. In addition to the energy cost of the products, which provides an indirect GHG cost, there is the direct GHG cost of transporting the gases in trucks.

Verified

No

Allocation method

Allocation based on the volume of products purchased

Please explain how you have identified the GHG source, including major limitations to this process and assumptions made

For financial reporting for Linde plc, Praxair is considered the successor of interest. Counted over the full calendar year 2018, Praxair contributed 80% of Linde revenue. For reasons explained in the CSO letter in Linde's 2018 Sustainable Development Report, except only for certain metrics where we report for that last 2 months of Linde AG 2018 performance, we report 2018 sustainable development data and performance for the full year, for Praxair only. Due to the divestment process, data from Europe could not be obtained. This figure represents best effort to allocate distribution miles. For Scope 1 emissions: If product was transported by truck, estimated miles driven to deliver product, if possible. We assumed a fuel rate of 5 miles per gallon and converted gallons to CO2e using the EPA conversion rates. NOTE: This conversion factor will over-estimate the CO2e in two ways: (1) the 5 MPG is conservative; (2) the product being delivered to a particular customer may be part of a less than a full truckload delivery (ie multiple deliveries to several customers from the same truckload of product). Both will improve the impact product CO2e per delivery mile driven. For package/cylinder gases, allocation of miles when there are multiple products and shipments for multiple customers in an area is a significant challenge. In most cases, these emission allocations are not included.

Requesting member

NRG Energy Inc

Scope of emissions

Scope 2

Allocation level

Company wide

Allocation level detail

<Not Applicable>

Emissions in metric tonnes of CO2e

2

Uncertainty (±%)

20

Major sources of emissions

Packaged gases. Atmospheric products (nitrogen, oxygen, argon) are produced by separating air using energy in cooling towers, then liquefying the gas with further cooling and compression for transportation. In addition to the energy cost of the products, which provides an indirect GHG cost, there is the direct GHG cost of transporting the gases in trucks.

Verified

No

Allocation method

Allocation based on the volume of products purchased

Please explain how you have identified the GHG source, including major limitations to this process and assumptions made

For financial reporting for Linde plc, Praxair is considered the successor of interest. Counted over the full calendar year 2018, Praxair contributed 80% of Linde revenue. For reasons explained in the CSO letter in Linde's 2018 Sustainable Development Report, except only for certain metrics where we report for that last 2 months of Linde AG 2018 performance, we report 2018 sustainable development data and performance for the full year, for Praxair only. Due to the divestment process, data from Europe could not be obtained. This figure represents best effort to capture sales volume to customers from disparate systems. For Scope 2 Emissions: Each business provided the volume of product(s) sold to each customer and the primary supply plant. We used a benchmark conversion factor for energy used in the production per unit of product and then country emission factors (EFs) to determine the CO2e per product. Scope 2 emissions are calculated for product nitrogen and oxygen only.

Requesting member

PepsiCo, Inc.

Scope of emissions

Scope 1

Allocation level

Company wide

Allocation level detail

<Not Applicable>

Emissions in metric tonnes of CO2e

431

Uncertainty (±%)

20

Major sources of emissions

Liquid nitrogen, liquid carbon dioxide, and package gases. Nitrogen is produced by separating air using energy in cooling towers, then liquefying the gas with further cooling and compression for transportation. CO2 is sourced as a byproduct and purified, then liquefied for transport. Praxair, a member of the Linde group, has long been a practitioner of what is called "Byproduct Synergy", which is leveraged in our CO2 sourcing. Example: <http://www.praxair.com/news/2015/praxair-and-delaware-city-refining-sign-long-term-supply-agreement> Praxair, a member of the Linde group, also sources a portion of CO2 from ethanol fermentation (a biomass source). In addition to the energy cost of the products, which provides an indirect GHG cost, there is the direct GHG cost of transporting the gases in trucks.

