Welcome to your CDP Climate Change Questionnaire 2023

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 is the largest industrial gas company worldwide and 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 and builds equipment that produces industrial gases and offers 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 plants.

Linde is in the business of resource transformation and uses electricity and other fuels for energy and as feedstock. Linde's business and production processes are energy-intensive. For its hydrogen production Linde in most cases uses natural gas as a feedstock, this accounted for 73% of Linde's scope 1 emissions in 2022. The rest stems from using natural gas as energy in production plants, from distribution and release of other GHGs.
The majority (approximately 90%) of Scope 2 emissions derives from electricity consumption by Linde's air separation units, which produce atmospheric gases.

Linde plc shares trade on the New York Stock Exchange ("NYSE") under the ticker symbol "LIN". Linde issues an annual report (Form 10-K) according to US GAAP. As of 2023, Linde issues a Modified GAAP reporting in accordance with Irish rules.

C0.2

(C0.2) State the start and end date of the year for which you are reporting data and indicate whether you will be providing emissions data for past reporting years.

Reporting year

Start date

January 1, 2022

End date

December 31, 2022

Indicate if you are providing emissions data for past reporting years

C0.3

(C0.3) Select the countries/areas in which you operate.

Algeria
Angola
Argentina
Aruba
Australia
Austria
Bahrain
Bangladesh
Belgium
Bermuda
Bolivia (Plurinational State of)
Botswana
Brazil

British Virgin Islands
Bulgaria
Canada
Chile
China
Colombia
Congo
Costa Rica
Curaçao
Cyprus
Czechia
Denmark
Dominican Republic
Ecuador
Estonia
Eswatini
Finland
France
Germany
Greece
Hong Kong SAR, China
Hungary
Iceland
India
Indonesia
Ireland
Israel
Italy
Japan
Kazakhstan
Kenya

Latvia
Lesotho
Lithuania
Luxembourg
Malawi
Malaysia
Mauritius
Mexico
Mozambique
Namibia
Netherlands
New Zealand
Norway
Oman
Panama
Papua New Guinea
Paraguay
Peru
Philippines
Poland
Portugal
Puerto Rico
Republic of Korea
Romania
Saudi Arabia
Serbia
Singapore
Slovakia
Solomon Islands
South Africa
Spain

Sri Lanka
Sweden
Switzerland
Taiwan, China
Thailand
Tunisia
Turkey
Uganda
Ukraine
United Arab Emirates
United Kingdom of Great Britain and Northern Ireland
United Republic of Tanzania
United States of America
Uruguay
Venezuela (Bolivarian Republic of)
Viet Nam
Zambia

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 chosen approach for consolidating your GHG 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

Bulk inorganic chemicals

Hydrogen
Oxygen
Other industrial gasses

Other chemicals

Specialty chemicals

C0.8

(C0.8) Does your organization have an ISIN code or another unique identifier (e.g., Ticker, CUSIP, etc.)?

Indicate whether you are able to provide a unique identifier for your organization	Provide your unique identifier
Yes, an ISIN code	IE00BZ12WP82

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 or committee	Responsibilities for climate-related issues
Board Chair	The full Board of Directors, under the chair's leadership has responsibility for climate-related issues. Responsibilities related to climate: The Board, under the chair's leadership, is responsible for making decisions on important matters related to environment and climate change, based upon recommendations from the Board's Sustainability Committee. The Board is informed by the Sustainability Committee on a regular basis about relevant issues related to strategies, policies, risks and opportunities as well as environmental and climate change performance. Performance in sustainable development and environment, which includes achievement of Linde's climate change targets, contributes to the annual payout of executive variable compensation. In recognition of the importance of the Company's standards for, and impacts from, environmental, social and governance (ESG) considerations, the Board Human Capital Committee also approved changes to the non-financial component of the program, which now includes reduction in absolute greenhouse gas emissions as a separate pillar. In 2021, the full board, under the chair's leadership, approved Linde's new 2035 absolute GHG reduction target and 2050 net-zero target. In 2022, the Sustainability Committee of the Board reviewed progress of all of Linde’s goals, including the newest goal set in 2021: 2035 absolute GHG reduction target and 2050 net zero ambition.

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 – some meetings	Overseeing major capital expenditures Overseeing and guiding employee incentives Reviewing and guiding strategy Monitoring the implementation of a transition plan Overseeing the setting of corporate targets Monitoring progress towards corporate targets Reviewing and guiding the risk management process	Sustainable Development including climate change is overseen by the Board and Linde's executive leadership and integrated throughout the company. The Board provides oversight to Linde's corporate strategy and reviews and guides major plans of action and risk management policies; these all include climate change. The Board also monitors progress against performance objectives and goals, which include achievement of our climate change targets. The VP, Clean Energy, briefed the board on Linde's hydrogen strategy or Linde's decarbonization opportunities and strategy. The EVP&CHRO and VP Sustainability report to the Board regularly on climate-related topics such as Linde's hydrogen strategy or Linde's decarbonization opportunities and strategy. Climate-related issues have been a topic at 80% of Board meetings held in 2022. Examples: in January 2023, the Linde Board reviewed Linde's 2022 performance towards its 2028 Sustainable Development Targets as well as its science-based 2035 GHG reduction target - to reduce absolute scope 1 and 2 emissions by 35% from a 2021 baseline – and its 2050 net zero ambition. The Sustainability Committee also reviewed progress on several environmental aspects, including GHG reduction and Scope 3 emissions reporting. In addition, the EVP briefed the entire Board about Linde's Scope 3 strategy.

		The Sustainability Committee also monitors GHG reduction activities related to targets and overall strategy and, as such, monitors the progress against the transition planning. On top, the Board reviews safety and risk matters at each meeting. These include climate change risks such as the impacts of extreme weather like flooding and hurricanes. The Linde Board includes the Sustainability Committee, which oversees the Company's programs, policies, practices and strategies related to environmental matters generally, including: (1) the Company's decarbonization efforts, including those related to the reduction of greenhouse gas emissions from operations; (2) the Company's clean energy efforts, including those related to clean hydrogen as well as technology and innovation for decarbonization solutions; (3) sustainable productivity, water conservation and management, energy consumption, product stewardship and zero waste sites; and (4) the Company's environmental sustainability goals, including those related to climate change and greenhouse gas emissions, and the Company's Sustainability Report. The Sustainability Committee meets several times during the year and reports to the full Board on the above items. Those reports are scheduled for every regular Board meeting following the Sustainability Committee meeting. The board also includes the Human Capital Committee which determines Compensation design and variable compensation based upon non-financial components, including ESG and GHG reduction.

C1.1d

(C1.1d) Does your organization have at least one board member with competence on climate-related issues?

	Board member(s) have competence on climate-related issues	Criteria used to assess competence of board member(s) on climate-related issues
Row 1	Yes	In order to assess whether Board members have competency on climate-related issues the following criteria were used: - Current and prior professional experiences of Board members - Participation in trade associations or other councils or committees dealing with climate-related issues (e.g. the hydrogen council) - Membership in Sustainability or Environmental/Climate Change Board Committees Several Linde Board members have competency and experience in environmental and climate-related issues, primarily from serving for many years in councils and committees dealing with such matters. Examples: Prof. Dr. h.c. Richenhagen: Prof Dr. Richenhagen has wealth of experience in industry and relevant service corporate boards where he lends expertise in sustainability. He is the Chairman of the Board of AXIOS Sustainable Growth Acquisition Corporation. He also serves as a director of PPG Industries, where he serves on the Human Capital Management and Compensation Committee as well as on the Sustainability and Innovation Committee. He is a member of the Advisory Board of Stihl Holding AG and Co.KG. He also served as a director of Praxair, Inc. from 2015 until 2018. Edward G. Galante served on the board in 2022 (retired 2023): Mr. Galante's competence in environmental issues including climate change is grounded on his many years of experience serving as a member of Environmental and Sustainability Board Committees. He is a director of Celanese Corporation, where he is a member of the Environmental, Health, Safety, Quality and Public Policy Committee. He is also a director of Clean Harbors, Inc., where he is Chairman of the Environmental, Safety and Health Committee. He is also a director of Marathon Petroleum Corporation, where he is a member of the Sustainability Committee. He was a member of the Board of Directors of Andeavor Corporation (formerly Tesoro Corporation), where he served on the Environmental, Health and Safety Committee until the company merged into Marathon Petroleum in

		October 2018.

C1.2

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

Position or committee

Other C-Suite Officer, please specify

Executive Vice President and Chief Human Resources Officer

Climate-related responsibilities of this position

Providing climate-related employee incentives
Implementing a climate transition plan
Setting climate-related corporate targets
Monitoring progress against climate-related corporate targets
Assessing climate-related risks and opportunities
Managing climate-related risks and opportunities

Coverage of responsibilities

Reporting line

CEO reporting line

Frequency of reporting to the board on climate-related issues via this reporting line

Quarterly

Please explain

The EVP and CHRO has global responsibility for Sustainability, HR, Marketing, Talent Management and SHEQ. Environmental compliance, management, safety and risk (including from climate change) are managed under the Vice President SHEQ, reporting

to the CHRO.

The VP Sustainability reports to the EVP and heads the Sustainability function, which is responsible for monitoring performance against Linde's climate change targets, among other things.

Operational targets relating to climate change are reported by all businesses monthly against the targets into the Center of Excellence and to the VP Sustainability. Close monitoring of 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 reducing their GHG emissions from the use of 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 int he 2022 Annual Report (10-K) as material to the business.

The CHRO is the highest Linde executive responsible for environmental issues and compliance. The SHEQ department, under the VP SHEQ reporting to the CHRO, has oversight over safety and risks, including risks related to environment and climate change. The department is responsible for the global SHEQ management system and the development of global methodologies (including GHG accounting), policies and standards as well as the monitoring of compliance with those. The SHEQ team is also responsible for the periodic collection of safety and environmental KPIs, including data on energy and GHG emissions.

The EVP&CHRO also is also responsible for compensation programs at Linde. This EVP is the senior executive reporting to Linde's Human Capital Committee. In January 2022, the Human Capital Committee approved the design and goals for the Company’s annual performance-based variable compensation program in 2022. In recognition of the importance of the Company’s standards for, and impacts from, environmental, social, and governance (ESG) considerations, the non-financial component will now be comprised of three pillars, each with their own weights. See Proxy Statement.

C1.3

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

	Provide incentives for the management of climate-related issues	Comment

Row 1	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).

Entitled to incentive

Corporate executive team

Type of incentive

Monetary reward

Incentive(s)

Bonus - % of salary

Performance indicator(s)

Progress towards a climate-related target
Achievement of a climate-related target
Reduction in absolute emissions
Reduction in emissions intensity
Company performance against a climate-related sustainability index (e.g., DJSI, CDP Climate Change score etc.)

Incentive plan(s) this incentive is linked to

Short-Term Incentive Plan

Further details of incentive(s)

The timeframe of the performance indicator(s): Variable compensation is a part of annual salary. The annual compensation program through variable compensation balances the need for management to deliver annual results with the desire to meet multi-year growth expectation.

LINK TO Incentive Plan:
In January 2022, the Human Capital Committee approved the design and goals for the Company's annual performance-based variable compensation program in 2022. In recognition of the importance of the Company's standards for, and impacts from, environmental, social, and governance (ESG) considerations, the non-financial component will now be comprised of three pillars, each with their own weights. See Proxy Statement. The non-financial component is weighted 25% of the total non-financial and financial payout. ESG factors into two elements of the payout: sustainability, not including GHG emissions, and environment are both part of ESG values component, weighted at 60% of non-financial. Relative performance and strategic positioning is weighted at 20%.

Absolute GHG reduction is weighted at 20%.

The 2023 Proxy Statement lists the goals and provides details of the performance and results leading to compensation determination.
These include:
GHG: continuous year-over year decrease through end of 2022 and on track to achieving a 35% reduction by 2028.
• More than $500 million investments in decarbonization initiatives and projects since 2018.
• Maintained DSJI World constituency for 20th consecutive year and CDP recognition at A level.
• Sustainalytics ESG rating improved from 10 to 8.2
• Maintained MSCI ESG "A" rating.
• Increased procurement of active renewable and low-carbon power YOY.
• Achieved SBTi validation of our absolute 2035 GHG reduction target.
• Released GHG Recalculation Policy, a formal process to govern inventory adjustments in line with GHG Protocol and standard practice.
• Public commitment to sustainability by joining United Nations Compact.
• Continued to provide transparency on topics of concern to stakeholders, including the release of position statements on the Importance of Ecosystems and Chemicals of Concern.
• Increased the number of sites participating in Zero Waste program from approximately 700 sites in 2021 to roughly 760 sites by the end of
2022, with Zero Waste achievement on track for 2028 target.

Explain how this incentive contributes to the implementation of your organization's climate commitments and/or climate transition plan

Absolute GHG Reduction (20% of variable compensation) is linked to SD2035 ("35 by 35" target) for absolute GHG reduction of 35% from 2021 baseline, by 2035.
The absolute GHG reduction is also a key part of Linde's Climate Transition Plan.

ESG Values incorporating sustainability (but not including GHG emissions) and environment are weighted at 60% of non-financial. and tie to the SD 2028 target for $1B in decarbonization goal, as well as the SD2028 goals for GHG intensity reduction of 35% by 2028 and increase in renewable energy by 2028.

Further, performance on sustainability indices (DJSI, CDP, MSCI ESG, Sustainalytics) were all noted as components of the performance decision.

Entitled to incentive

Corporate executive team

Type of incentive

Monetary reward

Incentive(s)

Bonus - % of salary
Shares

Performance indicator(s)

Progress towards a climate-related target
Achievement of a climate-related target
Reduction in absolute emissions
Company performance against a climate-related sustainability index (e.g., DJSI, CDP Climate Change score etc.)

Incentive plan(s) this incentive is linked to

Both Short-Term and Long-Term Incentive Plan

Further details of incentive(s)

The timeframe of the performance indicator(s): Variable compensation is a part of annual salary. The annual compensation program through variable compensation balances the need for management to deliver annual results with the desire to meet multi-year growth expectation.

Additionally, Linde provides equity awards through shares of company stock and through long-term stock options. The payout of equity awards is 3 years and stock options have up to 10 years for exercise; PSUs (each representing one share of Company stock which vests only if threshold achievement against pre-established goals is met or exceeded); RSUs (each representing one share of Company stock with a time-based vesting requirement).

LINK TO Incentive Plan:
For Variable Compensation: The non-financial component is weighted 25% of the total non-financial and financial payout. ESG factors into two elements of the payout: sustainability, not including GHG emissions, and environment are both part of ESG values component, weighted at 60% of non-financial. Relative performance and strategic positioning is weighted at 20%.
Absolute GHG reduction is weighted at 20%.

The 2023 Proxy Statement lists the goals and provides details of the performance and results leading to compensation determination.
These include:
GHG: continuous year-over year decrease through end of 2022 and on track to achieving a 35% reduction by 2028.
• More than $500 million investments in decarbonization initiatives and projects since 2018.
• Increased procurement of active renewable and low-carbon power YOY.
• Achieved SBTi validation of our absolute 2035 GHG reduction target.
• Released GHG Recalculation Policy, a formal process to govern inventory adjustments in line with GHG Protocol and standard practice.
• Public commitment to sustainability by joining United Nations Compact.
• Continued to provide transparency on topics of concern to stakeholders, including the release of position statements on the Importance of Ecosystems and Chemicals of Concern.
• Increased the number of sites participating in Zero Waste program from approximately 700 sites in 2021 to roughly 760 sites by the

end of
2022, with Zero Waste achievement on track for 2028 target.

Each of the following also contributes to TSR (total shareholder return):
• Maintained DSJI World constituency for 20th consecutive year and CDP recognition at A level.
• Sustainalytics ESG rating improved from 10 to 8.2
• Maintained MSCI ESG “A” rating.

Explain how this incentive contributes to the implementation of your organization’s climate commitments and/or climate transition plan

Absolute GHG Reduction (20% of variable compensation) is linked to SD2035 ("35 by 35" target) for absolute GHG reduction of 35% from 2021 baseline, by 2035.
The absolute GHG reduction is also a key part of Linde's Climate Transition Plan.

ESG Values incorporating sustainability (but not including GHG emissions) and environment are weighted at 60% of non-financial. and tie to the SD 2028 target for $1B in decarbonization goal, as well as the SD2028 goals for GHG intensity reduction of 35% by 2028 and increase in renewable energy by 2028.

Further, performance on sustainability indices (DJSI, CDP, MSCI ESG, Sustainalytics) were all noted as components of the performance decision. Each of the following also contributes to TSR (total shareholder return):

C2. Risks and opportunities

C2.1

(C2.1) Does your organization have a process for identifying, assessing, and responding to climate-related risks and opportunities?

Yes

C2.1a

(C2.1a) How does your organization define short-, medium- and long-term time horizons?

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

C2.1b

(C2.1b) How does your organization define substantive financial or strategic impact on your business?

When evaluating the potential impact of risks and the expected probability of their occurrence, Linde uses a standard scale devised by the corporate risk management department. This scale has four different risk ratings ranging from low risk to very high risk. Each risk is assigned a risk rating on this standard scale based on its potential impact and probability.

Risks with the highest potential impact (severity) rating are classified as significant (substantive) risks. Those substantive risks, together with their probability of occurrence, are presented in detail to top management on a regular basis.

When analyzing the impact of the risk, Linde considers not only the impact on the financial results of operations, but also the impact on non-monetary aspects such as safety, environment, reputation and strategy.

Monetary aspect/quantifiable indicator: In Linde's risk rating, a substantive financial impact is given when a risk has a potential negative financial impact on company results of more than $30 million.

Non-monetary aspects: Risks which could cause considerable harm to people or the environment (e.g., loss of life) are considered substantive, regardless of their monetary impact.
Opportunities are also considered to have a strategic impact for non-monetary reasons such as entering new markets, defending market position, or introducing new technologies, etc.

C2.2

(C2.2) Describe your process(es) for identifying, assessing and responding to climate-related risks and opportunities.

Value chain stage(s) covered

Direct operations
Upstream
Downstream

Risk management process

Integrated into multi-disciplinary company-wide risk management process

Frequency of assessment

More than once a year

Time horizon(s) covered

Short-term
Medium-term
Long-term

Description of process

Linde's Risk Management department is responsible for devising a standardized Linde-wide risk management process. Those with local responsibility for risk in the operating units are responsible for the implementation of this standard process. The identification, assessment of and response to climate-related risks is integrated into this company-wide process.

Risk identification:
The management team of each operating unit within Linde assesses the main risks affecting that unit on an ongoing basis, i.e., more than once a year. In addition, global functions are asked to report risks affecting their area of responsibility. The areas covered by the risk assessments include internal processes and resources; the economic, financial, legal and regulatory environment; and social and ecological aspects including risks resulting from climate change. In addition, potential risks affecting suppliers or customers

(which in turn could have a negative impact on Linde) are considered and reported. Such up- or down-stream risks are also monitored by the regional and global procurement functions, customer relationship management and business development functions. The risk management process allows for the identification of short-term risks, as well as risks with a medium- or long-term horizon and impact.

Through this process, Linde has defined our 4 risk areas related to climate change that pose inherently substantive impacts: regulatory risks, market risks, reputational risks and physical risks. Information pertaining to these risks is maintained for further tracking.

The risk and opportunities identification process is complemented by scenario analysis which is used to explore and develop an understanding of how the physical and transition risks of climate change may impact Linde's businesses, strategies, and financial performance. This analysis is coordinated centrally by the Clean Energy team, taking into account climate-change scenarios and projections such as those from IEA or IPCC.

Risk assessment (Risk analysis and evaluation):
The executives in the various units categorize each risk they have identified and evaluate it in terms of criteria determined centrally, including the potential impact of the risk on Linde and the estimated probability of its occurrence. When analyzing the impact of the risk, Linde considers not only the impact on the financial results of operations, but also the impact on non-monetary aspects such as safety, environment, reputation and strategy. When evaluating the potential impact of risks and the expected probability of their occurrence, the operating units use a standard scale devised by the central risk management department. This scale has four different risk ratings ranging from low risk to substantive risk. Each risk is awarded a risk rating on this standard scale based on its potential impact and its probability. Risks with the highest potential impact (severity) rating meeting the definition of a substantive financial impact for the company as described under C2.1b are presented in detail to top management on a regular basis.

Risk mitigation/response:
For each risk, the next step is to decide on the measures to be taken to manage, mitigate and control the risk, so that the risk may be reduced to an acceptable level. For each risk, responsibility to manage the risk is assigned to a specific individual appointed by management (risk owner). The risk owner proposes measures to mitigate, transfer and control the risk to the country and/or regional leadership teams, and for substantive risks also to the Board, for review and approval. In case of substantive risks the Board reviews risks and proposed mitigation actions at each Board meeting and decides if those are appropriate. In order to control the risk this is re-assessed on a regular basis and progress of measures is monitored and reported to the responsible instance (country/regional

management, leadership team or Board).

Risk reporting:
Throughout the year, a summary of risks is presented on a regular basis (at least quarterly) to the regional heads and once a year to the full Executive Leadership Team as well as the Board of Directors. Company risks are described in Linde's 2022 Annual Report (Form 10-K) which covers, for example, risks from the supply of energy and from natural catastrophes, such as extreme weather.

Assessing opportunities:
Linde's business development department is assessing market trends and customer behavior and requirements on an ongoing basis, and sharing those with the R&D and technology functions. Those are elaborating and proposing solutions for the short, medium and long term which address those changing market conditions and customer requirements. Opportunities are evaluated up and down the value chain, whereas collaboration with suppliers or customers is taking place in several instances. Solutions and strategies are first discussed within the clean energy function. Material and strategic issues/innovations that tackle important market trends/new requirements are proposed to the Executive Leadership Team on a regular basis.

C2.2a

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

	Relevance & inclusion	Please explain
Current regulation	Relevant, always included	Linde's 2022 Annual Report (Form 10-K) 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. Violations of these laws could result in substantial penalties or sanctions. Therefore, Linde assesses risks associated with both current and emerging regulations. Legislation that limits GHG emissions may impact growth by increasing capital, compliance, operating and maintenance costs and/or decreasing demand . Example: Several US states have introduced or are planning to introduce their own carbon-limiting legislation like

		New York's Climate Leadership and Community Protection Act which requires 100% zero-emission electricity by 2040. In addition, GHGs in Europe are regulated under the EU Emissions Trading System and the UK Emissions Trading System, launched in 2021. Those systems have wide implications for the company's customers and impacts certain Linde operations in Europe. Based on current projections about carbon price development Linde's business could be subject to carbon fees of about $ 140 million (gross risk) in the near future which need to be mitigated (see chapter 2.3a).
Emerging regulation	Relevant, always included	Linde's 2022 Annual Report (Form 10-K) 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 emerging regulations in a number of areas such as environmental protection, including climate change. For example, 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. Example: In 2022, the percentage of Linde's scope 1 emissions subject to some form of carbon taxation or trading scheme was approximately 9% (1.5 million tons). This reflects the worldwide development that more and more countries and states are introducing some form of carbon taxation. Last year, the UK ETS and German BEHG (local carbon certificate scheme) were introduced which are relevant for Linde. The UK and EU ETS make up about 84% of these affected emissions. The national China ETS has also been launched in 2021 for certain business sectors, and Linde expects that its plants may be subject to this scheme in coming years. In 2022, a number of pilot schemes were also present in Linde geographies, increasing the potential that the company may be subject to additional trading schemes in coming years.
Technology	Relevant, always included	Linde's 2022 Annual Report (Form 10-K) 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. Linde dedicates a growing portion of its annual R&D spend to (emerging) low-carbon technologies. The portion of R&D investment rose from 23% in 2018 to 39% in 2022, and it is expected that this investment is yielding positive business results.

		However, 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 (incl. in decarbonization) 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.
Legal	Relevant, always included	Linde's 2022 Annual Report (Form 10-K) 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 such as compliance with GHG reporting and emissions trading laws. 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 in our climate risk assessment, and currently view legal risks as they relate to climate change to be minimal. Although we have not experienced and do not anticipate legal actions related to climate change in the short term, the probability of such lawsuits may rise with increasing (regional) regulatory requirements (e.g., arising from European Green Deal, EU taxonomy, etc.).
Market	Relevant, always included	Markets for sourcing raw materials and energy: Linde's 2022 Annual Report (Form 10-K) identifies the cost and availability of raw materials and energy as a risk. 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. Linde’s current annual energy costs are more than $4 billion. Energy cost could potentially increase by 5%, due to increasing price volatilities in liberalized markets and changes in regulation in regulated markets, thus, there is a potential gross risk of $ 200 million due to energy cost variability.

		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. Change in end markets: Linde's 2022 Annual Report (10k) identifies external market risks that could arise as a consequence of upcoming climate change legislation, that Linde cannot influence. This includes changing customer and competitor behavior and risks from structural changes in end markets. These risks were identified as part of the annual company-wide risk assessment process. Linde constantly assesses risks related to changing customer and market behavior (e.g., increasing demand for low carbon products), and actively works to drive innovation and increase revenue from its eco and social product portfolio.
Reputation	Relevant, always included	Linde's 2022 Annual Report (Form 10-K) identifies shifts in consumer preferences 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, this could have an adverse effect on Linde's reputation, which could lead to customers no longer buying the company's products. For example: Expectations from stakeholders are rising with regards to companies' engagement and commitment to reduce the adverse impacts of climate change and adhere to the goals of the Paris Agreement. Linde has an existing goal to reduce greenhouse gas intensity by 35% (-35%) by 2028, and is on track to achieving, currently at 33% reduction (-33%). Also, in 2021, Linde announced its new GHG reduction targets and 2050 climate neutrality commitment including several measures such as increased sourcing of renewable energy. If Linde fails to show progress against those goals this might have a negative impact on business reputation. Linde constantly assesses risks related to both R&D and changing customer behavior and expectations (e.g., increasing demand for low carbon products), and actively works to drive innovation and increase revenue from

		products that bring customers or end-users environmental or social benefit. We continuously monitor evolving attitudes toward climate-related issues and the associated expectations that may impact how Linde's actions and products are viewed.
Acute physical	Relevant, always included	Linde's 2022 Annual Report (Form 10-K) 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 extreme weather events (extreme temperatures or 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. Linde has significant assets in areas that are subject to extreme weather events that may be exacerbated by climate change, particularly in the U.S. Gulf Coast, in Mexico, and certain portions of Asia. For example, Linde operates several air separation units, large steam methane reformers and PSA units at the Gulf of Mexico, from where it sells bulk/merchant products over trucks, but also provides gases products which are transported over pipelines to customers. A severe natural disaster at that location like earthquake and/or flooding could cause significant damage to Linde's plant operating equipment as well as gases pipelines. The potential gross financial impact of such a damage for a major plant could be estimated in the range of $100 million. 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.
Chronic physical	Relevant, always included	This risk was identified as part of Linde's climate-related scenario analysis conducted in 2021. It was concluded that chronic physical risks like e.g. from rising mean temperatures or higher PPM concentration are rather relevant for the long-term, and not expected to impact Linde's business or financial results in the short and medium term. Example of long-term chronic physical risk: Linde's plants are designed to operate under specific physical and climate conditions. If mean temperature or CO2 concentration in the air would exceed certain limits outside of Linde's plant specifications this would have negative consequences on operating costs or even the operability of

		the plant itself. Also, increasing water scarcity in areas of rising drought could have an impact on water availability for Linde. Water is necessary for Linde's production process, used, for example, for cooling. Therefore, chronic physical risks are closely monitored and assessed on a regular basis. E.g., every year the risk from water stress is evaluated and it is determined how many Linde plants could experience extreme water stress in next 20-40 years. In 2021, the analysis revealed that in an >2 degrees scenario, 20% of Linde plants could see a rise of water stress level to high or extremely high by 2040, e.g. plants at the China coast. In addition; 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.

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 & Primary climate-related risk driver

Emerging regulation
Carbon pricing mechanisms

Primary potential financial impact

Increased direct costs

Company-specific description

Linde operates in jurisdictions that have, or are developing carbon-limiting legislation. U.S. EPA has promulgated regulations to restrict GHG emissions, including final rules regulating emissions from light-duty vehicles and certain large manufacturing facilities, many of which are Linde suppliers or customers. Several US states have introduced or are planning to introduce their own legislation like New York's Climate Leadership and Community Protection Act which requires 100% zero-emission electricity by 2040. In addition, GHGs in Europe are regulated under the EU Emissions Trading System (ETS) and the UK ETS, the latter launched in 2021. Those systems have wide implications for the company's customers and impacts certain Linde operations in Europe. Climate change laws and policies are also being introduced in other jurisdictions, including South America and parts of Asia, e.g., China launched a national carbon emissions trading system in 2021.

Linde operates hydrogen plants using natural gas as a feedstock. Scope 1 emissions from such plants were 12.2 million tons CO2 in 2022. Those and other plants are subject to carbon regulations in California, the EU and the UK, for example.

Legislation that regulates GHG emissions and/or prices carbon may increase operating costs and/or decrease demand for Linde's traditional business lines. Among others, such regulations are expected to raise the costs of energy which is Linde's most significant cost item, with the risk that such cost increases might not be fully passed through to customers.

Example: In 2022, the percentage of Linde's scope 1 emissions subject to carbon taxation was approximately 9% (1.5 million tons). With pilot ETSs introduced (ex: Beijing, Fujian, Shanghai), the trend is that more and more countries will consider some form of carbon taxation. In 2021, the UK ETS and German BEHG (carbon certificate scheme) were introduced which are relevant for Linde. The China ETS also launched in 2021; Linde plants are currently not covered. Additional and higher carbon prices in 2022 led to a higher cost (of energy) for Linde or its customers. A majority of those emissions (over 84%) were subject to the EU and UK ETS. Certificate cost for the EU ETS may vary between $30 and $100 with a steep increase in the last 2 months of the year. The general upward trend is expected to continue in coming years. Other locations where Linde is obliged to pay carbon taxes include Singapore,

Korea, California (U.S.).

Time horizon

Short-term

Likelihood

More likely than 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)

140,000,000

Potential financial impact figure – minimum (currency)

Potential financial impact figure – maximum (currency)

Explanation of financial impact figure

Among other impacts, cap and trade schemes, ETS schemes and carbon taxes are expected to raise the cost of energy, either directly or indirectly, which is a significant cost for Linde (25-30% of operational expenditures).

Linde expects that further taxes and schemes will be established in the coming years in many parts of the world and in Linde's major markets. In the next 1-2 years, new carbon tax or cap and trade schemes will start worldwide which are expected to impact Linde plants – like new carbon-regulations in several US states, e.g. Washington's new "Cap and Invest" legislation . At the same time cost of existing carbon taxation schemes are increasing, like the price for the EU ETS or UK ETS certificate. Linde plants are not covered by the China ETS, and Linde expects this to remain the same for the short-term. In the mid-term, more and more sectors may fall

under this trading scheme.

In order to calculate the gross financial impact from this risk, Linde assumes in the short term an average carbon tax/fee of $92 per ton of CO2, almost double the price estimated for the previous year. This is calculated based on the outlook for carbon prices for the schemes applicable to Linde in the near term. The amount is mainly impacted by the price for the EU and UK carbon certificates as those apply to a majority of Linde emissions currently affected by carbon legislation (See C11). The EU ETS certificate price remained in the same range from 2021 to 2022. According to Reuters, it is expected to reach about $95 or more in 2023. For some new GHG regulations, carbon prices are not yet published. For those, Linde considers information from public media, such as Financial Times, about future pricing for its calculations.

Linde expects that approximately 1.5 million tons of emissions could be subject to carbon taxation in the short term. This takes into consideration the tax schemes emerging as well as constant improvements in GHG intensity (see target section C4.1).

$92 times 1,516,000 tons of emissions = $139,472,000 which is rounded to $140 million of potential carbon-related fees.

Due to the additional carbon tax schemes arising and carbon prices increasing for existing legislations, the estimate of the gross financial impact shown above is higher than reported in the previous year.

The provided financial impact is the theoretical gross impact before any mitigation actions/risk response (like free allowances).

Cost of response to risk

33,100,000

Description of response and explanation of cost calculation

To manage risks from current and potential GHG emissions regulation, Linde 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; analyses different potential GHG tax regimes; and explores renewable energy options.

Examples of Risk Responses:
Linde's commercial contracts routinely provide rights to recover increased energy and related costs that are incurred by the

company. Linde estimates that in a majority of cases the price increases incurred by carbon legislation can be passed on to customers over Linde's standard contracts.

Additionally, Linde focuses on innovation, operational productivity and energy efficiency and has targets to reduce scope 1 and 2 emissions intensity as well as absolute emission levels and therefore minimize the impact of increased carbon costs.

Finally, for certain carbon trading systems, Linde receives allowances covering a specific amount of certificates required. As those allowances are not certain and the amount is not determined yet (esp. for EU ETS) those are not deducted from the gross risk amount.

Case Study: Linde's products are energy-intensive. Linde therefore constantly seeks ways to promote reductions in scope 1 and 2 emissions and thus reduce the risk from carbon regulations. In 2021, Linde launched its "Linde Green" product line in the US, Eastern and Central Europe. "Linde Green" products have a zero-carbon footprint, and Linde is now extending this offering in more countries worldwide. Linde is actively promoting its "green" products with customers. As such products are increasingly accepted by customers, the potential result is reduction of company emissions and less carbon cost.

Considering the above mitigation actions, the residual financial impact of this risk on Linde is considered to be low.

Explanation of cost calculation: Linde invested approx. $33 million in productivity projects, which in 2022 for completed projects yielded savings of 1,000,000+ tons, and help to reduce the risk from carbon legislation. Also, Linde spends approximately $100,000 per year for external consultancy and service providers to fulfil regulatory requirements, e.g., for external verification of emissions data provided externally. $33MM + $100K = $33.1MM.

Comment

Identifier

Risk 2

Where in the value chain does the risk driver occur?

Direct operations

Risk type & Primary climate-related risk driver

Acute physical

Cold wave/frost

Primary potential financial impact

Decreased revenues due to reduced production capacity

Company-specific description

Linde plants might be affected by major catastrophic weather events.

The occurrence of catastrophic events or natural disasters such as extreme weather, including extreme temperature events, 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 major events could impact Linde's customers and suppliers potentially resulting in long-term outages and/or the limitation of supply of energy or other raw materials used in normal business operations. Such extreme events may also lead to damage to property, plant and equipment, additional repair/maintenance costs, and/or additional capital expenditures.

The company has significant assets in areas that are subject to extreme weather events that may be exacerbated by climate change, particularly in the U.S. Gulf Coast. For example, Linde operates several air separation units, large steam methane reformers and PSA units in the Gulf of Mexico, from where it sells bulk/merchant products over trucks, but also provides gases products which are transported over pipelines to customers. A severe natural disaster at that location like extreme colder temperatures could cause significant damage to Linde’s plant operating equipment as well as gases pipelines. In addition, significant damage to customer facilities could lead to plant shutdowns that may result in reduced sales to customers.

The impact of such major events can be between medium to high depending on the severity of the event. In the worst case there could be loss of lives involved.

Time horizon

Short-term

Likelihood

Unlikely

Magnitude of impact

Medium-high

Are you able to provide a potential financial impact figure?

Yes, a single figure estimate

Potential financial impact figure (currency)

100,000,000

Potential financial impact figure – minimum (currency)

Potential financial impact figure – maximum (currency)

Explanation of financial impact figure

The reported financial impact figure is gross (before mitigation activities) and based on a low probability scenario of a major natural disaster of high severity, which could cause considerable damage to one or several plants in that area and lead to considerable down time of up to one year.

Based on evaluations from insurance companies regarding such major events, it is estimated that such an event could lead to about $100,000,000 of financial impact for a plant of average size or a plant cluster in an exposed area. This includes operating cost and capital to restore the plant itself, as well as lost revenues which represent the major part of the impact.

Based on a specific disaster plan/scenario for one of Linde's major plants, it is estimated that 20% of financial impact ($20 million) would be due to damage to property, plant and equipment and to restore the plant; and the rest ($80 million) would be lost business/revenues. Lost revenues are calculated based on the assumption of a downtime of one year, which is the amount of time needed to bring the plant back into working condition after a major natural disaster. One year is considered realistic, as it may take 1-2 months for repair work to begin (e.g., after a major flood), and there can be long procurement lead times to order high value replacement parts/components, which then need to be installed, tested, etc.

Cost of response to risk

200,000

Description of response and explanation of cost calculation

To manage these risks, Linde 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.

Examples of Risk Responses:
Asset level risks are assessed during project development using documented procedures and criteria. Linde also has a Business Continuity Planning process through which businesses can evaluate their operational assets and develop plans that can be implemented in the event of an impairment of the asset.

Additionally, Linde works with its insurance providers to evaluate the risk from all perils including extreme weather or flooding. The insurer uses rigorous standards to identify and quantify exposures to Linde assets. Based on their recommendations, Linde may make investments in infrastructure that adapts to or mitigates risks from climate change. Linde currently procures risk transfer insurance from highly rated insurance companies for catastrophic claims in excess of $5MM in total property damage as well as risk transfer insurance coverage for business interruption.

Case Study: Winter Storm Uri hit the Gulf Coast in Feb, 2021 with an extended period of below freezing temperatures, resulting in numerous shutdowns and minor damage for Linde plants. Utility interruptions occurred across Linde's fleet of plants, interrupting production and supply of industrial gases. Sites experiencing damage due to freezing temperatures were retrofitted with best practice methods of protection: insulation and heat tracing of water and wet process piping, plastic piping replaced with more resilient materials, and standard operating procedures implemented to prepare sites for future hard freezes. New projects in development and execution are being designed with these increased levels of protection to mitigate future events.

Cost Breakdown: Linde annually spends in excess of $20K 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. In addition, Linde spends annually $180K for a Loss Control Program which includes 20 surveys/ year by risk engineers from the leading insurer. $20K + $180K = $200K

Comment

Identifier

Risk 3

Where in the value chain does the risk driver occur?

Direct operations

Risk type & Primary climate-related risk driver

Acute physical

Cyclone, hurricane, typhoon

Primary potential financial impact

Decreased revenues due to reduced production capacity

Company-specific description

Linde plants might be affected by major catastrophic weather events.

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 major events could impact Linde's customers and suppliers potentially resulting in long-term outages and/or the limitation of supply of energy or other raw materials used in normal business operations. Such extreme events may also lead to damage to property, plant and equipment, additional repair/maintenance costs, and/or additional capital expenditures.

The company has significant assets in areas that are subject to extreme weather events that may be exacerbated by climate change, particularly in the U.S. Gulf Coast, in Mexico, and certain portions of Asia. For example, Linde operates several air separation units, large steam methane reformers and PSA units at the Gulf of Mexico, from where it sells bulk/merchant products over trucks, but also provides gases products which are transported over pipelines to customers. A severe natural disaster at that location like earthquake and/or flooding could cause significant damage to Linde’s plant operating equipment as well as gases pipelines. In addition, significant damage to customer facilities could lead to plant shutdowns that may result in reduced sales to

customers.

The impact of such major events can be between medium to high depending on the severity of the event. In the worst case there could be loss of lives involved.

Time horizon

Short-term

Likelihood

Unlikely

Magnitude of impact

Medium-high

Are you able to provide a potential financial impact figure?

Yes, a single figure estimate

Potential financial impact figure (currency)

100,000,000

Potential financial impact figure – minimum (currency)

Potential financial impact figure – maximum (currency)

Explanation of financial impact figure

The reported financial impact figure is gross (before mitigation activities) and based on a low probability scenario of a major natural disaster of high severity, which could cause considerable damage to one or several plants in that area and lead to considerable down time of up to one year.

Based on evaluations from insurance companies regarding such major events, e.g., flooding, it is estimated that such an event could lead to about $100,000,000 of financial impact for a plant of average size or a plant cluster in an exposed area. This includes

operating cost and capital to restore the plant itself, as well as lost revenues which represent the major part of the impact.

Based on a specific disaster plan/scenario for one of Linde's major plants, it is estimated that 20% of financial impact ($20 million) would be due to damage to property, plant and equipment and to restore the plant; and the rest ($80 million) would be lost business/revenues. Lost revenues are calculated based on the assumption of a downtime of one year, which is the amount of time needed to bring the plant back into working condition after a major natural disaster. One year is considered realistic, as it may take 1-2 months for repair work to begin (e.g., after a major flood), and there can be long procurement lead times to order high value replacement parts/components, which then need to be installed, tested, etc.

Cost of response to risk

200,000

Description of response and explanation of cost calculation

To manage these risks, Linde 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.

Examples of Risk Responses:
Asset level risks are assessed during project development using documented procedures and criteria. Linde also has a Business Continuity Planning process through which businesses can evaluate their operational assets and develop plans that can be implemented in the event of an impairment of the asset.

Additionally, Linde works with its insurance providers to evaluate the risk from all perils including extreme weather or flooding. The insurer uses rigorous standards to identify and quantify exposures to Linde assets. Based on their recommendations, Linde may make investments in infrastructure that adapts to or mitigates risks from climate change. Linde currently procures risk transfer insurance from highly rated insurance companies for catastrophic claims in excess of $5M in total property damage as well as risk transfer insurance coverage for any business interruption.

Case Study: Hurricane Harvey hit the Gulf Coast in 2017 and caused minor damage and shut-downs for some Linde plants in that area (ASU plants and one hydrogen plant) while one PSA plant in Texas was severely impacted due to flooding, with several months of downtime. As an adaptation measure the plant was afterwards rebuilt to withstand similar type of flooding that occurred during

Harvey.

To mitigate damage from flooding and high winds, Linde worked with its insurance providers and plant engineering team to come up with new resilient design standards. Some of Linde's plants built in the last years were constructed to withstand winds of 118 mph and critical equipment is raised to specific flood level standards.

Cost Breakdown:
Linde 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. In addition, Linde spends annually $180,000 for a Loss Control Program which includes 20 surveys per year by risk engineers from the leading insurer. $20,000 + $180,000 = $200,000

Comment

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

(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?