Verified

No

Allocation methodAllocation based on the volume of products purchased

Please explain how you have identified the GHG source, including major limitations to this process and assumptions made

For financial reporting for Linde plc, Praxair is considered the successor of interest. Counted over the full calendar year 2018, Praxair contributed 80% of Linde revenue. For reasons explained in the CSO letter in Linde's 2018 Sustainable Development Report, except only for certain metrics where we report for that last 2 months of Linde AG 2018 performance, we report 2018 sustainable development data and performance for the full year, for Praxair only. Due to the divestment process, data from Europe could not be obtained. This figure represents best effort to allocate distribution miles. For Scope 1 emissions: If product was transported by truck, estimated miles driven to deliver product, if possible. We assumed a fuel rate of 5 miles per gallon and converted gallons to CO₂e using the EPA conversion rates. NOTE: This conversion factor will over-estimate the CO₂e in two ways: (1) the 5 MPG is conservative; (2) the product being delivered to a particular customer may be part of a less than a full truckload delivery (ie multiple deliveries to several customers from the same truckload of product). Both will improve the impact product CO₂e per delivery mile driven. For package/cylinder gases, allocation of miles when there are multiple products and shipments for multiple customers in an area is a significant challenge. In most cases, these emission allocations are not included.

Requesting member

PepsiCo, Inc.

Scope of emissions

Scope 2

Allocation level

Company wide

Allocation level detail

<Not Applicable>

Emissions in metric tonnes of CO₂e

1833

Uncertainty (±%)

20

Major sources of emissions

Liquid nitrogen, liquid carbon dioxide, and package gases. Nitrogen is produced by separating air using energy in cooling towers, then liquefying the gas with further cooling and compression for transportation. CO₂ is sourced as a byproduct and purified, then liquefied for transport. Praxair, a member of the Linde group, has long been a practitioner of what is called "Byproduct Synergy", which is leveraged in our CO₂ sourcing. Example: <http://www.praxair.com/news/2015/praxair-and-delaware-city-refining-sign-long-term-supply-agreement> Praxair, a member of the Linde group, also sources a portion of CO₂ from ethanol fermentation (a biomass source). In addition to the energy cost of the products, which provides an indirect GHG cost, there is the direct GHG cost of transporting the gases in trucks.

Verified

No

Allocation method

Allocation based on the volume of products purchased

Please explain how you have identified the GHG source, including major limitations to this process and assumptions made

For financial reporting for Linde plc, Praxair is considered the successor of interest. Counted over the full calendar year 2018, Praxair contributed 80% of Linde revenue. For reasons explained in the CSO letter in Linde's 2018 Sustainable Development Report, except only for certain metrics where we report for that last 2 months of Linde AG 2018 performance, we report 2018 sustainable development data and performance for the full year, for Praxair only. Due to the divestment process, data from Europe could not be obtained. This figure represents best effort to capture sales volume to customers from disparate systems. For Scope 2 Emissions: Each business provided the volume of product(s) sold to each customer and the primary supply plant. We used a benchmark conversion factor for energy used in the production per unit of product and then country emission factors (EFs) to determine the CO₂e per product. Scope 2 emissions are calculated for product nitrogen and oxygen only.

Requesting member

Samsung Electronics

Scope of emissions

Scope 1

Allocation level

Company wide

Allocation level detail

<Not Applicable>

Emissions in metric tonnes of CO2e

8

Uncertainty (±%)

20

Major sources of emissions

Liquid nitrogen, pipeline gaseous nitrogen, pipeline oxygen, onsite helium, onsite silane, and package gases. Atmospheric products (nitrogen, oxygen, argon) are produced by separating air using energy in cooling towers, then liquefying the gas with further cooling and compression for transportation. In addition to the energy cost of the products, which provides an indirect GHG cost, there is the direct GHG cost of transporting the gases in trucks.