Downstream

Opportunity type

Products and services

Primary climate-related opportunity driver

Development and/or expansion of low emission goods and services

Primary potential financial impact

Increased revenues resulting from increased demand for products and services

Company-specific description

Linde sees opportunities to benefit from the increasing demand for low-carbon applications, including those involving hydrogen (H2). H2 is among Linde's biggest growth opportunities, and leveraging its capacity to enable the clean energy transition is a key platform in Linde's commitment to mitigate climate change. H2 is a key enabler of the clean energy transition. It can be produced from (renewable) electricity and from carbon-abated fossil fuels. It produces zero emissions at point of use and can be stored and transported at high energy density in liquid or gaseous form. It can be combusted or used in fuel cells to generate heat and electricity.

In its 2020 Energy Technologies Perspectives paper, the IEA projects a roughly 4 times increase of worldwide H2 production from 2019 through 2050, under the Sustainable Development Scenario (SDS). If the assumptions of the SDS are correct, for Linde– with H2-related revenues of more than $2billion in 2019. This gives a low estimate for potential annual H2-related revenues of $8billion+ in the long-term, assuming same market share and product pricing, an increase of over $5billion from 2022, which is less than expected by Linde. (See NOTE below.)

Linde today has a $3billion H2 business and possesses the necessary infrastructure, technology and experience that will support a transition to clean H2. It has a pipeline network of approximately 1,000 km and nearly 200 major H2 plants in the world. Linde has 200+ clean energy related project opportunities, mostly involving clean H2. Business opportunities are emerging worldwide, especially in countries that have already adopted H2 strategies (e.g. Canada, EU, South Korea, Australia). The number of countries with policies that directly support investment in H2 technologies is increasing. There are around 50 targets, mandates and policy incentives in place today that directly support H2, with the majority focused initially on the transportation sector.

In April 2023, Linde announced that it has signed a long-term agreement to supply green hydrogen to Evonik, a leading specialty chemicals company. Linde will build, own and operate a 9MW industrial-scale electrolyzer and use hydroelectric power to produce green liquid H2. Evonik will use green H2 to manufacture methionine, an essential component in animal feed. The new supply agreement supports the planned expansion of Evonik's existing facility and will help Evonik limit its greenhouse gas emissions in Singapore.

Time horizon

Long-term

Likelihood

More likely than not

Magnitude of impact

High

Are you able to provide a potential financial impact figure?

Yes, a single figure estimate

Potential financial impact figure (currency)

5,000,000,000

Potential financial impact figure – minimum (currency)

Potential financial impact figure – maximum (currency)

Explanation of financial impact figure

In its 2020 Energy Technologies Perspectives paper the IEA projects a roughly 4 times increase of worldwide H2 production from 2019 through 2050, under the Sustainable Development Scenario (SDS). If the assumptions of the SDS are correct, for Linde – with hydrogen-related revenues of more than $2 billion in 2019 – this could mean a very low estimate for potential annual hydrogen-related revenues of more than $8 billion in the long-term, assuming the same market share and product pricing, an increase of over

$5 billion from today. Therefore, the estimate of $5 billion is a low estimate and, given our advantages in building off an existing business and infrastructure, a case could be made that this would represent the very low end of our expected hydrogen growth. NOTE: The financial impact calculation is based on IEA SDS scenario projections. Under the assumptions of this model, the incremental growth in Linde's Hydrogen business works out to around $5B by 2050, as per above. However, it is noted that Linde's internal estimates suggest a range much higher than this.

Financial Impact Figure Calculation: The figure reported under "potential financial impact figure" is the additional sales opportunity in the long term. It is calculated as 2019 revenues of $2 billion X 4 (which is the expected increase in worldwide production) = $8 billion future annual hydrogen-related revenues, minus $3 billion in current revenues (2022) = $5 billion/year additional hydrogen-related revenues in the long term.

NOTE: The above financial impact calculation is based on IEA SDS scenario projections. Under the assumptions of this model, the incremental growth in Linde's Hydrogen business works out to around $5B by 2050, as per above. However, it is noted that Linde's internal estimates suggest a range much higher than this.

Cost to realize opportunity

100,000,000

Strategy to realize opportunity and explanation of cost calculation

Linde's strategy to realize the opportunity from increased demand for hydrogen is focused on investments in decarbonization projects. Linde has SD targets in place to invest more than $1 billion in decarbonization projects and spend at least 1/3 of its R&D budget on decarbonization by 2028. Depending upon the level of growth, future investments in H2 capacities could range between $1 billion to in excess of $5 billion over the course of the decade.

Linde has a clean energy team to focus and accelerate activity in this area. The company is investing across the H2 value chain to accelerate the clean energy transition with a higher renewable power mix and significant operating and capital efficiencies. We will pursue competitive low-carbon sources of H2, including the energy efficient conversion of our existing SMRs with CCS, new ATR's with CCS, new electrolysis with renewable power, feedstock from biomethane, and the development of new low-carbon technologies.

Case study:

In September 2022, Linde announced that it will build a 35-megawatt PEM (Proton Exchange Membrane) electrolyzer to produce green hydrogen in Niagara Falls, New York. The new plant will be the largest electrolyzer installed by Linde globally and will more than double Linde's green liquid hydrogen production capacity in the United States. The plant is expected to start up by 2025. This project is the first of several electrolyzers Linde expects to build in the U.S. to address green liquid hydrogen demand.

Explanation of cost calculation:
Linde intends to invest >$1 billion in decarbonization projects through 2028. The figure of $1 billion is cumulative over 10 years. To calculate the annual cost to realize the opportunity, we assume an equal amount is invested each year: $1 billion divided by 10 years = $100 million per year. This assumption is supported by the amount invested from 2018: Linde invested $542 million in decarbonization projects in total over these five years, making the 5-year average more than $100 million ($108.4MM).

Comment

Linde believe that hydrogen will continue to enable industrial and environmental benefits, including in refining and chemical production. It can for example be used as a feedstock in the production of low carbon alternative products, such as ammonia, methanol and sustainable and/or renewable fuels (especially kerosene and diesel).

At the end of 2022, Linde's backlog for decarbonization projects stood at nearly $2 billion, and the company is well on track with its decarbonization R&D efforts to support it.

C3. Business Strategy

C3.1

(C3.1) Does your organization's strategy include a climate transition plan that aligns with a 1.5°C world?

Row 1

Climate transition plan

Yes, we have a climate transition plan which aligns with a 1.5°C world

Publicly available climate transition plan

Yes

Mechanism by which feedback is collected from shareholders on your climate transition plan

We have a different feedback mechanism in place

Description of feedback mechanism

Linde continues to maintain a strong dialogue with investors and other stakeholders regarding its climate change strategy and low-carbon initiatives and has implemented a comprehensive governance structure including Board supervision for those issues. Linde furthermore reports quarterly on its progress against its GHG reduction targets/transition plan during its quarterly earnings call where investors and analysts are given the possibility to pose questions and provide feedback.

Frequency of feedback collection

More frequently than annually

Attach any relevant documents which detail your climate transition plan (optional)

Climate Transition Plan is attached. Web location: https://www.linde.com/sustainable-development/climate-change

Linde Climate Transition Plan copy.pdf

C3.2

(C3.2) Does your organization use climate-related scenario analysis to inform its strategy?

	Use of climate-related scenario analysis to inform strategy
Row 1	Yes, qualitative and quantitative

C3.2a

(C3.2a) Provide details of your organization's use of climate-related scenario analysis.

Climate-related scenario	Scenario analysis coverage	Temperature alignment of scenario	Parameters, assumptions, analytical choices

Transition scenarios IEA SDS	Company-wide		Linde is aligned with the Paris Accords and evaluated multiple scenarios, including IEA's sustainable development scenario (SDS) which is consistent with limiting global warming to well below 2 degrees C. As more and more governments are committing to a below 2 degrees or 1.5 degrees world, Linde considered this a valid scenario for its analysis. Using the scenario assumptions, Linde assessed transition risks and opportunities, and analyzed specific actions needed to respond to those risks and to define an appropriate GHG mitigation strategy. Our analysis was both qualitative and quantitative. Parameters: The scope of Linde's scenario analysis and climate risk assessment is company-wide whereas focus lies on its industrial gases operations contributing to a majority of scope 1 and 2 emissions. Linde used several growth projections from the SDS specific to the chemical industry, hydrogen and power sector, outlined in IEA's latest Energy Technology Perspectives (ETP) paper. Important financial parameters included the expected sales growth, regional carbon prices, cost of investments (e.g. to retrofit existing H2 facilities with CCS) and potential government support through subsidies or other incentives. Assumptions: The SDS projects chemical sub-sector emissions to continue to grow for the next 5 years due to worldwide business growth and new technologies still scaling up, but then to decline, reaching close to zero by 2070. The SDS further predicts blue and green hydrogen to represent >80% of worldwide H2 production by 2050. The power sector is expected to achieve net zero after 2050. This projection is supported by assumptions on economic and regulatory conditions like a stronger policy push through carbon taxation, a trajectory for the decarbonization of the power

			sector, as well as the availability of negative emissions technologies to offset certain hard to abate emissions. Analytical Choices: The time horizon for the scenario analysis was through 2050. Projections were based on Linde's short and mid-term business/production outlook and longer-term outlook based on average economy growth. Result: Based on its analysis and the risks and opportunities determined, Linde developed its new GHG emission reduction targets and trajectory. This includes the commitment to achieve net zero emissions by 2050 which represents a more aggressive and rapid decrease in emissions for the chemical sector than stipulated in the well-below 2 degrees SDS.
Physical climate scenarios RCP 4.5	Company-wide		Although Linde has committed to contribute to a well-below 2 degrees world by its own climate strategy and targets, Linde wanted to analyse the potential business impacts in case this goal cannot be reached worldwide, and temperature would rise beyond 2 degrees. Parameters, assumptions and analytical choices: For its scenario analysis Linde applied the general assumptions of the RCP 4.5, including a temperature increase of 2.5-3 degrees, a PPM concentration of 500 by 2050, sea level increase by ~0.3 m by 2050, an increase in climate-related physical impacts (e.g. drought), as well as an increase in extreme weather events. The time horizon was until 2050. This covers the lifetime of Linde's production plants which usually have a contractual run time of 15-20 years. The risk analysis was context based, this means it was conducted on a single asset basis considering regional specifics, and covered the majority of assets, e.g., Linde evaluated which sites will be exposed to high water stress in the next 20 years according to different future

			climate scenarios. Linde furthermore calculated the impact of climate variables like temperature and ambient contaminants (e.g. under 500 ppm CO2) on its plant operations (e.g., impact on energy consumption/cost), using a self-developed tool. Result of the Scenario analysis: Linde's scenario analysis showed that Linde might be exposed to several acute and chronic physical climate change risks in the long term, resulting e.g. from an increase in mean temperature, higher CO2 concentration in the air, or higher water stress. This could lead to higher operating cost, and in the worst case loss of revenue due to reduced production capacity. Based on the scenario analysis and risks determined, Linde developed a context-based climate adaptation plan taking into account technical and regional specifics of each site. This plan covers 100% of industrial gases production assets. Generally, for all new plants the physical parameters are assessed, and plant designs are adapted to meet the projected short, mid and long-term physical climate parameters and risks, e.g. increasing risk of flooding. In addition, long-term activities related to R&D and innovation are carried out, for example new plant designs or solutions for reduced fresh water consumption.
Transition scenarios IEA NZE 2050	Company-wide		Linde evaluated the Net Zero Emissions by 2050 (NZE) scenario, which is consistent with limiting global warming to 1.5 degrees C. As more and more governments are committing to a below 2 degrees or 1.5 degrees world, Linde considered this a valid scenario for its analysis and future consideration. Using the scenario assumptions, Linde assessed transition risks and opportunities, and analyzed specific actions needed to respond to those risks and to define an appropriate GHG mitigation strategy. Our analysis was qualitative. Parameters:

			The scope of Linde's scenario analysis and climate risk assessment is company-wide whereas focus lies on its industrial gases operations contributing to a majority of scope 1 and 2 emissions. Linde used several growth projections from the NZE specific to the chemical industry, hydrogen and power sector. Important financial parameters included the expected sales growth, regional carbon prices, cost of investments (e.g. to retrofit existing H2 facilities with CCS) and potential government support through subsidies or other incentives. Assumptions: NZE predicts hydrogen growth that is quite complementary to Linde's growth. Low-emission hydrogen is expected to be scaled up to reach total production of 95 Mt by 2030- about half of global hydrogen production and consisting of two-thirds green hydrogen and one-third blue hydrogen-- as well as calling for the enabling infrastructure, including hydrogen-dedicated infrastructure, renewable generation capacity and CO2 transport and storage infrastructure. This projection is supported by assumptions on economic and regulatory conditions including large growth in renewable energy (estimated at 2700 TWh by 2030 to support hydrogen production), and the availability of negative emissions technologies to offset certain hard to abate emissions, all in addition to increased technical and production capacity to support the growth of hydrogen production. Analytical Choices: The time horizon for the scenario analysis was through 2050. Projections were based on Linde's short and mid-term business/production outlook and longer-term outlook based on average economy growth. Result: Based on its analysis and the risks and opportunities determined, Linde has reviewed its 2035 and 2050 GHG emission reduction targets and trajectory. This includes the commitment to

			achieve net zero emissions by 2050. Linde will continue to use the NZE scenario as a part of its future scenario analyses.
Physical climate scenarios RCP 6.0	Company-wide		Although Linde has committed to contribute to a well-below 2 degrees world by its own climate strategy and targets, Linde wanted to analyse the potential business impacts in case this goal cannot be reached worldwide, and temperature would rise beyond 2 degrees. Parameters, assumptions and analytical choices: For its scenario analysis Linde applied the general assumptions of the RCP 6.0, including a temperature increase between 3-4 degrees C by 2100 and a PPM concentration of 670 by 2100, sea level increase and an increase in extreme weather events. The time horizon was until 2050. This covers the lifetime of Linde's production plants which usually have a contractual run time of 15-20 years. The risk analysis was context based, this means it was conducted on a single asset basis considering regional specifics, and covered the majority of assets, e.g., Linde evaluated which sites will be exposed to high water stress in the next 20 years according to different future climate scenarios. Linde furthermore calculated the impact of climate variables like temperature and ambient contaminants (e.g. under 500 ppm CO2) on its plant operations (e.g., impact on energy consumption/cost), using a self-developed tool. Result of the Scenario analysis: Linde's scenario analysis showed that Linde might be exposed to several acute and chronic physical climate change risks in the long term, resulting e.g. from an increase in mean temperature, higher CO2 concentration in the air, or higher water stress. This could lead to higher operating cost, and in the worst case loss of revenue due to reduced production capacity. Based on the scenario analysis and risks determined, Linde confirmed the importance of current parts of its mitigation strategies, including water management planning in areas of high

			water stress and its plant design processes. Generally, for all new plants the physical parameters are assessed, and plant designs are adapted to meet the projected short, mid and long-term physical climate parameters and risks, e.g. increasing risk of flooding. In addition, long-term activities related to R&D and innovation are carried out, for example new plant designs or solutions for reduced fresh water consumption.

C3.2b

(C3.2b) Provide details of the focal questions your organization seeks to address by using climate-related scenario analysis, and summarize the results with respect to these questions.

Row 1

Focal questions

Question 1) How will transition risks of climate change impact Linde's business, strategies, and financial performance and what are the risks and opportunities for Linde under the specific scenario?
A main reason for conducting scenario analysis is to gain a better understanding on how Linde will be impacted by the transition to a low-carbon economy. By conducting scenario analysis Linde is able to evaluate how its business and strategies will be impacted by transition risks like policy/legal risks, technological risks as well as market or reputational risks, and what are the potential cost of this transition e.g. through carbon legislation. On the other hand, scenario analysis is used to determine the opportunities for Linde in the time horizon assessed, based on the general scenario assumptions (e.g. increase in demand for blue and green hydrogen). Most recently, Linde has undergone evaluation of the including Net Zero Emissions by 2050 (NZE) scenario, which is consistent with limiting global warming to 1.5 degrees C. Linde also assessed the Sustainable Development Scenario from IEA for its scenario analysis as this includes specific assumptions around the future development of the chemical industry sector and other projections which are important for Linde's business processes and strategy development (e.g. development of the power sector, renewables portion) as well as projections for hydrogen growth by type of hydrogen.

Question 2) How will physical risks of climate change impact Linde's business, strategies, and financial performance and what are the risks and opportunities for Linde under the specific scenario?

If the goals of Paris Agreement are not met and temperature rises beyond 2 or 3 degrees this would have physical climate impacts on worldwide industries and industry assets. Linde has previously conducted scenario analysis using RCP 4.5, and Linde conducted scenario analysis with the RCP 6.0 scenario in order to gain a better understanding on how physical climate change impacts under scenario with GHG emissions peaking about twenty years later than predicted in RCP and stabilizing near of the century. This provided an opportunity to inform future discussions about the potential effects to its business and company assets worldwide. Through this analysis, Linde is more able to estimate additional potential impacts on its business and determine the financial effects of the physical climate change scenario in the longer term. Based on this the company can draw conclusions about mitigation actions which need to be taken, many which have already been considered in past scenario analyses.

Results of the climate-related scenario analysis with respect to the focal questions

Q 1)

Linde used the NZE scenario to explore transition risks as well as opportunities.

As a result of this and other scenario analyses Linde gained more clarity on important business aspects, including the potential growth of grey, blue and green H2 which is a key sector for Linde. Linde also explored the projections around the power industry (up-stream risks) as well as how this scenario may impact customers and markets (downstream risks). E.g., there are risks connected to structural market changes and different customer demands, especially in the area of H2. Technological risks include cost of R&D and low-carbon investments with the risk that new applications are not successful, or not economically viable, or competition. Either of these could also have a negative impact on reputation.

As with other scenarios, Linde sees a clear need for hydrogen and clean energy future. The growing demand for H2 and search for new, viable technologies, is on the other hand a considerable opportunity for Linde as a technology leader in this area. Linde's own decarbonization investments and growth of renewable energy are complementary. The scenario analysis further revealed the financial risks connected to energy costs, especially important for ASU operations, which may be affected by both access to sufficient low carbon energy in the regions where needed and risks of rising energy cost.

Decision informed by the results: Linde plans to have several large H2 facilities in the US equipped with CCS by the end of the decade.

Q 2)

Under an RCP 6.0 scenario Linde could suffer in the long-term from the physical impacts of climate change, such as higher mean temperature and higher PPM concentration. Temperature and ppm CO2 concentration are base operating conditions of a production

plant, and a rise could ultimately lead to an increase in cost if this exceeds plant specifications. The analysis of future water stress and scarcity revealed that by 2040, 20% additional Linde sites could see an increase in their baseline water stress to high or extremely high, among others plants at the China Coast. Risk of natural disaster will likely increase in certain geographies, e.g. risk of hurricanes at the US Gulf coast, and the number of people exposed to water stress could double by 2050. Because emissions peak in 2060 under RCP 6.0, these conditions present potential costs.

As a result of the scenario analysis, mitigation strategies were reviewed to address the risks, for specific assets and regional areas and the adaptation plan updated. The adaptation plan includes contingency plans, required plant upgrades due to changing physical conditions, and long-term activities related to R&D and innovation (e.g., new water solutions).

C3.3

(C3.3) Describe where and how climate-related risks and opportunities have influenced your strategy.

	Have climate-related risks and opportunities influenced your strategy in this area?	Description of influence
Products and services	Yes	Linde is a technology leader and at the forefront of innovation in many technology areas, including low-carbon products and services. How climate related risks and opportunities have influenced Linde's business strategy: Linde believes that it can benefit from business opportunities arising from governmental regulation of GHG and other emissions and the increasing demand for low-carbon products and applications. Linde offers several products and applications that help customers and their end users avoid CO2 emissions, such as oxygen used in steelmaking and hydrogen used to make ultra-low sulfur diesel. Linde's strategy is to maintain its focus and expand such offerings in the short, mid and long term. For example, in 2021, Linde implemented a new product line for zero-carbon products "Linde Green" which is currently available in many regions worldwide.

		Linde has also decided to put a strategic focus on the growing market of hydrogen, especially clean hydrogen. Low-carbon products are an important means of climate change mitigation. Those products will not only help Linde to reduce its own CO2 footprint, but also those of its clients. Case study of a substantial strategic decision influenced by climate-related risks and opportunities: Linde has investigated which technologies are best for answering the world's growing demand for low carbon products and applications and found that hydrogen is seen as one key enabler of the transition to a low-carbon economy. Based on Linde's scenario analysis as well as further market research, Linde expects a strong increase in demand for especially green hydrogen in the mid and long term and has therefore decided to focus its strategy on this growing business area (green hydrogen). Linde's clean energy team and hydrogen organization and entered into multiple collaborations as well as carried out strategic investments to speed up developments and growth in the area of green hydrogen. For example, Linde 's recent project to build, own and operate the world's largest PEM (Proton Exchange Membrane) electrolyzer plant at the Leuna Chemical Complex in Germany: The new 24-megawatt electrolyzer produces green hydrogen to supply Linde's industrial customers through the company's existing pipeline network.
Supply chain and/or value chain	Yes	From a supply chain perspective, Linde sees little impact from climate change on Linde's raw material supply, other than for energy – which is reported under "Operations". From a value chain perspective, Linde needs to respond to changes in customer behavior and offer products and services which help customers to become more successful, productive and sustainable. How climate related risks and opportunities have influenced Linde's business strategy: Linde offers several products and applications that help customers and their clients avoid CO2

		emissions, such as oxygen used in steelmaking and hydrogen used to make ultra-low sulfur diesel. Linde's strategy is to maintain its focus and expand on such offerings in the short, mid and long term. For example, in 2021, Linde implemented a new product line for zero-carbon products "Linde Green" which is currently available in many regions worldwide. Low-carbon products are an important means of climate change mitigation. Those products will not only help Linde to reduce its own CO2 footprint, but also those of its clients. Case study of a substantial strategic decision influenced by climate-related risks and opportunities: Linde has investigated which technologies are best for answering the world's growing demand for low carbon products and applications and found that hydrogen is seen as one key enabler of the transition to a low-carbon economy. Based on Linde's scenario analysis as well as further market research, Linde expects a strong increase in demand for especially green hydrogen in the mid and long term and has therefore decided to focus its strategy on this growing business area (green hydrogen). Linde's clean energy team and hydrogen organization and entered into multiple collaborations as well as carried out strategic investments to speed up developments and growth in the area of green hydrogen. For example, Linde has a recent project to build, own and operate the world's largest PEM (Proton Exchange Membrane) electrolyzer plant at the Leuna Chemical Complex in Germany. The new 24-megawatt electrolyzer produces green hydrogen to supply Linde's industrial customers through the company's existing pipeline network.
Investment in R&D	Yes	Linde is a technology leader and at the forefront of innovation in many technology areas, including in low-carbon products and services. How climate related risks and opportunities have influenced Linde's business strategy: Linde believes that it can benefit from business opportunities arising from governmental regulation of GHG and other emissions and the increasing demand for low-carbon products and

		applications. Linde already offers several products and applications that help customers and their clients avoid CO2 emissions, such as oxygen used in steelmaking and hydrogen used to make ultra-low sulfur diesel. In addition, Linde has set targets to invest more than one third of annual R&D expenditures in low-carbon projects and initiatives by 2028, and to invest >$1 billion by 2028 in low carbon projects. Those investments are targeted to find and implement innovative solutions and products/applications that can help mitigate climate change. Case study of a substantial strategic decision influenced by climate-related risks and opportunities: Linde has investigated which technologies are best for answering the world's growing demand for low carbon products and applications and found that hydrogen is seen as one key enabler of the transition to a low-carbon economy. Based on Linde's scenario analysis as well as further market research, Linde expects a strong increase in demand for especially green hydrogen in the mid and long term and has therefore decided to focus its strategy on this growing business area (green hydrogen). Linde's clean energy team and hydrogen organization with a focus on R&D and innovation in the area of clean hydrogen.
Operations	Yes	In order to mitigate the adverse effects and risks from climate change, Linde has set several managed targets among its new 2028 sustainability targets, which address operational efficiency. Linde overall aims to reduce its GHG (scope 1 and 2) over EBITDA intensity by 35% by 2028, and absolute scope 1 and 2 emissions by 35% by 2035. Energy efficiency improvements and targets are an important strategic measure to achieve overall emission reduction targets and contribute to cost savings. For example, Linde has a target to realize $1.3 billion in cost savings from sustainable productivity projects by 2028.

		Case study: Improvements in operational efficiencies are an important lever to reduce energy consumption and thus scope 1 and scope 2 emissions. As part of its climate change targets Linde has set targets for efficiency improvements in several areas. For example, Linde plans to reduce its ASU energy efficiency by 7% and its HyCO GHG intensity by 4% over the 10-year target horizon. In addition, absolute scope 1 emissions from other GHGs are planned to be reduced by 10% by 2028. These targets have a baseline of 2018. With its recently defined 2035 target Linde will take further steps to drastically reduce its absolute emissions and therefore mitigate climate change, which includes setting more challenging operational targets. For example, Linde already achieved its “Other GHG” target in 2021 by more than 300%. Instead of a planned reduction of 10%, a 38% absolute reduction was realized. This is among others due to operational process improvements and the implementation of best practice standards worldwide, e.g. in the area of refrigerants handling and N2O production. Another important lever to reduce GHG emissions is low carbon electricity which is viewed as an important means of climate change mitigation. Linde has set a 10-year target to double the amount of low-carbon electricity sourced, especially through active procurement of renewable electricity. This will lead to changes in the energy supply of the company which will look to source more power from renewable sources (different utility providers) or power which is backed up by RE certificates. In 2022, low carbon electricity procured increased to 18 TWh.

C3.4

(C3.4) Describe where and how climate-related risks and opportunities have influenced your financial planning.

	Financial planning elements that have been influenced	Description of influence
Row 1	Revenues Direct costs Indirect costs	Revenues: Linde believes that it can benefit in the mid and long term from the higher demand for low-carbon products and applications needed to transition to a low-carbon economy. Linde is factoring in the impact of business

	Capital expenditures	opportunities from new low-carbon products and applications into its mid and long-term business plan. Linde has a target to realize at least 50% of annual revenues (excluding Linde Engineering) from its sustainability portfolio through 2028, including low carbon products and services. This is considered in the annual business plan (revenue). Case Study: Linde is investing in low-carbon research and development as well as initiatives and projects with the aim to enable future growth of its hydrogen business. As a result, Linde expects its hydrogen-related revenues to increase in the coming years In its 2020 Energy Technologies Perspectives paper, the IEA projects a roughly 4 times increase of worldwide H2 production from 2019 through 2050, under the Sustainable Development Scenario (SDS). If the assumptions of the SDS are correct, for Linde – with hydrogen-related revenues of more than $2billion in 2019. This would mean a low estimate for potential annual hydrogen-related revenues of more than $8billion in the long-term, assuming same market share and product pricing, an increase of over $5billion from 2022. Not that this estimate, from 2019 revenue levels, based on SDS represents an increase of 300% , but is still a low estimate and is less than expected by Linde. NOTE: The above financial impact calculation is based on IEA SDS scenario projections. Under the assumptions of this model, the incremental growth in Linde's Hydrogen business works out to around $5B by 2050, as per above. However, it is noted that Linde's internal estimates suggest a range much higher than this. Additional revenues from new hydrogen business/projects (like green hydrogen projects in Germany or New York, going on-stream in 2022 and 2023) are factored into Linde's short, mid and long-term financial planning. Direct Cost: Cost of energy: Current and emerging GHG regulations are influencing Linde's operating cost / cost of energy. Linde takes into account for its annual budget / financial planning the amount of carbon taxes or carbon credits to be purchased for existing production plants and plants starting operation in the budget year which are or will be subject to carbon taxation. If such fees and charges can be passed through to the customer (e.g., over the

		sales price) Linde is also considering this in the financial planning (increased sales revenues). Case Study: Linde needs to include in its annual budgets the expected cost from carbon legislation/taxation or trading schemes. For example, Linde included cost estimates for the EU ETS fourth trading period and the expected level of allowances into its 2022 budget, as well as an estimate for the new German BEHG (fuel emission trading law) which will go beyond emissions covered under the EU ETS scheme. Linde believes that it will be able to pass on the majority of those cost to customers, therefore the impact on the financial plan is both on the cost side, but also on the revenue side. Indirect Cost: Linde is an innovation leader. In order to stay ahead of competitors and offer the (low carbon) products and services required by customers, Linde constantly needs to invest in R&D. Linde has a target that by 2028, >33% of its annual R&D expenses will be directed to new technologies and especially low-carbon applications. The amount of R&D expenses required in those areas is planned every year as part of the annual R&D budget. Case Study: In order to foster developments in the low-carbon area to respond to increased customer demand, Linde has set a target to dedicate more than 1/3 of its annual R&D budget towards low carbon projects by 2028. In 2022 Linde spent 39% of its total annual R&D budget on decarbonization topics. The R&D expenses for low-carbon developments/innovations were factored in as part of the annual budgeting process into Linde's annual budget. Capital Expenditures: Linde thinks it can benefit from increasing demand for low-carbon products and applications. In order to be able to provide such applications, in addition to R&D, capital investments are required, e.g., pilot production plants for testing new applications or investing in know-how, e.g., by acquisitions of technology companies, in order to step into new innovation areas. Linde takes into account required capital expenditures (CAPEX) for such activities into its short-, mid- and long-term CAPEX planning process. Case Study: Linde wanted to accelerate growth in the emerging low-carbon business sector. As a consequence it has set a target to invest >$1 billion into low carbon projects by 2028, including for example projects in the area

		of clean hydrogen, and is on track to achieve this target. In a recent project, Linde built, owns and operates the world's largest PEM (Proton Exchange Membrane) electrolyzer plant at the Leuna Chemical Complex in Germany, which started up in 2022. Also, Linde is building its first PEM electrolyzer plant at Niagara Falls, New York (USA) which will yield financial results starting in 2023. From 2018-2022, Linde invested about $542 million in decarbonization projects/initiatives. The CAPEX required for such projects/initiatives are factored into the overall annual CAPEX planning/budget of the company.

C3.5

(C3.5) In your organization's financial accounting, do you identify spending/revenue that is aligned with your organization's climate transition?

	Identification of spending/revenue that is aligned with your organization's climate transition
Row 1	No, but we plan to in the next two years

C4. Targets and performance

C4.1

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

Absolute target

C4.1a

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

Target reference number

Abs 1

Is this a science-based target?

Yes, and this target has been approved by the Science Based Targets initiative

Target ambition

Well-below 2°C aligned

Year target was set

2021

Target coverage

Company-wide

Scope(s)

Scope 1

Scope 2

Scope 2 accounting method

Market-based

Scope 3 category(ies)

Base year

2021

Base year Scope 1 emissions covered by target (metric tons CO2e)

16,321,000

Base year Scope 2 emissions covered by target (metric tons CO2e)

23,573,000

Base year Scope 3, Category 1: Purchased goods and services emissions covered by target (metric tons CO2e)

Base year Scope 3, Category 2: Capital goods emissions covered by target (metric tons CO2e)

Base year Scope 3, Category 3: Fuel-and-energy-related activities (not included in Scopes 1 or 2) emissions covered by target (metric tons CO2e)

Base year Scope 3, Category 4: Upstream transportation and distribution emissions covered by target (metric tons CO2e)

Base year Scope 3, Category 5: Waste generated in operations emissions covered by target (metric tons CO2e)

Base year Scope 3, Category 6: Business travel emissions covered by target (metric tons CO2e)

Base year Scope 3, Category 7: Employee commuting emissions covered by target (metric tons CO2e)

Base year Scope 3, Category 8: Upstream leased assets emissions covered by target (metric tons CO2e)

Base year Scope 3, Category 9: Downstream transportation and distribution emissions covered by target (metric tons CO2e)

Base year Scope 3, Category 10: Processing of sold products emissions covered by target (metric tons CO2e)

Base year Scope 3, Category 11: Use of sold products emissions covered by target (metric tons CO2e)

Base year Scope 3, Category 12: End-of-life treatment of sold products emissions covered by target (metric tons CO2e)

Base year Scope 3, Category 13: Downstream leased assets emissions covered by target (metric tons CO2e)

Base year Scope 3, Category 14: Franchises emissions covered by target (metric tons CO2e)

Base year Scope 3, Category 15: Investments emissions covered by target (metric tons CO2e)

Base year Scope 3, Other (upstream) emissions covered by target (metric tons CO2e)

Base year Scope 3, Other (downstream) emissions covered by target (metric tons CO2e)

Base year total Scope 3 emissions covered by target (metric tons CO2e)

Total base year emissions covered by target in all selected Scopes (metric tons CO2e)

39,894,000

Base year Scope 1 emissions covered by target as % of total base year emissions in Scope 1

100

Base year Scope 2 emissions covered by target as % of total base year emissions in Scope 2

100

Base year Scope 3, Category 1: Purchased goods and services emissions covered by target as % of total base year emissions in Scope 3, Category 1: Purchased goods and services (metric tons CO2e)

Base year Scope 3, Category 2: Capital goods emissions covered by target as % of total base year emissions in Scope 3, Category 2: Capital goods (metric tons CO2e)

Base year Scope 3, Category 3: Fuel-and-energy-related activities (not included in Scopes 1 or 2) emissions covered by target as % of total base year emissions in Scope 3, Category 3: Fuel-and-energy-related activities (not included in Scopes 1 or 2) (metric tons CO2e)

Base year Scope 3, Category 4: Upstream transportation and distribution covered by target as % of total base year emissions in Scope 3, Category 4: Upstream transportation and distribution (metric tons CO2e)

Base year Scope 3, Category 5: Waste generated in operations emissions covered by target as % of total base year emissions in Scope 3, Category 5: Waste generated in operations (metric tons CO2e)

Base year Scope 3, Category 6: Business travel emissions covered by target as % of total base year emissions in Scope 3, Category 6: Business travel (metric tons CO2e)

Base year Scope 3, Category 7: Employee commuting covered by target as % of total base year emissions in Scope 3, Category 7: Employee commuting (metric tons CO2e)

Base year Scope 3, Category 8: Upstream leased assets emissions covered by target as % of total base year emissions in Scope 3, Category 8: Upstream leased assets (metric tons CO2e)

Base year Scope 3, Category 9: Downstream transportation and distribution emissions covered by target as % of total base year emissions in Scope 3, Category 9: Downstream transportation and distribution (metric tons CO2e)

Base year Scope 3, Category 10: Processing of sold products emissions covered by target as % of total base year emissions in Scope 3, Category 10: Processing of sold products (metric tons CO2e)

Base year Scope 3, Category 11: Use of sold products emissions covered by target as % of total base year emissions in Scope 3, Category 11: Use of sold products (metric tons CO2e)

Base year Scope 3, Category 12: End-of-life treatment of sold products emissions covered by target as % of total base year emissions in Scope 3, Category 12: End-of-life treatment of sold products (metric tons CO2e)

Base year Scope 3, Category 13: Downstream leased assets emissions covered by target as % of total base year emissions in Scope 3, Category 13: Downstream leased assets (metric tons CO2e)

Base year Scope 3, Category 14: Franchises emissions covered by target as % of total base year emissions in Scope 3, Category 14: Franchises (metric tons CO2e)

Base year Scope 3, Category 15: Investments emissions covered by target as % of total base year emissions in Scope 3, Category 15: Investments (metric tons CO2e)

Base year Scope 3, Other (upstream) emissions covered by target as % of total base year emissions in Scope 3, Other (upstream) (metric tons CO2e)

Base year Scope 3, Other (downstream) emissions covered by target as % of total base year emissions in Scope 3, Other (downstream) (metric tons CO2e)

Base year total Scope 3 emissions covered by target as % of total base year emissions in Scope 3 (in all Scope 3 categories)

Base year emissions covered by target in all selected Scopes as % of total base year emissions in all selected Scopes

100

Target year

2035

Targeted reduction from base year (%)

35

Total emissions in target year covered by target in all selected Scopes (metric tons CO2e) [auto-calculated]

25,931,100

Scope 1 emissions in reporting year covered by target (metric tons CO2e)

16,813,000

Scope 2 emissions in reporting year covered by target (metric tons CO2e)

21,981,000

Scope 3, Category 1: Purchased goods and services emissions in reporting year covered by target (metric tons CO2e)

Scope 3, Category 2: Capital goods emissions in reporting year covered by target (metric tons CO2e)

Scope 3, Category 3: Fuel-and-energy-related activities (not included in Scopes 1 or 2) emissions in reporting year covered by target (metric tons CO2e)

Scope 3, Category 4: Upstream transportation and distribution emissions in reporting year covered by target (metric tons CO2e)

Scope 3, Category 5: Waste generated in operations emissions in reporting year covered by target (metric tons CO2e)

Scope 3, Category 6: Business travel emissions in reporting year covered by target (metric tons CO2e)

Scope 3, Category 7: Employee commuting emissions in reporting year covered by target (metric tons CO2e)

Scope 3, Category 8: Upstream leased assets emissions in reporting year covered by target (metric tons CO2e)

Scope 3, Category 9: Downstream transportation and distribution emissions in reporting year covered by target (metric tons CO2e)

Scope 3, Category 10: Processing of sold products emissions in reporting year covered by target (metric tons CO2e)

Scope 3, Category 11: Use of sold products emissions in reporting year covered by target (metric tons CO2e)

Scope 3, Category 12: End-of-life treatment of sold products emissions in reporting year covered by target (metric tons CO2e)

Scope 3, Category 13: Downstream leased assets emissions in reporting year covered by target (metric tons CO2e)

Scope 3, Category 14: Franchises emissions in reporting year covered by target (metric tons CO2e)

Scope 3, Category 15: Investments emissions in reporting year covered by target (metric tons CO2e)

Scope 3, Other (upstream) emissions in reporting year covered by target (metric tons CO2e)

Scope 3, Other (downstream) emissions in reporting year covered by target (metric tons CO2e)

Total Scope 3 emissions in reporting year covered by target (metric tons CO2e)

Total emissions in reporting year covered by target in all selected scopes (metric tons CO2e)

38,794,000

Does this target cover any land-related emissions?

No, it does not cover any land-related emissions (e.g. non-FLAG SBT)

% of target achieved relative to base year [auto-calculated]

7.8780196091

Target status in reporting year

Underway

Please explain target coverage and identify any exclusions

The target covers 100% of Linde’s reported Scope 1 + 2 emissions. The boundary for the target is aligned with our environmental reporting for consolidated entities, meaning the only exclusions are small sales office that consume small amounts of electricity and that are not relevant to Linde’s overall footprint. As described in C6.4, emissions from these sites are less than 1% of Linde’s total energy consumption and are therefore considered de minimis.

Plan for achieving target, and progress made to the end of the reporting year

Linde has a climate transition plan that outlines how the company will achieve this target. For example, Linde plans to have its major H2 facilities equipped with carbon capture and storage (CCS) by the end of the decade.

As of the end of 2022, the first year of this target, Linde has progressed very well, achieving 2.8% reduction in absolute GHG emissions.

Example of emissions reduction initiatives which contributed most to progress made on target : Renewable energy consumption increased in 2022 by 1TWh, leading to a decrease in Scope 2 emissions.

List the emissions reduction initiatives which contributed most to achieving this target

C4.2

(C4.2) Did you have any other climate-related targets that were active in the reporting year?

Net-zero target(s)

C4.2c

(C4.2c) Provide details of your net-zero target(s).

Target reference number

NZ1

Target coverage

Company-wide

Absolute/intensity emission target(s) linked to this net-zero target

Abs1

Target year for achieving net zero

2050

Is this a science-based target?

No, but we are reporting another target that is science-based

Please explain target coverage and identify any exclusions

The target covers scope 1 and 2 emissions for all entities included into Linde's reporting boundaries. The target is company wide with a base year of 2021.

Do you intend to neutralize any unabated emissions with permanent carbon removals at the target year?

Yes

Planned milestones and/or near-term investments for neutralization at target year

Linde developed this target based on scenario analysis and looking at industry-specific developments and possible GHG trajectories. The target depends on specific assumptions on future policy and regulatory developments, as well as the greening of the grid till 2050 (sufficient worldwide investments in renewable power supply).

The latest IEA Energy Technology Paper from 2020 outlines the details of a Sustainable Development Scenario which is in line with well-below 2 degrees. In this scenario each industry is allocated a specific CO2 budget.

Linde‘s 2050 climate neutrality ambition is based upon IEA’s scenario analysis, as described in its latest 2020 ETP paper. This well-below 2 degrees Sustainable Development Scenario (SDS) recognized that the chemical sector as a whole is one that is hard to abate and projects the GHG trajectory for this industry as declining after 2030, reaching net zero after 2070. Linde’s trajectory foresees a much earlier decline in absolute emissions, reaching climate neutrality by 2050. Analysis shows that this trajectory equates to an average decline of 4 percent of emissions per year, as compared to business-as-usual emissions. Therefore, Linde considers its 2050 net zero goal to be in line with the global goal to limit warming to 1.5 degrees.

Milestones:
- 35% GHG intensity reduction per EBITDA till 2028. This is a managed target with several operational sub-targets to improve

energy and GHG intensity till 2028.
- 35% absolute reduction in scope 1 and 2 emissions till 2035. This managed target is intended to be reached by e.g. tripling the amount of low-carbon energy sourced till 2035, and having most large hyco production plants equipped with carbon capture features by the end of this decade. Linde further plans to expand the usage of renewable feedstock as well as its offer of low-carbon products, like Linde's product line "Linde Green".
Milestones between 2035 and 2050 include the transition of Linde's fleet to zero emissions as well as reaching 100% renewable/low-carbon energy sourcing.

With this target Linde plans to reach net zero emissions by 2050 with a small amount of emissions which will need to be neutralized by "negative emissions technology". Linde thereby assumes most impact from technological carbon dioxide removals like carbon capture from effluents or bioenergy utilization in combination with carbon capture and storage.

Planned actions to mitigate emissions beyond your value chain (optional)

Linde has started to collect supplier-specific emissions data for its products procured and gaining a better understanding of the specific scope 3 impact from its upstream value chain. As per its Supplier Code of Conduct Linde requests its suppliers to contribute to Linde's climate change targets, thus Linde considers to align with individual suppliers on GHG reduction measures and targets in the future.