Verified

No

Allocation method

Allocation based on the volume of products purchased

Please explain how you have identified the GHG source, including major limitations to this process and assumptions made

For financial reporting for Linde plc, Praxair is considered the successor of interest. Counted over the full calendar year 2018, Praxair contributed 80% of Linde revenue. For reasons explained in the CSO letter in Linde's 2018 Sustainable Development Report, except only for certain metrics where we report for that last 2 months of Linde AG 2018 performance, we report 2018 sustainable development data and performance for the full year, for Praxair only. Due to the divestment process, data from Europe could not be obtained. This figure represents best effort to allocate distribution miles. For Scope 1 emissions: If product was transported by truck, estimated miles driven to deliver product, if possible. We assumed a fuel rate of 5 miles per gallon and converted gallons to CO2e using the EPA conversion rates. NOTE: This conversion factor will over-estimate the CO2e in two ways: (1) the 5 MPG is conservative; (2) the product being delivered to a particular customer may be part of a less than a full truckload delivery (ie multiple deliveries to several customers from the same truckload of product). Both will improve the impact product CO2e per delivery mile driven. For package/cylinder gases, allocation of miles when there are multiple products and shipments for multiple customers in an area is a significant challenge. In most cases, these emission allocations are not included.

Requesting member

Samsung Electronics

Scope of emissions

Scope 2

Allocation level

Company wide

Allocation level detail

<Not Applicable>

Emissions in metric tonnes of CO2e

553374

Uncertainty (±%)

20

Major sources of emissions

Liquid nitrogen, pipeline gaseous nitrogen, pipeline oxygen, onsite helium, onsite silane, and package gases. Atmospheric products (nitrogen, oxygen, argon) are produced by separating air using energy in cooling towers, then liquefying the gas with further cooling and compression for transportation. In addition to the energy cost of the products, which provides an indirect GHG cost, there is the direct GHG cost of transporting the gases in trucks.

Verified

No

Allocation method

Allocation based on the volume of products purchased

Please explain how you have identified the GHG source, including major limitations to this process and assumptions made

For financial reporting for Linde plc, Praxair is considered the successor of interest. Counted over the full calendar year 2018,

Praxair contributed 80% of Linde revenue. For reasons explained in the CSO letter in Linde's 2018 Sustainable Development Report, except only for certain metrics where we report for that last 2 months of Linde AG 2018 performance, we report 2018 sustainable development data and performance for the full year, for Praxair only. Due to the divestment process, data from Europe could not be obtained. This figure represents best effort to capture sales volume to customers from disparate systems. For Scope 2 Emissions: Each business provided the volume of product(s) sold to each customer and the primary supply plant. We used a benchmark conversion factor for energy used in the production per unit of product and then country emission factors (EFs) to determine the CO₂e per product. Scope 2 emissions are calculated for product nitrogen and oxygen only.

Requesting member

Signify NV

Scope of emissions

Scope 1

Allocation level

Company wide

Allocation level detail

<Not Applicable>

Emissions in metric tonnes of CO₂e

2

Uncertainty (±%)

20

Major sources of emissions

Dry ice and package gases. Atmospheric products (nitrogen, oxygen, argon) are produced by separating air using energy in cooling towers, then liquefying the gas with further cooling and compression for transportation. CO₂ is sourced as a byproduct and purified, then liquefied for transport. Praxair, a member of the Linde group, has long been a practitioner of what is called "Byproduct Synergy", which is leveraged in our CO₂ sourcing. Example: <http://www.praxair.com/news/2015/praxair-and-delaware-city-refining-sign-long-term-supply-agreement> Praxair, a member of the Linde group, also sources a portion of CO₂ from ethanol fermentation (a biomass source). In addition to the energy cost of the products, which provides an indirect GHG cost, there is the direct GHG cost of transporting the gases in trucks.

Verified

No

Allocation method

Allocation based on the volume of products purchased

Please explain how you have identified the GHG source, including major limitations to this process and assumptions made

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Requesting member

Signify NV

Scope of emissions

Scope 2

Allocation level

Company wide

Allocation level detail

<Not Applicable>

Emissions in metric tonnes of CO2e

0.001

Uncertainty (±%)

20

Major sources of emissions

Dry ice and package gases. Atmospheric products (nitrogen, oxygen, argon) are produced by separating air using energy in cooling towers, then liquefying the gas with further cooling and compression for transportation. CO2 is sourced as a byproduct and purified, then liquefied for transport. Praxair, a member of the Linde group, has long been a practitioner of what is called "Byproduct Synergy", which is leveraged in our CO2 sourcing. Example: <http://www.praxair.com/news/2015/praxair-and-delaware-city-refining-sign-long-term-supply-agreement> Praxair, a member of the Linde group, also sources a portion of CO2 from ethanol fermentation (a biomass source). In addition to the energy cost of the products, which provides an indirect GHG cost, there is the direct GHG cost of transporting the gases in trucks.