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	0
To be implemented*	0	0
Implementation commenced*	407	423,000
Implemented*	1,444	630,000
Not to be implemented	0	0

C4.3b

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

Initiative category & Initiative type

Energy efficiency in production processes

Process optimization

Estimated annual CO2e savings (metric tonnes CO2e)

347,000

Scope(s) or Scope 3 category(ies) where emissions savings occur

Scope 1

Scope 2 (market-based)

Voluntary/Mandatory

Voluntary

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

50,000,000

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

23,800,000

Payback period

1-3 years

Estimated lifetime of the initiative

Ongoing

Comment

This includes 435 voluntary projects completed in 2022, providing permanent improvements to energy requirements for turbines, compressors, fans, and other primary process equipment, improvement to heat transfer efficiency and control equipment for process efficiency and reliability optimization or energy requirements for turbines, compressors, fans, and other primary process equipment, improvement to heat transfer efficiency and control equipment for process efficiency and reliability optimization, as well as projects providing permanent reduction in power consumption for lighting retrofits, HVAC controls and building power improvements like installation of solar panels

The field payback period indicates the average payback period for projects that need some investments. For several projects investments are not required to realize the savings (e.g., improvement of procedures which do not need any changes in equipment).
Details provided above are for projects which have been fully implemented in the reporting year. There were additional monetary savings and savings in CO2e realized in 2022 from projects which are not yet completed.

Initiative category & Initiative type

Waste reduction and material circularity
Waste reduction

Estimated annual CO2e savings (metric tonnes CO2e)

2

Scope(s) or Scope 3 category(ies) where emissions savings occur

Scope 1
Scope 2 (market-based)

Voluntary/Mandatory

Voluntary

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

47,000

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

300,000

Payback period

4-10 years

Estimated lifetime of the initiative

Ongoing

Comment

3 projects were implemented in 2022 - including waste recovery, innovatively revising business, office and supply chain processes to reduce non-product utilities, secure alternative raw material sources for lower internal process energy consumption, lower power use for equipment maintenance, and similar items. The field payback period indicates the average payback period for projects that actually need some investments. For several projects, no investment is needed to realize the savings (e.g., changes to standard operating procedures that do not require new equipment).
Details provided above are for projects which have been fully implemented in the reporting year. There were additional monetary savings and savings in CO2e realized in 2022 from projects which are not yet completed.

Initiative category & Initiative type

Transportation
Company fleet vehicle efficiency

Estimated annual CO2e savings (metric tonnes CO2e)
109,000

Scope(s) or Scope 3 category(ies) where emissions savings occur
Scope 1

Voluntary/Mandatory
Voluntary

Annual monetary savings (unit currency – as specified in C0.4)
64,000,000

Investment required (unit currency – as specified in C0.4)
6,000,000

Payback period
1-3 years

Estimated lifetime of the initiative
Ongoing

Comment
876 voluntary projects were implemented in 2022, providing permanent reduction in diesel and gasoline use and corresponding GHG emissions from fuel efficiency or route efficiency programs, onsite tank size optimization, trailer size optimization and track engine modifications to maximize fuel economy. The field payback period indicates the average payback period for projects that need some investments. For several projects investments are not required to realize the savings (e.g., improvement of procedures, such as transport routes, which do not need any changes in equipment).
Details provided above are for projects which have been fully implemented in the

reporting year. There were additional monetary savings and savings in CO2e realized in 2022 from projects which are not yet completed.

Initiative category & Initiative type

Fugitive emissions reductions

Other, please specify

various projects reducing transfers, increasing process efficiency, system integrity and refrigerant replacements

Estimated annual CO2e savings (metric tonnes CO2e)

171,000

Scope(s) or Scope 3 category(ies) where emissions savings occur

Scope 1

Voluntary/Mandatory

Voluntary

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

12,000,000

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

2,600,000

Payback period

1-3 years

Estimated lifetime of the initiative

Ongoing

Comment

84 projects were implemented in 2022 which reduced product CO2 and ODS emissions through reducing transfers, process efficiency, system integrity and refrigerant

replacements. The field payback period indicates the average payback period for projects that actually need some investments. For several projects investments are not required to realize the savings (e.g., improvement of procedures which do not need any changes in equipment).
Details provided above are for projects which have been fully implemented in the reporting year. There were additional monetary savings and savings in CO2e realized in 2022 from projects which are not yet completed.

Initiative category & Initiative type

Company policy or behavioral change

Other, please specify

includes a number of initiatives, including procedure changes, efficiency improvements, change in procurement practices, supply chain engagement, and/or customer engagement- all with increased efficiency, cost reduction and/or sustainability benefit.

Estimated annual CO2e savings (metric tonnes CO2e)

2,000

Scope(s) or Scope 3 category(ies) where emissions savings occur

Scope 1

Scope 2 (market-based)

Voluntary/Mandatory

Voluntary

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

5,000,000

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

300,000

Payback period

4-10 years

Estimated lifetime of the initiative

Ongoing

Comment

46 projects were implemented in 2022 which reduced product CO2 through procedure change, efficiency improvements, change in procurement practices, supply chain engagement, and/or customer engagement- all with increased efficiency, cost reduction and/or sustainability benefit.
Details provided above are for projects which have been fully implemented in the reporting year. There were additional monetary savings and savings in CO2e realized in 2022 from projects which are not yet completed.

C4.3c

(C4.3c) What methods do you use to drive investment in emissions reduction activities?

Method	Comment
Financial optimization calculations	Inputs, especially energy, are a significant portion of Linde's cost stack, therefore savings in energy or other raw or process materials (e.g., water) generally lead to a reduction in Linde's cost = financial optimization. Linde's sustainable productivity organization measures the environmental savings in our productivity work along with the financial benefits such optimization measures bring. As part of Linde's SD 2028 sustainable development targets, Linde has defined a target to achieve $1.3 billion savings from sustainable productivity initiatives. Linde's sustainable productivity target measures productivity projects that bring financial and environmental savings in all our EKPI areas, including savings in energy and GHG. All of Linde's new SD targets are managed targets, that means they are tracked periodically by management including annual MC and board oversight and are part of financial management incentives. This target therefore additionally drives management engagement in this area. In 2022, energy and GHG efficiency projects resulted in savings of more than $215 million, and more than 1,000,000 MT

	CO2e avoided (counting both implemented projects and projects where implementation has commenced but full benefits will accrue in 2022). These projects contributed to a reduction in electricity use as well as reductions in natural gas and fuel use.

C4.5

(C4.5) Do you classify any of your existing goods and/or services as low-carbon products?

Yes

C4.5a

(C4.5a) Provide details of your products and/or services that you classify as low-carbon products.

Level of aggregation

Product or service

Taxonomy used to classify product(s) or service(s) as low-carbon

Other, please specify

Guidelines from the chemical industry for accounting for and reporting greenhouse gas (GHG) emissions avoided along the value chain based on comparative studies," ICCA October, 2003 (updated 2017)

Type of product(s) or service(s)

Hydrogen

Other, please specify

Hydrogen used to make ultra-low sulfur diesel fuel (ULSD)

Description of product(s) or service(s)

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.

The application of Linde's hydrogen for desulphurization in 2022 led to CO2 savings of 63,400,000 tons.

Linde currently calculates its carbon productivity (emissions avoided by usage of Linde's products) for five signature products, for specific applications, in five markets (see further rows).
Total revenues for those 5 signature products represented 8.66% of Linde revenues in 2022 and led to 90 million MT CO2e avoided which is 2.3 times more than all scope 1 and 2 emitted by Linde's operations.

See "Addressing the Avoided Emissions Challenge: Guidelines from the chemical industry for accounting for and reporting greenhouse gas (GHG) emissions avoided along the value chain based on comparative studies," ICCA October, 2003 (updated 2017), at: https://icca-chem.org/wp-content/uploads/2020/05/ICCA-2017_ Addressing_guidelines_WEB.pdf.

Have you estimated the avoided emissions of this low-carbon product(s) or service(s)

Yes

Methodology used to calculate avoided emissions

Addressing the Avoided Emissions Challenge- Chemicals sector

Life cycle stage(s) covered for the low-carbon product(s) or services(s)

Use stage

Functional unit used

Usage of 1,000 gallons of ULSD fuel in vehicles equipped with particle filters vs. usage of 1,000 gallons of traditional fuel

Reference product/service or baseline scenario used

The baseline scenario is using standard diesel fuel in cars/trucks compared to ultra-low sulfur diesel fuel produced by the application of hydrogen.

Life cycle stage(s) covered for the reference product/service or baseline scenario

Use stage

Estimated avoided emissions (metric tons CO2e per functional unit) compared to reference product/service or baseline scenario

1,951

Explain your calculation of avoided emissions, including any assumptions

Hydrogen has proven effective in the desulfurization of diesel fuel. Reductions in sulfur and aromatic levels achieved by the use of hydrogen in hydrotreaters at refineries has led to lower black carbon emissions and reductions in equivalent carbon dioxide emissions in diesel engines that use particulate filters. The CO2e from the production of hydrogen used for hydrotreating is 15 times lower than CO2e enabled by ultra-low sulfur diesel fuel.
Our calculation was based on the following data sources and assumptions:
Total hydrogen supplied to all industries in 2022;
The percentage of supplied hydrogen to refineries is 32% in Americas and 12,2% in EMEA and APAC;
The percentage of vehicles using DPF is 100% in Americas, 10% in APAC, and 95% in EMEA;
CO2 avoided is 364 metric ton / million standard cubic feet of hydrogen
Detailed calculation:
A. Carbon Black emissions: 1.2 grams / gal
B. GWP20: 2200
C. CO2e from Carbon Black emissions (C = A x B): 2,640 grams / gal
D. Organic Carbon emissions: -100
E. Net emissions (E = C - D): 2,540 grams / gal
F. Carbon Black Removal by DPF: 90%
G. DPM removed by DPF (G = E x F): 2,286 CO2e grams / gal
H. DPF fuel efficiency penalty: -205.8 CO2e grams / gal
I. Net reduction (I = G + H): 2,080.2 grams / gal
J. CO2 emission from H2: 129.0 (22.6 CO2 g / scf of H2 x 240 H2 required from H2 plant (baln internal) / 42 Gallons / barrel)
K. CO2 avoided / CO2 emitted from H2 usage ratio (K = I / J): 16.1
L. Emission: 22.6 MT / 1 MMSCFD
M. CO2 avoided (M = K x L): 364 MT / 1 MMSCFD

Further details please see at:
https://www.linde.com/-/media/linde/merger/documents/sustainable-development/the-role-of-hydrogen-in-removing-sulfur-from-liquid-fuels-w-disclaimer-r1.pdf?la=en

Revenue generated from low-carbon product(s) or service(s) as % of total revenue in the reporting year

8.66

Level of aggregation

Product or service

Taxonomy used to classify product(s) or service(s) as low-carbon

Other, please specify

Guidelines from the chemical industry for accounting for and reporting greenhouse gas (GHG) emissions avoided along the value chain based on comparative studies," ICCA October, 2003 (updated 2017)

Type of product(s) or service(s)

Other

Other, please specify

Oxygen used to optimize combustion processes (Oxyfuel technology)

Description of product(s) or service(s)

Oxyfuel combustion can make a valuable contribution to improving the carbon balance of fossil fuel combustion. With this process, coal is combusted in an atmosphere consisting of pure oxygen and carbon dioxide (CO_2). This purer mixture burns at a higher temperature than natural air, thus increasing the efficiency of the combustion process. Additionally, the resultant flue gas is not diluted by nitrogen, but primarily consists of CO_2 and water vapour. The flue gas stream is therefore smaller and easier to handle. This vapour is easily condensable, leaving a highly concentrated CO_2 stream which can be compressed and stored.

Linde's oxyfuel technology is especially applied in steel making. The blast furnace hereby requires large amounts of coke as a fuel. In the process high levels of oxygen are added to the hot blast, increasing productivity of the combustion process. The energy saving thus happens during use of the oxygen/oxyfuel technology (use phase).

CO_2 savings by applying Linde's oxyfuel technology amounted to 10,300,000 tons in 2022.

https://www.linde-engineering.com/en/process-plants/co2-plants/carbon-capture/oxyfuel/index.html

Linde currently calculates carbon productivity (emissions avoided by usage of Linde's products) for five signature products for specific applications. Total revenues for those products represented 8.66% in 2022 and led to 90 million MT CO2e avoided, 2.3 times more than all scope 1 and 2 emitted by Linde's operations.

Have you estimated the avoided emissions of this low-carbon product(s) or service(s)

Yes

Methodology used to calculate avoided emissions

Addressing the Avoided Emissions Challenge- Chemicals sector

Life cycle stage(s) covered for the low-carbon product(s) or services(s)

Use stage

Functional unit used

Usage of 1 metric ton of oxygen in blast furnace (blast oxygen enrichment)

Reference product/service or baseline scenario used

Operation of blast furnace without oxyfuel technology

Life cycle stage(s) covered for the reference product/service or baseline scenario

Use stage

Estimated avoided emissions (metric tons CO2e per functional unit) compared to reference product/service or baseline scenario

1.57

Explain your calculation of avoided emissions, including any assumptions

Our calculation of avoided emissions was based on the difference in emissions during operation of a blast furnace with oxyfuel technology and without. Since oxygen enrichment of the hot blast combined with secondary fuel injection lowers coke rate, it also leads to lower production of coke breeze and coke oven derived electricity.

The estimate of the CO2 emission reduction was based on the following data sources and assumptions:

Total oxygen supplied to steel industry in 2022;

Percentage of oxygen to Integrated Steel Mills by country (it varies by region, e.g. 75% in EMEA, 98% in APAC);
Average CO2 saved in blast furnace 1.57 metric ton / 1 metric ton oxygen

Further details please see at:
https://www.linde.com/-/media/linde/merger/documents/sustainable-development/praxair-white-paper-impact-of-blast-oxygen-enrichment-w-disclaimer-r1.pdf?la=en

Revenue generated from low-carbon product(s) or service(s) as % of total revenue in the reporting year

8.66

Level of aggregation

Product or service

Taxonomy used to classify product(s) or service(s) as low-carbon

Other, please specify

Guidelines from the chemical industry for accounting for and reporting greenhouse gas (GHG) emissions avoided along the value chain based on comparative studies," ICCA October, 2003 (updated 2017)

Type of product(s) or service(s)

Other

Other, please specify

Krypton used to insulate thermal windows

Description of product(s) or service(s)

Krypton is a product/gas of the air separation process. When using krypton for double pane windows (filling the space between 2 panes) this can drastically increase the thermal barrier and therefore window insolation. Application of Linde's krypton for insulation of windows led to CO2 savings of 0.9 million tons in 2022.

CO2 avoided by use of krypton for windows insulation was 900,000 tons in 2022.

see:

https://www.linde.com/-/media/linde/merger/documents/sustainable-development/praxair-krypton-for-window-insulation-w-disclaimer-r1.pdf?la=en

Linde currently calculates carbon productivity (emissions avoided by usage of Linde's products) for five signature products for specific applications. Total revenues for those 5 products represented 8.66% in 2022 and led to 90 million MT CO2e avoided, 2.3 times more than all scope 1 and 2 emitted by Linde's operations.

Have you estimated the avoided emissions of this low-carbon product(s) or service(s)

Yes

Methodology used to calculate avoided emissions

Addressing the Avoided Emissions Challenge- Chemicals sector

Life cycle stage(s) covered for the low-carbon product(s) or services(s)

Use stage

Functional unit used

1 square foot of window space filled with krypton

Reference product/service or baseline scenario used

Window without krypton used for insulation

Life cycle stage(s) covered for the reference product/service or baseline scenario

Use stage

Estimated avoided emissions (metric tons CO2e per functional unit) compared to reference product/service or baseline scenario

0.257

Explain your calculation of avoided emissions, including any assumptions

Our calculation is based on a study of window energy consumption in the United States, utilizing state-by-state data available from Energy Information Administration and various housing studies. This study was performed by Linde and included state specific data on window area for different thermal efficiency ratings and CO2 emission rates for different thermal efficiencies based on state

energy production.

Calculation of the environmental benefit of krypton sales to the window market is based on the following assumptions:
All Krypton sold to window manufacturers was utilized in windows that replaced R1 or R2 windows in regions similar to the Northern Energy Star Regions;
On average, windows manufactured with krypton for filling have an R value of five;
There is a 25% loss of krypton during the window filling process;
CO2 emission rate for a given state is the same for heating as for non-heating energy utilization;
Europe's energy saving profile is the same as the US (CO2 emission per square foot of window at a given R value and climate is the same for Europe as it is for the US);
Window life is 30 years.

Further details please see at:
https://www.linde.com/-/media/linde/merger/documents/sustainable-development/praxair-krypton-for-window-insulation-w-disclaimer-r1.pdf?la=en

Revenue generated from low-carbon product(s) or service(s) as % of total revenue in the reporting year

8.66

Level of aggregation

Product or service

Taxonomy used to classify product(s) or service(s) as low-carbon

Other, please specify

Guidelines from the chemical industry for accounting for and reporting greenhouse gas (GHG) emissions avoided along the value chain based on comparative studies," ICCA October, 2003 (updated 2017)

Type of product(s) or service(s)

Other

Other, please specify

Argon used in welding

Description of product(s) or service(s)

Argon, CO2 and mixtures thereof in gaseous stage can be used for different gas shielded arc welding applications. Their main purpose is to enable a controllable stable arc and protect the molten metal against degradation from contact with ambient air. CO2 is often perceived in the industry as “cheapest shielding gas”, good enough to cover the metallic molten pool. Where feasible, Linde always encourages users to substitute pure CO2 by Argon-CO2 blends and high CO2 by low CO2 containing blends. Such optimizations offer diverse benefits, e.g.:
- Technical: less spatters, less oxidation of alloying elements.
- Economical: productivity increase
- Occupational Safety and Health risk mitigation: lower fume emission rates
From environmental viewpoint the welding gases are vented to the atmosphere once they fulfilled their role in the arc zone. For the user of welding gases the amount of released CO2 is considered Scope 1 fugitive emission, according to Greenhouse Gas Inventory Guidance: Direct Fugitive Emissions from Refrigeration, Air Conditioning, Fire Suppression, and Industrial Gases (epa.gov)
Replacing CO2 by Argon reduces scope 1 emissions at users, every ton CO2 replaced by Argon for welding translates into 1 tone avoided emission on the user’s balance card.

CO2 savings from using Linde's argon for welding in 2022 were 1.1 million tons CO2.

Total revenues for Linde's 5 signature products incl. argon represented 8.66% in 2022.

Have you estimated the avoided emissions of this low-carbon product(s) or service(s)

Yes

Methodology used to calculate avoided emissions

Addressing the Avoided Emissions Challenge- Chemicals sector

Life cycle stage(s) covered for the low-carbon product(s) or services(s)

Use stage

Functional unit used

All welding activities (in all industries) globally that use argon instead of CO2 for welding

Reference product/service or baseline scenario used

Consumption of CO2 for welding

Life cycle stage(s) covered for the reference product/service or baseline scenario

Use stage

Estimated avoided emissions (metric tons CO2e per functional unit) compared to reference product/service or baseline scenario

1,055,000

Explain your calculation of avoided emissions, including any assumptions

Since argon can be alternatively used in welding applications instead of CO2, which leads to CO2 avoidance, we calculated how much carbon dioxide was substituted by argon in welding processes.
Our calculation was based on the following data sources and assumptions:
Total argon supplied to all industries in 2022;
Based on internal analysis and marketing data we estimate
- the percentage of supplied argon for all welding applications as 61% of the total volume
- the percentage of argon that replaced CO2 in welding applications as 80% from volumes supplied for welding. (Remaining 20% of argon is strictly required in welding applications).

Revenue generated from low-carbon product(s) or service(s) as % of total revenue in the reporting year

8.66

Level of aggregation

Product or service

Taxonomy used to classify product(s) or service(s) as low-carbon

Other, please specify

Guidelines from the chemical industry for accounting for and reporting greenhouse gas (GHG) emissions avoided along the value chain based on comparative studies," ICCA October, 2003 (updated 2017)

Type of product(s) or service(s)

Other

Other, please specify

Thermal barrier coatings for industrial gas turbine and jet engine efficiency

Description of product(s) or service(s)

Linde's subsidiary PST is producing specialty coatings for a range of products, e.g. gas turbines in industry applications, aviation or aerospace.

Total CO2 avoided by use of Linde's thermal barrier coatings in 2022 amounted to 14,200,000 tons.

https://www.linde.com/-/media/linde/merger/documents/sustainable-development/white-paper-px-thermal-barrier-coatings-reduced-co2-w-disclaimer-r1.pdf?la=en

Linde currently calculates carbon productivity (emissions avoided by usage of Linde's products) for five signature products for specific applications. Total revenues for those 5 products represented 8.66% in 2022 and led to 90 million MT CO2e avoided, 2.3 times more than all scope 1 and 2 emitted by Linde's operations.

Have you estimated the avoided emissions of this low-carbon product(s) or service(s)

Yes

Methodology used to calculate avoided emissions

Addressing the Avoided Emissions Challenge- Chemicals sector

Life cycle stage(s) covered for the low-carbon product(s) or services(s)

Use stage

Functional unit used

Operation of 1 thermal barrier coated industrial gas turbine or 1 thermal barrier coated aviation engine

Reference product/service or baseline scenario used

CO2 consumption of gas turbine and aviation engine without thermal barrier coatings

Life cycle stage(s) covered for the reference product/service or baseline scenario

Use stage

Estimated avoided emissions (metric tons CO2e per functional unit) compared to reference product/service or baseline scenario

893

Explain your calculation of avoided emissions, including any assumptions

The estimate of aircraft Gas Turbine CO2 emissions reduction is based on the following data sources and key assumptions:
According to Statista data, 25,578 commercial jet aircraft with more 30 seats were in service worldwide in 2022. (This number excludes turbo props, biz jets ad military aircraft)
Based on the airframe size and model year internal marketing data we estimate the share of aircraft with TBC technology in the hot section to 90%. This can include TBC's on HPT airfoils, vanes, combustors and shrouds.
The average distance travelled per airplane annually in 2022 is 1,213,451 miles with an average CO2 emission of 53lbs per mile.
The average efficiency savings by TBC technology are 2.6% (The improvement in gas turbine efficiency is possible by TBCs as a function of gas turbine pressure ratio and temperature differential across the coating. 2.6% corresponds to a pressure ratio of 30 and a differential temperature of 150 deg. C.).
Based on PST internal marketing data the current PST share in WW advanced TBC coating technology of aero engines is 58%.

The estimate of the CO2 emission reduction for the worldwide installation of industrial gas turbines is based on the following data sources and assumptions:
Based on publications from the main power generation gas turbine producers – GE, Alstom, Siemens, Ansaldo, Mitsubishi, Solar Turbines and Hitachi; the total number of turbines in 2022 is approx. 22,215 (89% operated by natural gas and 11% by petroleum).
The analysis of the worldwide power generation gas turbine installation base yields 46MW as the median power of a turbine.
Assuming 3,500 operation hours p.a. we estimate the annually generated electric energy by power generation gas turbines at 3.224 trillion kWh.
For the calculation of the related CO2 emission savings we use naturals gas as fuel basis with a consumption of 7.43 cft/kWh and petroleum with a consumption of 0.07 gal per kWh.
For the TBC efficiency related fuel savings we assume a number of 2,6%, as described before.
Furthermore, based on internal marketing data we estimate the percentage of gas turbines coated with PST TBC technology as 8% of the WW volume.

Further details please see at:
https://www.linde.com/-/media/linde/merger/documents/sustainable-development/white-paper-px-thermal-barrier-coatings-reduced-co2-w-disclaimer-r1.pdf?la=en

Revenue generated from low-carbon product(s) or service(s) as % of total revenue in the reporting year

8.66

C5. Emissions methodology

C5.1

(C5.1) Is this your first year of reporting emissions data to CDP?

No

C5.1a

(C5.1a) Has your organization undergone any structural changes in the reporting year, or are any previous structural changes being accounted for in this disclosure of emissions data?

Row 1

Has there been a structural change?

Yes, a divestment

Name of organization(s) acquired, divested from, or merged with

Russian operations

Details of structural change(s), including completion dates

For information on the deconsolidation of Russian operations as of June 30, 2022, please see the company's 10k filing, Note 3,

C5.1b

(C5.1b) Has your emissions accounting methodology, boundary, and/or reporting year definition changed in the reporting year?

	Change(s) in methodology, boundary, and/or reporting year definition?	Details of methodology, boundary, and/or reporting year definition change(s)
Row 1	Yes, a change in boundary	

C5.1c

(C5.1c) Have your organization's base year emissions and past years' emissions been recalculated as a result of any changes or errors reported in C5.1a and/or C5.1b?

	Base year recalculation	Base year emissions recalculation policy, including significance threshold	Past years' recalculation
Row 1	No, because the impact does not meet our significance threshold	Threshold: Changes that drive an increase/decrease in emissions of greater than 5% Linde's GHG Recalculation Policy is available on the company's website: Linde has used 2018 as the base year for our greenhouse gas (GHG) emission calculations related to SD2028 targets and 2021 as the base year for our greenhouse gas (GHG) emission calculations related to the 2035 target and 2050 climate neutrality ambition. GHG emissions for scope 1 and 2 are per the audited values, as published in its 2022 SD Report, and this inventory is annually presented in each SD Report. In order to accurately track progress towards our GHG intensity targets, we will adjust our base year emissions inventory to account for significant changes, described below, if the changes drive an increase/decrease in emissions of greater than 5%, in accordance with the GHG Protocol guidance Tracking Emissions Over Time. We may also choose to recalculate our baseline for changes less than 5%, especially when structural changes occur.	

		Structural changes Structural changes that significantly impact our base year GHG emissions and may trigger the adjustment of the baseline include acquisitions, divestitures or mergers. When significant structural changes occur in the middle of a year, the current and baseline year will be recalculated for the entire year. In the event of an acquisition, in order to ensure that full and accurate data are available, recalculation may be carried out up to one year after the structural change has occurred. Calculation methodology changes Methodology changes that significantly impact our base year GHG emissions and may trigger the adjustment of the baseline include updated emission factors, improved data access or updated calculation methods or protocols. Data errors or other changes We will recalculate our emissions in the event of discovery of a significant error, or a number of cumulative errors that together are significant. Significant change in our organizational or operations boundaries may likewise result in the adjustment of the baseline. Timeline Baseline adjustments will occur at the end of each fiscal year if we identify any changes described above that have occurred in the reporting period which may require us to recalculate our base year. We publicly restate our baseline when we report the latest carbon footprint, typically the next annual sustainability report, which covers the previous financial year.	

C5.2

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

Scope 1

Base year start

January 1, 2018

Base year end

December 31, 2018

Base year emissions (metric tons CO2e)

16,872,000

Comment

Linde has defined 2018 as the base year for its emissions accounting and it is also the base year for its 10-year managed climate change targets. 2018 marks the year of completion of the merger between Praxair Inc. (now known as Linde Inc.) and Linde AG (now known as Linde GmbH) which was effective October 2018. The base year figure provided here is a pro forma figure for the full year of 2018 for the merged organization (final organizational structure after merger, excluding divestitures). The 2018 scope 1 pro forma figure has been externally verified. It follows the same reporting standards, methodologies and boundaries as defined for the new Linde organization in 2019.

Scope 2 (location-based)

Base year start

January 1, 2018

Base year end

December 31, 2018

Base year emissions (metric tons CO2e)

Comment

Linde has defined 2018 as the base year for its emissions accounting and it is also the base year for its 10-year managed climate change targets. The year 2018 marks the year of completion of the merger effective October 2018. See https://www.linde.com/about-linde/corporate-heritage .

Linde uses a market-based Scope 2 figure for measuring progress against its GHG targets. Therefore, Linde did not calculate a 2018 pro forma value for scope 2 using the location-based approach. A location-based scope 2 figure is reported from financial year 2019 onwards.

Scope 2 (market-based)

Base year start

January 1, 2018

Base year end

December 31, 2018

Base year emissions (metric tons CO2e)

23,518,000

Comment

Linde has defined 2018 as the base year for its emissions accounting and it is also the base year for its 10-year managed climate change targets. The year 2018 marks the year of completion of the merger effective October 2018. See https://www.linde.com/about-linde/corporate-heritage .

The base year figure is a pro forma figure for the full year of 2018 for the merged organization.

The number is different from last year's reported market-based scope 2 base year number, due to a change in market-based emissions factors and reclassification of compressed air purchases (>5% deviation from original baseline year value). The restatement of market-based scope 2 number has been externally assured.

Scope 3 category 1: Purchased goods and services

Base year start

January 1, 2018

Base year end

December 31, 2018

Base year emissions (metric tons CO2e)

1,540,000

Comment

Linde plc first reported its scope 3 from purchased goods and services in 2019. The basis was purchased natural gas feedstock for Linde plc's combined operations. The 2018 baseline value is a pro-forma and pro-rated value based on sales revenues in 2018 (revenues were approximately at the same level in 2018 and 2019).

Currently, Linde has defined 2018 as baseline year for its scope 3 emissions, in line with scope 1 and 2. There are no targets set for scope 3. The company has made a commitment to set Scope 3 targets by 2025-2026; at that time, once Linde defines specific scope 3 targets, the company will declare the new baseline year.

Scope 3 category 2: Capital goods

Base year start

January 1, 2018

Base year end

December 31, 2018

Base year emissions (metric tons CO2e)

965,000

Comment

This value is a pro-forma summary value calculated from data for the 2 legacy companies Praxair Inc. (now known as Linde Inc.) and Linde AG (now known as Linde GmbH), which is based on the available data and calculations for this category at the time of the merger.

Currently, Linde has defined 2018 as baseline year for its scope 3 emissions, in line with scope 1 and 2. There are no targets set for scope 3. The company has made a commitment to set Scope 3 targets by 2025-2026; at that time, once Linde defines specific scope 3 targets, the company will declare the new baseline year.

Scope 3 category 3: Fuel-and-energy-related activities (not included in Scope 1 or 2)

Base year start

January 1, 2018

Base year end

December 31, 2018

Base year emissions (metric tons CO2e)

5,060,000

Comment

This value is a pro-forma summary value calculated from data for the two legacy companies prior to the merger, which is based on the available data and calculations for this category at the time of the merger. Calculation methodologies were adjusted and harmonized for 2019 reporting.

Currently, Linde has defined 2018 as baseline year for its scope 3 emissions, in line with scope 1 and 2. There are no targets set for scope 3. The company has made a commitment to set Scope 3 targets by 2025-2026; at that time, once Linde defines specific scope 3 targets, the company will declare the new baseline year.

Scope 3 category 4: Upstream transportation and distribution

Base year start

January 1, 2018

Base year end

December 31, 2018

Base year emissions (metric tons CO2e)

661,000

Comment

This value is a pro-forma summary value calculated from data for the legacy companies at the time of the merger, which is based on the available data and calculations for this category at the time of the merger.

Currently, Linde has defined 2018 as baseline year for its scope 3 emissions, in line with scope 1 and 2. There are no targets set for scope 3. The company has made a commitment to set Scope 3 targets by 2025-2026; at that time, once Linde defines specific scope 3 targets, the company will declare the new baseline year.

Scope 3 category 5: Waste generated in operations

Base year start

January 1, 2022

Base year end

December 31, 2022

Base year emissions (metric tons CO2e)

14,000

Comment

This value is insignificant to Linde (<1% of scope 3) but calculated.

Linde has screened and undergone a process of estimating Scope 3 emissions and has committed to baselining and refining methodologies in order to set targets by 2025–2026. This category is reported for the first time, based on these continued efforts toward full Scope 3 reporting.

As such, Linde has defined 2022 as baseline year for this scope 3 emissions category, as the first year of the reporting. There are no targets set for scope 3. The company has made a commitment to set Scope 3 targets by 2025-2026; at that time, once Linde defines specific scope 3 targets, the company will declare the new baseline year, if appropriate.

Scope 3 category 6: Business travel

Base year start

January 1, 2021

Base year end

December 31, 2021

Base year emissions (metric tons CO2e)

21,000

Comment

This value is insignificant to Linde (<1% of scope 3). However, Linde has previously reported the value and reports on this number from 2021 onwards.

Linde has screened and undergone a process of estimating Scope 3 emissions and has committed to baselining and refining methodologies in order to set targets by 2025–2026. This category is reported again, based on these continued efforts toward full Scope 3 reporting.

As such, Linde has defined 2022 as baseline year for this scope 3 emissions category, as the first year of the reporting. There are no targets set for scope 3. The company has made a commitment to set Scope 3 targets by 2025-2026; at that time, once Linde defines specific scope 3 targets, the company will declare the new baseline year, if appropriate.

Scope 3 category 7: Employee commuting

Base year start

January 1, 2022

Base year end

December 31, 2022

Base year emissions (metric tons CO2e)

105,000

Comment

This value is insignificant to Linde (<1% of scope 3) but calculated.

Linde has screened and undergone a process of estimating Scope 3 emissions and has committed to baselining and refining methodologies in order to set targets by 2025–2026. This category is reported for the first time, based on these continued efforts toward full Scope 3 reporting.

As such, Linde has defined 2022 as baseline year for this scope 3 emissions category, as the first year of the reporting. There are no targets set for scope 3. The company has made a commitment to set Scope 3 targets by 2025-2026; at that time, once Linde defines specific scope 3 targets, the company will declare the new baseline year, if appropriate.

Scope 3 category 8: Upstream leased assets

Base year start

January 1, 2022

Base year end

December 31, 2022

Base year emissions (metric tons CO2e)

65,000

Comment

This value is insignificant to Linde (<1% of scope 3) but calculated.

Linde has screened and undergone a process of estimating Scope 3 emissions and has committed to baselining and refining methodologies in order to set targets by 2025–2026. This category is reported for the first time, based on these continued efforts toward full Scope 3 reporting.

As such, Linde has defined 2022 as baseline year for this scope 3 emissions category, as the first year of the reporting. There are no targets set for scope 3. The company has made a commitment to set Scope 3 targets by 2025-2026; at that time, once Linde defines specific scope 3 targets, the company will declare the new baseline year, if appropriate.

Scope 3 category 9: Downstream transportation and distribution

Base year start

January 1, 2022

Base year end

December 31, 2022

Base year emissions (metric tons CO2e)

10,000

Comment

This value is insignificant to Linde (<1% of scope 3) but calculated.

Linde has screened and undergone a process of estimating Scope 3 emissions and has committed to baselining and refining methodologies in order to set targets by 2025–2026. This category is reported for the first time, based on these continued efforts toward full Scope 3 reporting.

As such, Linde has defined 2022 as baseline year for this scope 3 emissions category, as the first year of the reporting. There are no targets set for scope 3. The company has made a commitment to set Scope 3 targets by 2025-2026; at that time, once Linde defines specific scope 3 targets, the company will declare the new baseline year, if appropriate.

Scope 3 category 10: Processing of sold products

Base year start

January 1, 2022

Base year end

December 31, 2022

Base year emissions (metric tons CO2e)

1

Comment

Linde has screened and undergone a process of estimating Scope 3 emissions and has committed to baselining and refining methodologies in order to set targets by 2025–2026. This category is reported for the first time, based on these continued efforts toward full Scope 3 reporting.

As such, Linde has defined 2022 as baseline year for this scope 3 emissions category, as the first year of the reporting. There are no

targets set for scope 3. The company has made a commitment to set Scope 3 targets by 2025-2026; at that time, once Linde defines specific scope 3 targets, the company will declare the new baseline year, if appropriate.

Linde products (e.g. industrial gases or production plants) are normally not further processed by external parties before being sold by Linde. Linde produces the finished product / gas which is then sold and in most cases directly used in industrial applications, by commercial or private customers.

Due to the nature of gas products, we have combined Cat 10 and Cat 11. See value in Use of Sold Products

Linde is at the beginning of numerous value chains and provides many intermediate products with many downstream applications, each of which has a very different GHG profile. This category includes emissions from products, including flouro gases, CO2, CH4 and N2O, based on sales and assumptions for revenue and volumes, as well as assumptions on releases. Due to the nature of gas products, in many cases, the processing of sold intermediate products by third parties (i.e., manufacturers) after sale is not distinctly separate from the use; therefore, the assumptions consider these categories as combined for both Categories 10 and 11.

Scope 3 category 11: Use of sold products

Base year start

January 1, 2022

Base year end

December 31, 2022

Base year emissions (metric tons CO2e)

7,831,000

Comment

Linde has screened and undergone a process of estimating Scope 3 emissions and has committed to baselining and refining methodologies in order to set targets by 2025–2026. This category is reported for the first time, based on these continued efforts

toward full Scope 3 reporting.

As such, Linde has defined 2022 as baseline year for this scope 3 emissions category, as the first year of the reporting. There are no targets set for scope 3. The company has made a commitment to set Scope 3 targets by 2025-2026; at that time, once Linde defines specific scope 3 targets, the company will declare the new baseline year, if appropriate.

Linde is at the beginning of numerous value chains and provides many intermediate products with many downstream applications, each of which has a very different GHG profile. This category includes emissions from products, including flouro gases, CO2, CH4 and N2O, based on sales and assumptions for revenue and volumes, as well as assumptions on releases.

Linde's gases are sold to millions of customers in different industry sectors and countries for multiple uses in industry, healthcare or by private households.

Some of the gases sold are contributing to global warming when released (e.g. CO2). Sales of greenhouse gases other than CO2 (including methane, nitrous oxides, HFCs, PFCs, NF3, SF6, N2O) are extremely limited and altogether represent less than 1% of global Linde gases sales. Moreover, many customers apply abatement technologies to prevent the release of such substances which is strongly regulated in many countries worldwide.

Due to the nature of gas products, in many cases, the processing of sold intermediate products by third parties (i.e., manufacturers) after sale is not distinctly separate from the use. Despite the complexity and diversity of application, Linde has provided estimate, combined, for both Categories 10 and 11.

Scope 3 category 12: End of life treatment of sold products

Base year start

January 1, 2022

Base year end

December 31, 2022

Base year emissions (metric tons CO2e)

7,000

Comment

This value is insignificant to Linde (<1% of scope 3) but calculated.

Linde has screened and undergone a process of estimating Scope 3 emissions and has committed to baselining and refining methodologies in order to set targets by 2025–2026. This category is reported for the first time, based on these continued efforts toward full Scope 3 reporting.

As such, Linde has defined 2022 as baseline year for this scope 3 emissions category, as the first year of the reporting. There are no targets set for scope 3. The company has made a commitment to set Scope 3 targets by 2025-2026; at that time, once Linde defines specific scope 3 targets, the company will declare the new baseline year, if appropriate.

For the majority of Linde products no special treatment is requirement at the end of life. Gases are either released during usage (included in category 11) or processed and absorbed into other end products (no GHG impact). Linde's hardgoods sector (equipment sold in small stores, where tangible items would need to be recycled/treated at end of life) only represents a very small portion of revenues/inventory.

Scope 3 category 13: Downstream leased assets

Base year start

January 1, 2018

Base year end

December 31, 2018

Base year emissions (metric tons CO2e)

2,163,000

Comment

This category includes small on-site plants or ASUs rented out to the customer who are operating those sites and paying for the energy.

Currently, Linde has defined 2018 as baseline year for its scope 3 emissions, in line with scope 1 and 2. There are no targets set for scope 3. The company has made a commitment to set Scope 3 targets by 2025-2026; at that time, once Linde defines specific scope 3 targets, the company will declare the new baseline year.

Scope 3 category 14: Franchises

Base year start

January 1, 2018

Base year end

December 31, 2018

Base year emissions (metric tons CO2e)

0

Comment

This category is not applicable. Linde does not own franchises and emissions from franchises are therefore not relevant for Linde.

Scope 3 category 15: Investments

Base year start

January 1, 2018

Base year end

December 31, 2018

Base year emissions (metric tons CO2e)

4,460,000

Comment

This category includes GHG emissions from investments in companies, mainly Joint Ventures, which are not fully consolidated into Linde's Profit and Loss Statement.

Currently, Linde has defined 2018 as baseline year for its scope 3 emissions, in line with scope 1 and 2. There are no targets set for

scope 3. The company has made a commitment to set Scope 3 targets by 2025-2026; at that time, once Linde defines specific scope 3 targets, the company will declare the new baseline year.

Scope 3: Other (upstream)

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

Scope 3: Other (downstream)

Base year start

Base year end

Base year emissions (metric tons CO2e)

Comment

C5.3

(C5.3) Select the name of the standard, protocol, or methodology you have used to collect activity data and calculate emissions.

ISO 14064-1
The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard (Revised Edition)
The Greenhouse Gas Protocol: Scope 2 Guidance
The Greenhouse Gas Protocol: Corporate Value Chain (Scope 3) Standard
US EPA Mandatory Greenhouse Gas Reporting Rule
Other, please specify
California ARB Reg for Rptg of GHG Emiss

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)

16,813,000

Comment

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's reporting boundaries for eKPIs are consistent with the financial reporting boundaries and financial control definition to the greatest extent possible. Linde reports on all eKPIs for all subsidiaries, joint ventures and other holdings within its organizational boundaries whose revenues and EBIT (Earnings Before Interests and Taxes) are included in Linde's financial results. Linde does not collect eKPI data for minority holdings and other holdings which are not reporting their financials. EKPIs for joint ventures which are not fully consolidated into the Group financials (at-equity Joint Ventures) are collected but are only included in external GHG reporting under scope 3.

Methodology for reporting scope 2 emissions: Linde reports on all electricity and its resulting scope 2 emissions purchased by the company. Electricity for sites where Linde does not pay the utility bill is excluded from its reported electricity number as well as from the reported scope 2; however, it is tracked internally for operational purposes and for scope 3 reporting. The main methodology for calculating scope 2 emissions from electricity is the market-based approach, using site-specific emissions factors by plant according to supplier contracts and utility bills where available. For sites where such market-based factors are not known, Linde uses the most recent location-based factors from the IEA and EPA's eGRID factors for the U.S.

Linde also calculates Scope 2 emissions using the location-based approach, which applies IEA factors and eGRID emission factors in the U.S. The difference between market-based and location-based emissions are mostly due to certain plants where customers provide the electricity to Linde (which Linde purchases). Some of these plants have a very high market-based emission factor compared to the location-based emission factor, thus market-based scope 2 is higher than location-based.

C6.3

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

Reporting year

Scope 2, location-based

20,903,000

Scope 2, market-based (if applicable)

21,981,000

Comment

C6.4

(C6.4) Are there any sources (e.g. facilities, specific GHGs, activities, geographies, etc.) of Scope 1, Scope 2 or Scope 3 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, Scope 2, or Scope 3 emissions that are within your selected reporting boundary which are not included in your disclosure.