Verified

No

Allocation method

Allocation based on the volume of products purchased

Please explain how you have identified the GHG source, including major limitations to this process and assumptions made

For financial reporting for Linde plc, Praxair is considered the successor of interest. Counted over the full calendar year 2018, Praxair contributed 80% of Linde revenue. For reasons explained in the CSO letter in Linde's 2018 Sustainable Development Report, except only for certain metrics where we report for that last 2 months of Linde AG 2018 performance, we report 2018 sustainable development data and performance for the full year, for Praxair only. Due to the divestment process, data from Europe could not be obtained. This figure represents best effort to capture sales volume to customers from disparate systems. For Scope 2 Emissions: Each business provided the volume of product(s) sold to each customer and the primary supply plant. We used a benchmark conversion factor for energy used in the production per unit of product and then country emission factors (EFs) to determine the CO2e per product. Scope 2 emissions are calculated for product nitrogen and oxygen only.

Requesting member

Stanley Black & Decker, Inc.

Scope of emissions

Scope 1

Allocation level

Company wide

Allocation level detail

<Not Applicable>

Emissions in metric tonnes of CO2e

4

Uncertainty (±%)

20

Major sources of emissions

Liquid nitrogen and package gases. Atmospheric products (nitrogen, oxygen, argon) are produced by separating air using energy in cooling towers, then liquefying the gas with further cooling and compression for transportation. In addition to the energy cost of the products, which provides an indirect GHG cost, there is the direct GHG cost of transporting the gases in trucks.

Verified

No

Allocation method

Allocation based on the volume of products purchased

Please explain how you have identified the GHG source, including major limitations to this process and assumptions made

For financial reporting for Linde plc, Praxair is considered the successor of interest. Counted over the full calendar year 2018, Praxair contributed 80% of Linde revenue. For reasons explained in the CSO letter in Linde's 2018 Sustainable Development Report, except only for certain metrics where we report for that last 2 months of Linde AG 2018 performance, we report 2018 sustainable development data and performance for the full year, for Praxair only. Due to the divestment process, data from Europe could not be obtained. This figure represents best effort to allocate distribution miles. For Scope 1 emissions: If product was

transported by truck, estimated miles driven to deliver product, if possible. We assumed a fuel rate of 5 miles per gallon and converted gallons to CO2e using the EPA conversion rates. NOTE: This conversion factor will over-estimate the CO2e in two ways: (1) the 5 MPG is conservative; (2) the product being delivered to a particular customer may be part of a less than a full truckload delivery (ie multiple deliveries to several customers from the same truckload of product). Both will improve the impact product CO2e per delivery mile driven. For package/cylinder gases, allocation of miles when there are multiple products and shipments for multiple customers in an area is a significant challenge. In most cases, these emission allocations are not included.

Requesting member

Stanley Black & Decker, Inc.

Scope of emissions

Scope 2

Allocation level

Company wide

Allocation level detail

<Not Applicable>

Emissions in metric tonnes of CO2e

55

Uncertainty (±%)

20

Major sources of emissions

Liquid nitrogen and package gases. Atmospheric products (nitrogen, oxygen, argon) are produced by separating air using energy in cooling towers, then liquefying the gas with further cooling and compression for transportation. In addition to the energy cost of the products, which provides an indirect GHG cost, there is the direct GHG cost of transporting the gases in trucks.

Verified

No

Allocation method

Allocation based on the volume of products purchased

Please explain how you have identified the GHG source, including major limitations to this process and assumptions made

For financial reporting for Linde plc, Praxair is considered the successor of interest. Counted over the full calendar year 2018, Praxair contributed 80% of Linde revenue. For reasons explained in the CSO letter in Linde's 2018 Sustainable Development Report, except only for certain metrics where we report for that last 2 months of Linde AG 2018 performance, we report 2018 sustainable development data and performance for the full year, for Praxair only. Due to the divestment process, data from Europe could not be obtained. This figure represents best effort to capture sales volume to customers from disparate systems. For Scope 2 Emissions: Each business provided the volume of product(s) sold to each customer and the primary supply plant. We used a benchmark conversion factor for energy used in the production per unit of product and then country emission factors (EFs) to determine the CO2e per product. Scope 2 emissions are calculated for product nitrogen and oxygen only.

Requesting member

The Coca-Cola Company

Scope of emissions

Scope 1

Allocation level

Company wide

Allocation level detail

<Not Applicable>

Emissions in metric tonnes of CO2e

817

Uncertainty (±%)

20

Major sources of emissions

Liquid nitrogen, liquid carbon dioxide, and package gases. Atmospheric products (nitrogen, oxygen) are produced by separating air using energy in cooling towers, then liquefying the gas with further cooling and compression for transportation. LCO2 is sourced as

a byproduct and purified, then liquefied for transport. Praxair, a member of the Linde group, has long been a practitioner of what is called "Byproduct Synergy", which is leveraged in our CO2 sourcing. Example: <http://www.praxair.com/news/2015/praxair-and-delaware-city-refining-sign-long-term-supply-agreement> Praxair, a member of the Linde group, also sources a portion of CO2 from ethanol fermentation (a biomass source). In addition to the energy cost of the products, which provides an indirect GHG cost, there is the direct GHG cost of transporting the gases in trucks.

Verified

No

Allocation method

Allocation based on the volume of products purchased

Please explain how you have identified the GHG source, including major limitations to this process and assumptions made

For financial reporting for Linde plc, Praxair is considered the successor of interest. Counted over the full calendar year 2018, Praxair contributed 80% of Linde revenue. For reasons explained in the CSO letter in Linde's 2018 Sustainable Development Report, except only for certain metrics where we report for that last 2 months of Linde AG 2018 performance, we report 2018 sustainable development data and performance for the full year, for Praxair only. Due to the divestment process, data from Europe could not be obtained. This figure represents best effort to allocate distribution miles. For Scope 1 emissions: If product was transported by truck, estimated miles driven to deliver product, if possible. We assumed a fuel rate of 5 miles per gallon and converted gallons to CO2e using the EPA conversion rates. NOTE: This conversion factor will over-estimate the CO2e in two ways: (1) the 5 MPG is conservative; (2) the product being delivered to a particular customer may be part of a less than a full truckload delivery (ie multiple deliveries to several customers from the same truckload of product). Both will improve the impact product CO2e per delivery mile driven. For package/cylinder gases, allocation of miles when there are multiple products and shipments for multiple customers in an area is a significant challenge. In most cases, these emission allocations are not included.

Requesting member

The Coca-Cola Company

Scope of emissions

Scope 2

Allocation level

Company wide

Allocation level detail

<Not Applicable>

Emissions in metric tonnes of CO2e

3327

Uncertainty (±%)

20

Major sources of emissions

Liquid nitrogen, liquid carbon dioxide, and package gases. Atmospheric products (nitrogen, oxygen) are produced by separating air using energy in cooling towers, then liquefying the gas with further cooling and compression for transportation. LCO2 is sourced as a byproduct and purified, then liquefied for transport. Praxair, a member of the Linde group, has long been a practitioner of what is called "Byproduct Synergy", which is leveraged in our CO2 sourcing. Example: <http://www.praxair.com/news/2015/praxair-and-delaware-city-refining-sign-long-term-supply-agreement> Praxair, a member of the Linde group, also sources a portion of CO2 from ethanol fermentation (a biomass source). In addition to the energy cost of the products, which provides an indirect GHG cost, there is the direct GHG cost of transporting the gases in trucks.