Source of excluded emissions

We exclude small scale offices or workshops that consume small amounts of electricity from Scopes 1 and 2.

We also exclude emissions during the first two months of a new facility startup to allow for stabilization of processes as the plant approaches targeted load.

Scope(s) or Scope 3 category(ies)

Scope 1
Scope 2 (location-based)
Scope 2 (market-based)

Relevance of Scope 1 emissions from this source

Emissions are not relevant

Relevance of location-based Scope 2 emissions from this source

Emissions are not relevant

Relevance of market-based Scope 2 emissions from this source

Emissions are not relevant

Relevance of Scope 3 emissions from this source

Date of completion of acquisition or merger

Estimated percentage of total Scope 1+2 emissions this excluded source represents

0.9

Estimated percentage of total Scope 3 emissions this excluded source represents

Explain why this source is excluded

Small sites are not relevant to Linde's overall footprint, as their emissions are estimated at less than 1% of Linde's total Scope 1+2 footprint. Emissions from these sites are considered de minimis.

We also exclude emissions during the first two months of a new facility startup to allow for stabilization of processes as the plant approaches targeted load.

Explain how you estimated the percentage of emissions this excluded source represents

Linde estimated the number of small sites that would fall under the de minimis category and multiplied the number of sites times an average office emission factor based on square footage. The calculated total was <1% of Linde's total Scope 1+2 carbon footprint.

C6.5

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

Purchased goods and services

Evaluation status

Relevant, calculated

Emissions in reporting year (metric tons CO2e)

3,774,000

Emissions calculation methodology

Supplier-specific method

Spend-based method

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

19

Please explain

Linde's scope 3 category 1 considers scope 3 emissions from Linde's purchased raw materials representing >95% of emissions from suppliers in this category. This includes raw materials and traded items like healthcare components or hardgoods sold in Linde's shops, construction components used by Linde engineering to build customer plants, as well as purchased feedstock - natural gas for hydrogen plants and compressed air for air separation plants.

The calculation of carbon emissions from Linde's raw materials procured (except for natural gas and compressed air feedstock) is now based upon a third-party model utilizing input-output tables and combining economic & environmental data from OECD, EXIOBASE, the U.S. Bureau of Economic Analysis and World Bank, with procurement data of Linde ("estell" tool, proprietary of Systain Consulting). Each procurement item is thereby associated with a certain national industry sector which determines the respective carbon emissions. For the mapping of national industry sectors, the supplier country as well as the procurement category of Linde plc were considered. Outlier handling / quality assurance processes are based on World Bank development indicators and other data sources. CO2e-emissions are calculated based on GWP values from IPCC’s AR 5 (2013) for a 100-year time horizon

including carbon feedbacks.

To calculate scope 3 from natural gas feedstock Linde applies a fuel-based method based on the GHG Protocol Corporate Value Chain (Scope 3) Accounting and Reporting Standard, Category 3 for scope 3 emissions caused in the extraction, production, and transportation of fuels and energy. Linde thereby uses emission factors from DEFRA.

For compressed air Linde receives information from the supplier about the specific energy usage to provide that feedstock, and is calculating the resulting scope 3 emissions based on the energy consumption and the supplier-plant-specific electricity scope 2 emission factors. Scope 3 from compressed air represents 19% of scope 3 category 1.

Capital goods

Evaluation status

Relevant, calculated

Emissions in reporting year (metric tons CO2e)

1,036,000

Emissions calculation methodology

Supplier-specific method

Spend-based method

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

4

Please explain

The calculation is based upon a third-party model utilizing input-output tables and combining economic & environmental data from OECD, EXIOBASE, the U.S. Bureau of Economic Analysis and World Bank, with procurement data of Linde ("estell" tool, proprietary of Systain Consulting). Each procurement item is thereby associated with a certain national industry sector which determines the respective carbon emissions. For the mapping of national industry sectors, the supplier country as well as the procurement category of Linde plc were considered. Outlier handling / quality assurance processes are based on World Bank development indicators and other data sources. CO2e-emissions are calculated based on GWP values from IPCC’s AR 5 (2013) for a 100-year time horizon including carbon feedbacks.

Moreover, in 2021 Linde started to collect product specific GHG emissions data from its main asset suppliers including its cylinder suppliers. The product carbon footprint included the suppliers' own emissions (based on a product-specific calculation) as well as related upstream emissions. The emissions data obtained directly from suppliers were integrated into the overall category 2 value. It represented 5% of total emissions in this category for 2022.

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

Evaluation status

Relevant, calculated

Emissions in reporting year (metric tons CO2e)

6,990,000

Emissions calculation methodology

Fuel-based method

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

100

Please explain

Scope 3 emissions from fuel-and energy-related activities (including upstream emissions from purchased fuel, purchased electricity and transmission and distribution losses) are the most significant source of scope 3 emissions for Linde, as Linde's business is energy-intensive, and energy is a significant cost for Linde. The methodology used is based on the GHG Protocol Corporate Value Chain (Scope 3) Accounting and Reporting Standard, Category 3 for scope 3 emissions caused in the extraction, production, and transportation of fuels and energy purchased by Linde. For electricity, Linde applies IEA factors for T&D losses and DEFRA factors for Well-to-Tank (WTT) to calculate all the scope 3 GHG emissions released into the atmosphere from the production, processing and delivery of energy. The calculation is done on a site level for each site for which Linde purchases the power, based on reported values. For thermal energy, a global WTT factor for heat and steam from DEFRA is applied. For scope 3 emissions from transport fuels as well as other fuels consumed (excl. feedstocks) DEFRA factors for fuel- and energy-related emissions are used per relevant category.

Upstream transportation and distribution

Evaluation status

Relevant, calculated

Emissions in reporting year (metric tons CO2e)

726,000

Emissions calculation methodology

Supplier-specific method
Spend-based method
Fuel-based method
Distance-based method

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

79

Please explain

This category includes emissions related to Linde's inbound and outbound logistics which are paid by Linde and which are carried out by external carriers.

For calculating scope 3 emissions from outbound deliveries of gases to its clients Linde uses a distance-based method. Linde’s Scope 3 emissions resulting from delivery of products by third-party carriers were derived using the same methodology as used to calculate GHG emissions from owned trucks: Emissions from transports are calculated based on actual km driven for commercial and non-commercial vehicles (reported by Linde's external carriers), multiplied by average emission factors by vehicle type from the “Estimated U.S. Average Vehicle Emissions Rates per Vehicle by Vehicle Type using Gasoline and Diesel (Grams per mile)” from the U.S. Environmental Protection Agency, Office of Transportation and Air Quality, personal communication, April 6, 2018. (Life cycle assumed: WTW.) Transport emissions from the outbound distribution of gases by external contractors represented 79% of scope 3 category 4 in 2022.

In addition, in 2021 Linde implemented a new third party tool ("estell") to calculate emissions from products and services procured which is using a spend-based method (see category 1 and 2 for further description of the "estell" tool). This also includes transport services procured by Linde Engineering. During the project it became evident that emissions from transports of construction components delivered to the Linde Engineering construction site (mostly over sea and air) are relevant and therefore are to be

included in the overall scope 3 category 4 value. Those emissions represented 21% of this scope 3 category in 2022.

In 2022, additional updates were made to the methodology to include gas transport under this scope in modes other than trucking.

Waste generated in operations

Evaluation status

Not relevant, calculated

Emissions in reporting year (metric tons CO2e)

14,000

Emissions calculation methodology

Waste-type-specific method

Other, please specify

EPA WARM estimate

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

100

Please explain

Linde has screened and undergone a process of estimating Scope 3 emissions and has committed to baselining and refining methodologies in order to set targets by 2025–2026. This category is reported for the first time, based on these continued efforts toward full Scope 3 reporting. This category includes estimates based upon global waste generated and landfills using environmental data tables for such emission estimates.

Business travel

Evaluation status

Not relevant, calculated

Emissions in reporting year (metric tons CO2e)

16,000

Emissions calculation methodology

Supplier-specific method

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

100

Please explain

Emissions from business travel represent <1% of total scope 3 emissions and are therefore not relevant. Linde started to calculate and report that value in 2021. The calculation is based on car rental travel (Life cycle assumed: WTW) as well as air miles travelled by country of destination. Calculation uses CO2 factors provided by the respective travel suppliers.

Linde estimates a small amount of emissions from business travel, based on the company's historical air travel records, including countries of destination, and uses emissions data provided by airlines and travel service providers.

Employee commuting

Evaluation status

Not relevant, calculated

Emissions in reporting year (metric tons CO2e)

105,000

Emissions calculation methodology

Average data method

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

1

Please explain

Linde has screened and undergone a process of estimating Scope 3 emissions and has committed to baselining and refining methodologies in order to set targets by 2025–2026. This category is reported for the first time, based on these continued efforts toward full Scope 3 reporting.

This category includes estimated emissions from commuting to work, based on a portion of the employee population at Linde globally, as well as average mileage data and emissions estimates for commuters obtained from EPA estimates (Life cycle assumed: WTW), which is based upon manufacturer data.

Upstream leased assets

Evaluation status

Not relevant, calculated

Emissions in reporting year (metric tons CO2e)

65,000

Emissions calculation methodology

Average data method
Asset-specific method

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

50

Please explain

Linde has screened and undergone a process of estimating Scope 3 emissions and has committed to baselining and refining methodologies in order to set targets by 2025–2026. This category is reported for the first time, based on these continued efforts toward full Scope 3 reporting.

This category includes an estimate of electricity emissions from sites, mostly small offices, rented by Linde, where Linde does not pay for utilities directly, as well as the estimated emissions from Linde's leased cars and trucks.

Downstream transportation and distribution

Evaluation status

Not relevant, calculated

Emissions in reporting year (metric tons CO2e)

10,000

Emissions calculation methodology

Average data method

Other, please specify

average based upon activity estimates for all transportation

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

1

Please explain

Linde has screened and undergone a process of estimating Scope 3 emissions and has committed to baselining and refining methodologies to set targets by 2025–2026. This category is reported for the first time, based on these continued efforts toward full Scope 3 reporting.

Linde's operations contain limited business activities where product is transported from its location to another end user. Product lines where such activities exist include welding/material fabrication applications and healthcare. Even in those businesses, product transport activities vary. Linde has estimated these emissions based upon assumptions of frequency of these types of activities among its more typical product transport patterns. (Life cycle assumed: WTW.)

Here, we provide a low estimate for % of data from suppliers- as the quantity of product is tracked by Linde.

Processing of sold products

Evaluation status

Relevant, calculated

Emissions in reporting year (metric tons CO2e)

1

Emissions calculation methodology

Average data method

Spend-based method

Other, please specify

average data method based upon production values. Note: We combine emissions

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

25

Please explain

Due to the nature of gas products, we have combined Cat 10 and Cat 11. See value in Use of Sold Products

Linde is at the beginning of numerous value chains and provides many intermediate products with many downstream applications, each of which has a very different GHG profile. This category includes emissions from products, including flouro gases, CO2, CH4 and N2O, based on sales and assumptions for revenue and volumes, as well as assumptions on releases. Due to the nature of gas products, in many cases, the processing of sold intermediate products by third parties (i.e., manufacturers) after sale is not distinctly separate from the use; therefore, the assumptions consider these categories as combined for both Categories 10 and 11.

Linde has screened and undergone a process of estimating Scope 3 emissions and has committed to baselining and refining methodologies to set targets by 2025–2026. This category is reported for the first time, based on these continued efforts toward full Scope 3 reporting.

Here, we provide a low estimate for % of data from suppliers- as the quantity of product is tracked by Linde.

Use of sold products

Evaluation status

Relevant, calculated

Emissions in reporting year (metric tons CO2e)

7,831,000

Emissions calculation methodology

Average data method

Average product method

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

25

Please explain

Due to the nature of gas products, we have combined Cat 10 and Cat 11.

Linde is at the beginning of numerous value chains and provides many intermediate products with many downstream applications, each of which has a very different GHG profile. This category includes emissions from products, including flouro gases, CO2, CH4 and N2O, based on sales and assumptions for revenue and volumes, as well as assumptions on releases. Due to the nature of gas products, in many cases, the processing of sold intermediate products by third parties (i.e., manufacturers) after sale is not distinctly separate from the use; therefore, the assumptions consider these categories as combined for both Categories 10 and 11.

Linde has screened and undergone a process of estimating Scope 3 emissions and has committed to baselining and refining methodologies to set targets by 2025–2026. This category is reported for the first time, based on these continued efforts toward full Scope 3 reporting.

Here, we provide a low estimate for % of data from suppliers- as the quantity of product is tracked by Linde.

End of life treatment of sold products

Evaluation status

Not relevant, calculated

Emissions in reporting year (metric tons CO2e)

7,000

Emissions calculation methodology

Average data method

Average product method

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

1

Please explain

Linde is at the beginning of numerous value chains and provides many intermediate products with many downstream applications, each of which has a very different GHG profile. This category includes estimated emissions from the end of-life disposal of products. Due to the nature of gas products, in many cases, the use of sold products may also include the end of life of the product. Therefore, for flouro gases, CO2, CH4 and N2O, estimates are included in use estimates and are part of Category 11. Linde does have a small proportion of products that may have packaging that is eventually disposed or that may be themselves disposed. This small remainder is estimated based upon Linde waste estimations. Although this portion is small and not deemed relevant, Linde will continue efforts to quantify and estimate.

Linde has screened and undergone a process of estimating Scope 3 emissions and has committed to baselining and refining methodologies to set targets by 2025–2026. This category is reported for the first time, based on these continued efforts toward full Scope 3 reporting.

Here, we provide a low estimate for % of data from suppliers- as the quantity of product is tracked by Linde.

Downstream leased assets

Evaluation status

Relevant, calculated

Emissions in reporting year (metric tons CO2e)

2,655,000

Emissions calculation methodology

Average data method
Asset-specific method

Site-specific method

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

50

Please explain

This category includes emissions for assets such as smaller on-site facilities where the customer pays for the power and, in many cases, operates the plant. This also includes several major plants where customers pay for the power and where Linde charges a facility fee to the customer. Emissions for those plants where the customer pays for the power are not included in Linde's Scope 2.

Emissions from leased out or charged out entities are calculated on a plant level, using the same calculation methodology as for calculating indirect/Scope 2 emissions for other Linde plants. For plants where the customer pays for the power and the plant-specific emissions factors are not known, Linde uses country emissions factors from the IEA to calculate indirect emissions for those sites.

HyCO plants/facilities that are owned by Linde are fully reported under Scope 1, regardless of whether they are leased out or independent on who is running the plant or providing the fuel or feedstock.

Franchises

Evaluation status

Not relevant, explanation provided

Please explain

Not applicable: Franchises do not exist in Linde's operations.

Investments

Evaluation status

Relevant, calculated

Emissions in reporting year (metric tons CO2e)

2,630,000

Emissions calculation methodology

Investment-specific method

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

100

Please explain

Linde includes in its Scope 1 and 2 reporting only subsidiaries/holdings that are reporting their financials to the company and whose results are consolidated into the company P&L. Holdings/investments that are reporting their results but are not consolidated into the P&L statement (mainly JVs consolidated at-equity) are not considered for Scope 1 and 2 emissions but are reported as Scope 3 from investments. Linde has large JV operations, especially in China.

Linde calculates its emissions due to investments on a plant level. All JVs report their electricity and other fuel consumption into Linde's environmental reporting system. Linde then calculates Scope 3 from such investments for all plants in this category, by adding reported direct emissions from HyCO plants and indirect emissions from ASUs and other plants, based on reported electricity consumption, multiplied by a country IEA factor.

Emissions in this category decreased in 2022. The prior estimates included full proportions of emissions. Linde now estimates JV emissions proportionally, based upon share of ownership, as per the GHG Protocol.

Other (upstream)

Evaluation status

Please explain

Other (downstream)

Evaluation status

Please explain

C6.7

(C6.7) Are carbon dioxide emissions from biogenic 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

0.00116

Metric numerator (Gross global combined Scope 1 and 2 emissions, metric tons CO2e)

38,794,000

Metric denominator

unit total revenue

Metric denominator: Unit total

33,364,000,000

Scope 2 figure used

Market-based

% change from previous year

11

Direction of change

Decreased

Reason(s) for change

Change in renewable energy consumption
Other emissions reduction activities

Please explain

Contributors:
1) Sales (denominator) increase in 2022 is partly due to volume from new plant startups and also due to price changes, which the latter has no impact on CO2 emissions
2) Increase in renewable and low carbon energy by approximate 1 TWh from 2021 to 2022.
3) Emissions reduction initiatives, The lower increase in emissions is also
due to Linde's continuous efforts in productivity and efficiency measures implemented.
during the year. These initiatives are described in C4.3b.

Both items 2 and 3 above support Linde's 35 by 35 goal to reduce absolute GHG emissions by 2035.

Intensity figure

0.00357

Metric numerator (Gross global combined Scope 1 and 2 emissions, metric tons CO2e)

38,794,000

Metric denominator

Other, please specify
EBITDA

Metric denominator: Unit total

10,873,000,000

Scope 2 figure used

Market-based

% change from previous year

9

Direction of change

Decreased

Reason(s) for change

Change in renewable energy consumption

Please explain

Contributors:
1) EBITDA* (denominator) increased in 2022 (while emissions decreased on an absolute basis). EBITDA increase is due to successful startups in 2022. In spite of these startups, overall emissions decreased, due to items 2 and 3 below, which support Linde's 35 by 35 goal to reduce absolute GHG emissions by 2035.
2) Increase in renewable and low carbon energy by approximate 1 TWh from 2021 to 2022.
3) Emissions reduction initiatives, The lower increase in emissions is also
due to Linde's continuous efforts in productivity and efficiency measures implemented.
during the year. These initiatives are described in C4.3b.

*EBITDA reflects the size of the business for which the emissions are being reported and the efficiency improvements that are being targeted. Adjusted EBITDA is a non-GAAP measure. For definition and reconciliation, please see Appendix to the Investor Teleconference Presentation Fourth Quarter 2022.

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	16,015,000	IPCC Fifth Assessment Report (AR5 – 100 year)
Other, please specify Other GHGs emitted such as N2O, CH4, HFCs, etc.	798,000	IPCC Fifth Assessment Report (AR5 – 100 year)

C7.2

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

Country/area/region	Scope 1 emissions (metric tons CO2e)
Americas	12,421,000
Europe, Middle East and Africa (EMEA)	2,370,000
Asia, Australasia	1,857,000
Other, please specify Engineering, Global operations and other scope 1 emissions not reported by region	164,000

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)	2,334,000
Hydrogen Production	12,157,000
CO2 Plants	925,000
Trucking	599,000
Specialty Gases operations	648,000
Other Global operations	149,000

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	Comment
Chemicals production activities	16,182,000	This is gases operations excluding engineering, global functions and trucking

C7.5

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

Country/area/region	Scope 2, location-based (metric tons CO2e)	Scope 2, market-based (metric tons CO2e)
Americas	6,051,000	4,870,000
Europe, Middle East and Africa (EMEA)	3,239,000	5,360,000
Asia, Australasia	11,503,000	11,659,000
Other, please specify Other global operations	111,000	92,000

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 (metric tons CO2e)	Scope 2, market-based (metric tons CO2e)
Air Separation Units (ASUs)	19,293,000	20,474,000
Hydrogen Production	922,000	847,000
All other operations	689,000	660,000

C7.7

(C7.7) Is your organization able to break down your emissions data for any of the subsidiaries included in your CDP response?

Not relevant as we do not have any subsidiaries

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

(C-CE7.7/C-CH7.7/C-CO7.7/C-MM7.7/C-OG7.7/C-ST7.7/C-TO7.7/C-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
Chemicals production activities	20,793,000	21,889,000	Includes Scope 2 emissions from all gases operations excluding engineering and other global functions

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	52	To calculate scope 3 emissions from natural gas purchased and used as feedstock Linde applies the same methodology and calculations as for natural gas purchased as fuel/energy, which is based on the GHG Protocol Corporate Value Chain (Scope 3) Accounting and Reporting Standard, Category 3 for scope 3 emissions caused in the extraction, production, and transportation of fuels and energy. Linde thereby uses DEFRA factors for calculating scope 3 emissions from

		fuel/feedstock consumption.

C-CH7.8a

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

	Sales, metric tons	Comment
Carbon dioxide (CO2)	0	This information is considered business confidential. Linde's annual sales of methane, nitrous oxide, HFCs, PFCs, NF3 and SF6, combined, are less than 1% of sales.
Methane (CH4)	0	This information is considered business confidential. Linde's annual sales of methane, nitrous oxide, HFCs, PFCs, NF3 and SF6, combined, are less than 1% of sales.
Nitrous oxide (N2O)	0	This information is considered business confidential. Linde's annual sales of methane, nitrous oxide, HFCs, PFCs, NF3 and SF6, combined, are less than 1% of sales.
Hydrofluorocarbons (HFC)	0	This information is considered business confidential. Linde's annual sales of methane, nitrous oxide, HFCs, PFCs, NF3 and SF6, combined, are less than 1% of sales.
Perfluorocarbons (PFC)	0	This information is considered business confidential. Linde's annual sales of methane, nitrous oxide, HFCs, PFCs, NF3 and SF6, combined, are less than 1% of sales.
Sulphur hexafluoride (SF6)	0	This information is considered business confidential. Linde's annual sales of methane, nitrous oxide, HFCs, PFCs, NF3 and SF6, combined, are less than 1% of sales.
Nitrogen trifluoride (NF3)	0	This information is considered business confidential. Linde's annual sales of methane, nitrous oxide, HFCs, PFCs, NF3 and SF6, combined, are less than 1% of sales.