Verified

No

Allocation method

Allocation based on the volume of products purchased

Please explain how you have identified the GHG source, including major limitations to this process and assumptions made

For financial reporting for Linde plc, Praxair is considered the successor of interest. Counted over the full calendar year 2018, Praxair contributed 80% of Linde revenue. For reasons explained in the CSO letter in Linde's 2018 Sustainable Development Report, except only for certain metrics where we report for that last 2 months of Linde AG 2018 performance, we report 2018 sustainable development data and performance for the full year, for Praxair only. Due to the divestment process, data from Europe could not be obtained. This figure represents best effort to capture sales volume to customers from disparate systems. For Scope 2 Emissions: Each business provided the volume of product(s) sold to each customer and the primary supply plant. We used a

benchmark conversion factor for energy used in the production per unit of product and then country emission factors (EFs) to determine the CO2e per product. Scope 2 emissions are calculated for product nitrogen and oxygen only.

SC1.2

(SC1.2) Where published information has been used in completing SC1.1, please provide a reference(s).

European Industrial Gases Association position paper - Indirect CO2 emissions compensation:

Benchmark proposal for Air Separation Plants

IEA country CO2 emission factor 2018

US EPA eGRID2018

EPA diesel fuel CO2 emission factor

SC1.3

(SC1.3) What are the challenges in allocating emissions to different customers, and what would help you to overcome these challenges?

Allocation challenges	Please explain what would help you overcome these challenges
Doing so would require we disclose business sensitive/proprietary information	Much of Linde's product "carbon" cost is the energy cost to produce the product, and energy costs per product will always be a sensitive business issue in the Industrial Gas sector. For the purpose of external reporting, emissions are allocated using published industry standard emission factors for production where those factors are available through benchmark studies.

SC1.4

(SC1.4) Do you plan to develop your capabilities to allocate emissions to your customers in the future?

No

SC1.4b

(SC1.4b) Explain why you do not plan to develop capabilities to allocate emissions to your customers.

Our ability to allocate emissions is sufficient to give customers a reasonably accurate representation of the carbon footprint of our product supply. Linde products tend to represent a crucial part of a customer product, but a very small portion of their cost stack.

SC2.1

(SC2.1) Please propose any mutually beneficial climate-related projects you could collaborate on with specific CDP Supply Chain members.

SC2.2

(SC2.2) Have requests or initiatives by CDP Supply Chain members prompted your organization to take organizational-level emissions reduction initiatives?

No

SC3.1

(SC3.1) Do you want to enroll in the 2019-2020 CDP Action Exchange initiative?

No

SC3.2

(SC3.2) Is your company a participating supplier in CDP's 2018-2019 Action Exchange initiative?

No

SC4.1

(SC4.1) Are you providing product level data for your organization's goods or services?

Yes, I will provide data

SC4.1a

(SC4.1a) Give the overall percentage of total emissions, for all Scopes, that are covered by these products.

SC4.2a

(SC4.2a) Complete the following table for the goods/services for which you want to provide data.

Name of good/ service

Oxygen

Description of good/ service

Type of product

Final

SKU (Stock Keeping Unit)

Total emissions in kg CO₂e per unit

±% change from previous figure supplied

Date of previous figure supplied

Explanation of change

Methods used to estimate lifecycle emissions

Please select

Name of good/ service

Hydrogen

Description of good/ service

Type of product

Final

SKU (Stock Keeping Unit)

Total emissions in kg CO₂e per unit

±% change from previous figure supplied

Date of previous figure supplied

Explanation of change

Methods used to estimate lifecycle emissions

Please select

Name of good/ service

Argon

Description of good/ service

Type of product

Final

SKU (Stock Keeping Unit)

Total emissions in kg CO₂e per unit

±% change from previous figure supplied

Date of previous figure supplied

Explanation of change

Methods used to estimate lifecycle emissions

Please select

SC4.2b

(SC4.2b) Complete the following table with data for lifecycle stages of your goods and/or services.

SC4.2c

(SC4.2c) Please detail emissions reduction initiatives completed or planned for this product.

Name of good/ service	Initiative ID	Description of initiative	Completed or planned	Emission reductions in kg CO2e per unit
Oxygen for steel making	Initiative 1	White Paper to show energy and CO2e avoided by the use of oxygen from Praxair, a member of the Linde group, in steelmaking. Impact of Blast Furnace O2 Enrichment. http://www.praxair.com/our-company/safety-and-environment/product-stewardship/more-oxygen-more-green	Ongoing	
Oxygen	Initiative 2	Praxair's, a member of the Linde group, proprietary CONOX system is a practical, low capital cost technology for refiners searching for a way to reduce emissions. Reference Praxair.com: http://www.praxair.com/industries/refining/fluid-catalytic-cracker-fcc-emissions-reduction	Ongoing	
Hydrogen in ultra-low sulfur diesel (ULSD) fuel production	Initiative 3	Hydrogen is provided to refiners to allow them to meet air quality regulations and to hydrotreat diesel fuel to make ultra-low sulfur diesel (ULSD) fuel. This can be burned without emitting sulfur. Hydrogen provides an additional benefit to ULSD, which is that in combination with a now mandated diesel particulate filter, it eliminates black carbon (BC). Reduction in BC is seen by policy-makers as being a crucial step to delay global temperature increase. Praxair website with more ULSD information: http://www.praxair.com/our-company/safety-and-environment/product-stewardship/less-carbon-more-green	Ongoing	
Oxygen in glass production	Initiative 4	Praxair, a member of the Linde group, has made great strides in getting the ancient craft of making glass ready for the twenty-first century. With our full range of industrial gases, technologies and equipment, we successfully converted the first large container glass furnace to an oxy-fuel burner. Oxy-fuel melting improves glass quality and helps save money by burning less fuel more efficiently. It also drastically reduces NOx emissions. https://www.youtube.com/watch?v=jJpA-EkC4Y	Ongoing	
Oxygen, Nitrogen, Argon	Initiative 5	Production emissions reduction: ongoing research and developments leading to reduction in power to produce atmospheric gases. Reference Linde Sustainable Development targets and performance: https://www.linde.com/en/about-linde/sustainable-development/targets-and-performance	Ongoing	
Hydrogen	Initiative 6	Production emissions reduction: ongoing research and developments leading to improvements in production energy efficiencies. Reference Linde Sustainable Development targets and performance: https://www.linde.com/en/about-linde/sustainable-development/targets-and-performance	Ongoing	
Bulk and packaged gases	Initiative 7	Distribution emissions reduction: ongoing research and developments leading to improvements in distribution efficiencies. Reference Linde Sustainable Development targets and performance: https://www.linde.com/en/about-linde/sustainable-development/targets-and-performance	Ongoing	
Onsite, merchant and packaged gases	Initiative 8	Renewable energy: ongoing effort to source a portion of energy used in gas production from renewable sources. Reference Linde Sustainable Development targets and performance: https://www.linde.com/en/about-linde/sustainable-development/targets-and-performance	Ongoing	
Carbon dioxide for enhanced curing of concrete blocks	Initiative 9	Carbon dioxide provided by Praxair, a member of the Linde group, for Carboclave's enhanced curing of concrete blocks enables a reduction in GHG emissions by permanently sequestering CO2 in concrete as well as process efficiency improvements resulting in less fuel consumption and less cement production required. Reference our external partner, Carboclave's video: https://www.youtube.com/watch?v=uog2ir6n7TU	Ongoing	

SC4.2d

(SC4.2d) Have any of the initiatives described in SC4.2c been driven by requesting CDP Supply Chain members?

No

Submit your response

In which language are you submitting your response?

English

Please confirm how your response should be handled by CDP

	Public or Non-Public Submission	I am submitting to	Are you ready to submit the additional Supply Chain Questions?
I am submitting my response	Public	Investors Customers	Yes, submit Supply Chain Questions now

Please confirm below

I have read and accept the applicable Terms