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 in emissions	Emissions value (percentage)	Please explain calculation
Change in renewable energy consumption	858,000	Decreased	2.2	The percentage is calculated by 858,000 (scope 2 savings from increased RE and low carbon sourcing), divided by 39,894,000 (scope 1+2 combined for 2021). 858,000/39,894,000*100=2.2% Low carbon electricity sourced has increased from 17 to 18 TWH.
Other emissions reduction activities	602,000	Decreased	1.5	The percentage is calculated by 602,000 (scope 1 and 2 savings from activities related to reducing absolute emissions, such as refrigerant losses, plus many of the sustainable productivity savings reported in 4.3b), divided by 39,894,000 (scope 1+2 combined for 2021). 602,000/39,894,000*100=1.5%
Divestment	400,000	Decreased	1	Emissions decreased due to the divestment of operations in Russia. The percentage is calculated by 400,000 (scope 2 savings from activities related to divestment), divided by 39,894,000 (scope 1+2 combined for 2021). 400,000/39,894,000*100=1%
Acquisitions				
Mergers				
Change in output	760,000	Increased	1.9	The percentage is calculated by 760,000 (scope 2 savings from activities related to increasing output), divided by 39,894,000 (scope 1+2 combined for 2021). 760,000/39,894,000*100=1.9%

Change in methodology				
Change in boundary				
Change in physical operating conditions				
Unidentified				
Other				

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?

Market-based

C8. Energy

C8.1

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

More than 30% but less than or equal to 35%

C8.2

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

	Indicate whether your organization undertook this energy-related activity in the reporting year
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	Yes

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 (renewable and non-renewable) MWh
Consumption of fuel (excluding feedstock)	LHV (lower heating value)	200	19,706,800	19,707,000
Consumption of purchased or acquired electricity		12,548,000	29,385,000	41,933,000
Consumption of purchased or acquired steam		10,000	10,017,000	10,027,000
Consumption of self-generated non-fuel renewable energy		4,000		4,000
Total energy consumption		12,562,200	59,108,800	71,671,000

C-CH8.2a

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

Consumption of fuel (excluding feedstocks)

Heating value

LHV (lower heating value)

MWh consumed from renewable sources inside chemical sector boundary

200

MWh consumed from non-renewable sources inside chemical sector boundary (excluding recovered waste heat/gases)

16,983,600

MWh consumed from waste heat/gases recovered from processes using fuel feedstocks inside chemical sector boundary

0

Total MWh (renewable + non-renewable + MWh from recovered waste heat/gases) consumed inside chemical sector boundary

16,983,800

Consumption of purchased or acquired electricity

MWh consumed from renewable sources inside chemical sector boundary

11,000,000

MWh consumed from non-renewable sources inside chemical sector boundary (excluding recovered waste heat/gases)

29,096,000

MWh consumed from waste heat/gases recovered from processes using fuel feedstocks inside chemical sector boundary

0

Total MWh (renewable + non-renewable + MWh from recovered waste heat/gases) consumed inside chemical sector boundary

40,096,000

Consumption of purchased or acquired steam

MWh consumed from renewable sources inside chemical sector boundary

5,000

MWh consumed from non-renewable sources inside chemical sector boundary (excluding recovered waste heat/gases)

10,015,000

MWh consumed from waste heat/gases recovered from processes using fuel feedstocks inside chemical sector boundary

0

Total MWh (renewable + non-renewable + MWh from recovered waste heat/gases) consumed inside chemical sector boundary

10,020,000

Consumption of self-generated non-fuel renewable energy

MWh consumed from renewable sources inside chemical sector boundary

4,000

MWh consumed from non-renewable sources inside chemical sector boundary (excluding recovered waste heat/gases)

0

MWh consumed from waste heat/gases recovered from processes using fuel feedstocks inside chemical sector boundary

0

Total MWh (renewable + non-renewable + MWh from recovered waste heat/gases) consumed inside chemical sector boundary

4,000

Total energy consumption

MWh consumed from renewable sources inside chemical sector boundary

11,009,200

MWh consumed from non-renewable sources inside chemical sector boundary (excluding recovered waste heat/gases)

56,094,600

MWh consumed from waste heat/gases recovered from processes using fuel feedstocks inside chemical sector boundary

0

Total MWh (renewable + non-renewable + MWh from recovered waste heat/gases) consumed inside chemical sector boundary

67,103,800

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	No
Consumption of fuel for the generation of heat	Yes

Consumption of fuel for the generation of steam	Yes
Consumption of fuel for the generation of cooling	No
Consumption of fuel for co-generation or tri-generation	Yes

C8.2c

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

Sustainable biomass

Heating value

LHV

Total fuel MWh consumed by the organization

0

MWh fuel consumed for self-generation of heat

0

MWh fuel consumed for self-generation of steam

0

MWh fuel consumed for self- cogeneration or self-trigeneration

0

Comment

Linde does not consume sustainable biomass.

Other biomass

Heating value

LHV

Total fuel MWh consumed by the organization

200

MWh fuel consumed for self-generation of heat

200

MWh fuel consumed for self-generation of steam

0

MWh fuel consumed for self- cogeneration or self-trigeneration

0

Comment

Supplier confirmed biogas supply

Other renewable fuels (e.g. renewable hydrogen)

Heating value

LHV

Total fuel MWh consumed by the organization

0

MWh fuel consumed for self-generation of heat

0

MWh fuel consumed for self-generation of steam

0

MWh fuel consumed for self- cogeneration or self-trigeneration

0

Comment

Coal

Heating value

LHV

Total fuel MWh consumed by the organization

0

MWh fuel consumed for self-generation of heat

0

MWh fuel consumed for self-generation of steam

0

MWh fuel consumed for self- cogeneration or self-trigeneration

0

Comment

Oil

Heating value

LHV

Total fuel MWh consumed by the organization

70,000

MWh fuel consumed for self-generation of heat

70,000

MWh fuel consumed for self-generation of steam

0

MWh fuel consumed for self- cogeneration or self-trigeneration

0

Comment

Gas

Heating value

LHV

Total fuel MWh consumed by the organization

17,300,000

MWh fuel consumed for self-generation of heat

6,824,000

MWh fuel consumed for self-generation of steam

995,000

MWh fuel consumed for self- cogeneration or self-trigeneration

9,481,000

Comment

Natural gas

Other non-renewable fuels (e.g. non-renewable hydrogen)

Heating value

LHV

Total fuel MWh consumed by the organization

2,337,000

MWh fuel consumed for self-generation of heat

2,337,000

MWh fuel consumed for self-generation of steam

0

MWh fuel consumed for self- cogeneration or self-trigeneration

0

Comment

Remaining fuels, including diesel, methanol

Total fuel

Heating value

LHV

Total fuel MWh consumed by the organization

19,707,000

MWh fuel consumed for self-generation of heat

9,231,000

MWh fuel consumed for self-generation of steam

995,000

MWh fuel consumed for self- cogeneration or self-trigeneration

9,481,000

Comment

C8.2d

(C8.2d) Provide details on the electricity, heat, steam, and cooling your organization has generated and consumed in the reporting year.

	Total Gross generation (MWh)	Generation that is consumed by the organization (MWh)	Gross generation from renewable sources (MWh)	Generation from renewable sources that is consumed by the organization (MWh)
Electricity	4,000	4,000	4,000	4,000
Heat	0	0	0	0
Steam	0	0	0	0
Cooling	0	0	0	0

C-CH8.2d

(C-CH8.2d) Provide details on electricity, heat, steam, and cooling your organization has generated and consumed for chemical production activities.

Electricity

Total gross generation inside chemicals sector boundary (MWh)

4,000

Generation that is consumed inside chemicals sector boundary (MWh)

4,000

Generation from renewable sources inside chemical sector boundary (MWh)

4,000

Generation from waste heat/gases recovered from processes using fuel feedstocks inside chemical sector boundary (MWh)

0

Heat

Total gross generation inside chemicals sector boundary (MWh)

0

Generation that is consumed inside chemicals sector boundary (MWh)

0

Generation from renewable sources inside chemical sector boundary (MWh)

0

Generation from waste heat/gases recovered from processes using fuel feedstocks inside chemical sector boundary (MWh)

0

Steam

Total gross generation inside chemicals sector boundary (MWh)

0

Generation that is consumed inside chemicals sector boundary (MWh)

0

Generation from renewable sources inside chemical sector boundary (MWh)

0

Generation from waste heat/gases recovered from processes using fuel feedstocks inside chemical sector boundary (MWh)

0

Cooling

Total gross generation inside chemicals sector boundary (MWh)

0

Generation that is consumed inside chemicals sector boundary (MWh)

0

Generation from renewable sources inside chemical sector boundary (MWh)

0

Generation from waste heat/gases recovered from processes using fuel feedstocks inside chemical sector boundary (MWh)

0

C8.2e

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

Country/area of low-carbon energy consumption

Colombia

Sourcing method

Direct line to an off-site generator owned by a third party with no grid transfers (direct line PPA)

Energy carrier

Electricity

Low-carbon technology type

Large hydropower (>25 MW)

Low-carbon energy consumed via selected sourcing method in the reporting year (MWh)

90,000

Tracking instrument used

Contract

Country/area of origin (generation) of the low-carbon energy or energy attribute

Colombia

Are you able to report the commissioning or re-powering year of the energy generation facility?
Yes

Commissioning year of the energy generation facility (e.g. date of first commercial operation or repowering)
2020

Comment
Contract start date used

Country/area of low-carbon energy consumption
Ecuador

Sourcing method
Direct line to an off-site generator owned by a third party with no grid transfers (direct line PPA)

Energy carrier
Electricity

Low-carbon technology type
Large hydropower (>25 MW)

Low-carbon energy consumed via selected sourcing method in the reporting year (MWh)
30,000

Tracking instrument used
Contract

Country/area of origin (generation) of the low-carbon energy or energy attribute
Ecuador

Are you able to report the commissioning or re-powering year of the energy generation facility?
Yes

Commissioning year of the energy generation facility (e.g. date of first commercial operation or repowering)

2017

Comment

Contract start date used

Country/area of low-carbon energy consumption

Mexico

Sourcing method

Direct line to an off-site generator owned by a third party with no grid transfers (direct line PPA)

Energy carrier

Electricity

Low-carbon technology type

Large hydropower (>25 MW)

Low-carbon energy consumed via selected sourcing method in the reporting year (MWh)

107,000

Tracking instrument used

Contract

Country/area of origin (generation) of the low-carbon energy or energy attribute

Mexico

Are you able to report the commissioning or re-powering year of the energy generation facility?

Yes

Commissioning year of the energy generation facility (e.g. date of first commercial operation or repowering)

2013

Comment

Contract start date used

Country/area of low-carbon energy consumption

Brazil

Sourcing method

Physical power purchase agreement (physical PPA) with a grid-connected generator

Energy carrier

Electricity

Low-carbon technology type

Small hydropower (<25 MW)

Low-carbon energy consumed via selected sourcing method in the reporting year (MWh)

33,000

Tracking instrument used

Contract

Country/area of origin (generation) of the low-carbon energy or energy attribute

Brazil

Are you able to report the commissioning or re-powering year of the energy generation facility?

Yes

Commissioning year of the energy generation facility (e.g. date of first commercial operation or repowering)

2011

Comment

Contract start dates varying between 2011 and 2021

Country/area of low-carbon energy consumption

United States of America

Sourcing method

Physical power purchase agreement (physical PPA) with a grid-connected generator

Energy carrier

Electricity

Low-carbon technology type

Nuclear

Low-carbon energy consumed via selected sourcing method in the reporting year (MWh)

538,000

Tracking instrument used

Contract

Country/area of origin (generation) of the low-carbon energy or energy attribute

United States of America

Are you able to report the commissioning or re-powering year of the energy generation facility?

No

Commissioning year of the energy generation facility (e.g. date of first commercial operation or repowering)

Comment

Country/area of low-carbon energy consumption

United States of America

Sourcing method

Physical power purchase agreement (physical PPA) with a grid-connected generator

Energy carrier

Electricity

Low-carbon technology type

Large hydropower (>25 MW)

Low-carbon energy consumed via selected sourcing method in the reporting year (MWh)

327,000

Tracking instrument used

Contract

Country/area of origin (generation) of the low-carbon energy or energy attribute

United States of America

Are you able to report the commissioning or re-powering year of the energy generation facility?

No

Commissioning year of the energy generation facility (e.g. date of first commercial operation or repowering)

Comment

Country/area of low-carbon energy consumption

Philippines

Sourcing method

Physical power purchase agreement (physical PPA) with a grid-connected generator

Energy carrier

Electricity

Low-carbon technology type

Large hydropower (>25 MW)

Low-carbon energy consumed via selected sourcing method in the reporting year (MWh)

103,000

Tracking instrument used

Contract

Country/area of origin (generation) of the low-carbon energy or energy attribute

Philippines

Are you able to report the commissioning or re-powering year of the energy generation facility?

Yes

Commissioning year of the energy generation facility (e.g. date of first commercial operation or repowering)

1983

Comment

Country/area of low-carbon energy consumption

China

Sourcing method

Physical power purchase agreement (physical PPA) with a grid-connected generator

Energy carrier

Electricity

Low-carbon technology type

Solar

Low-carbon energy consumed via selected sourcing method in the reporting year (MWh)

29,000

Tracking instrument used

GEC

Country/area of origin (generation) of the low-carbon energy or energy attribute

China

Are you able to report the commissioning or re-powering year of the energy generation facility?

No

Commissioning year of the energy generation facility (e.g. date of first commercial operation or repowering)

Comment

Country/area of low-carbon energy consumption

India

Sourcing method

Physical power purchase agreement (physical PPA) with a grid-connected generator

Energy carrier

Electricity

Low-carbon technology type

Solar

Low-carbon energy consumed via selected sourcing method in the reporting year (MWh)

126,000

Tracking instrument used

Contract

Country/area of origin (generation) of the low-carbon energy or energy attribute

India

Are you able to report the commissioning or re-powering year of the energy generation facility?

Yes

Commissioning year of the energy generation facility (e.g. date of first commercial operation or repowering)

2016

Comment

Commissioning years vary between 2016-2020

Country/area of low-carbon energy consumption

Austria

Sourcing method

Retail supply contract with an electricity supplier (retail green electricity)

Energy carrier

Electricity

Low-carbon technology type

Low-carbon energy mix, please specify

74% directly renewable production, 26% over COO neutralized

Low-carbon energy consumed via selected sourcing method in the reporting year (MWh)

34,000

Tracking instrument used

No instrument used

Country/area of origin (generation) of the low-carbon energy or energy attribute

Austria

Are you able to report the commissioning or re-powering year of the energy generation facility?

No

Commissioning year of the energy generation facility (e.g. date of first commercial operation or repowering)

Comment

Country/area of low-carbon energy consumption

Poland

Sourcing method

Default delivered electricity from the grid (e.g. standard product offering by an energy supplier), supported by energy attribute certificates

Energy carrier

Electricity

Low-carbon technology type

Other biomass

Low-carbon energy consumed via selected sourcing method in the reporting year (MWh)

118,000

Tracking instrument used

REGO

Country/area of origin (generation) of the low-carbon energy or energy attribute

Poland

Are you able to report the commissioning or re-powering year of the energy generation facility?

Yes

Commissioning year of the energy generation facility (e.g. date of first commercial operation or repowering)

2008

Comment

Country/area of low-carbon energy consumption

Lithuania

Sourcing method

Retail supply contract with an electricity supplier (retail green electricity)

Energy carrier

Electricity

Low-carbon technology type

Renewable energy mix, please specify

Wind 61%, Biomass 32%, Solar 6%, Hydro 1%

Low-carbon energy consumed via selected sourcing method in the reporting year (MWh)

22,000

Tracking instrument used

GO

Country/area of origin (generation) of the low-carbon energy or energy attribute

Lithuania

Are you able to report the commissioning or re-powering year of the energy generation facility?

No

Commissioning year of the energy generation facility (e.g. date of first commercial operation or repowering)

Comment

Country/area of low-carbon energy consumption

Sweden

Sourcing method

Unbundled procurement of energy attribute certificates (EACs)

Energy carrier

Electricity

Low-carbon technology type

Hydropower (capacity unknown)

Low-carbon energy consumed via selected sourcing method in the reporting year (MWh)

134,000

Tracking instrument used

GO

Country/area of origin (generation) of the low-carbon energy or energy attribute

Sweden

Are you able to report the commissioning or re-powering year of the energy generation facility?

No

Commissioning year of the energy generation facility (e.g. date of first commercial operation or repowering)

Comment

Country/area of low-carbon energy consumption

Netherlands

Sourcing method

Other, please specify

Purchase of Certificates

Energy carrier

Electricity

Low-carbon technology type

Low-carbon energy mix, please specify

mix of nuclear, solar, wind, hydro and biomass, % unknown

Low-carbon energy consumed via selected sourcing method in the reporting year (MWh)

575,000

Tracking instrument used

GO

Country/area of origin (generation) of the low-carbon energy or energy attribute

Netherlands

Are you able to report the commissioning or re-powering year of the energy generation facility?

No

Commissioning year of the energy generation facility (e.g. date of first commercial operation or repowering)

Comment

Country/area of low-carbon energy consumption

France

Sourcing method

Other, please specify

Nuclear long-term contract

Energy carrier

Electricity

Low-carbon technology type

Nuclear

Low-carbon energy consumed via selected sourcing method in the reporting year (MWh)

22,000

Tracking instrument used

Contract

Country/area of origin (generation) of the low-carbon energy or energy attribute

France

Are you able to report the commissioning or re-powering year of the energy generation facility?

No

Commissioning year of the energy generation facility (e.g. date of first commercial operation or repowering)

Comment

Country/area of low-carbon energy consumption

Germany

Sourcing method

Other, please specify

Mix of green tariffs and EACs

Energy carrier

Electricity

Low-carbon technology type

Renewable energy mix, please specify

Mix of hydro, solar and wind

Low-carbon energy consumed via selected sourcing method in the reporting year (MWh)

23,000

Tracking instrument used

Other, please specify

Combination of GO and I-REC

Country/area of origin (generation) of the low-carbon energy or energy attribute

Germany

Are you able to report the commissioning or re-powering year of the energy generation facility?

No

Commissioning year of the energy generation facility (e.g. date of first commercial operation or repowering)

Comment

Country/area of low-carbon energy consumption

Portugal

Sourcing method

Retail supply contract with an electricity supplier (retail green electricity)

Energy carrier

Electricity

Low-carbon technology type

Renewable energy mix, please specify

70% wind, 14% hydro, 7% solar, 9% biomass

Low-carbon energy consumed via selected sourcing method in the reporting year (MWh)

32,000

Tracking instrument used

GO

Country/area of origin (generation) of the low-carbon energy or energy attribute

Portugal

Are you able to report the commissioning or re-powering year of the energy generation facility?

No

Commissioning year of the energy generation facility (e.g. date of first commercial operation or repowering)

Comment

Country/area of low-carbon energy consumption

Spain

Sourcing method

Retail supply contract with an electricity supplier (retail green electricity)

Energy carrier

Electricity

Low-carbon technology type

Renewable energy mix, please specify

70% wind, 14% hydro, 7% solar, 9% biomass

Low-carbon energy consumed via selected sourcing method in the reporting year (MWh)

98,000

Tracking instrument used

GO

Country/area of origin (generation) of the low-carbon energy or energy attribute

Spain

Are you able to report the commissioning or re-powering year of the energy generation facility?

No

Commissioning year of the energy generation facility (e.g. date of first commercial operation or repowering)

Comment

Country/area of low-carbon energy consumption

United Kingdom of Great Britain and Northern Ireland

Sourcing method

Retail supply contract with an electricity supplier (retail green electricity)

Energy carrier

Electricity

Low-carbon technology type

Renewable energy mix, please specify

any UK-government defined eligible technology

Low-carbon energy consumed via selected sourcing method in the reporting year (MWh)

1,538,000

Tracking instrument used

REGO

Country/area of origin (generation) of the low-carbon energy or energy attribute

United Kingdom of Great Britain and Northern Ireland

Are you able to report the commissioning or re-powering year of the energy generation facility?

No

Commissioning year of the energy generation facility (e.g. date of first commercial operation or repowering)

Comment

Country/area of low-carbon energy consumption

Paraguay

Sourcing method

Default delivered electricity from the grid (e.g. standard product offering by an energy supplier) from a grid that is 95% or more low-carbon and where there is no mechanism for specifically allocating low-carbon electricity

Energy carrier

Electricity

Low-carbon technology type

Hydropower (capacity unknown)

Low-carbon energy consumed via selected sourcing method in the reporting year (MWh)

20,000

Tracking instrument used

Contract

Country/area of origin (generation) of the low-carbon energy or energy attribute

Paraguay

Are you able to report the commissioning or re-powering year of the energy generation facility?

Yes

Commissioning year of the energy generation facility (e.g. date of first commercial operation or repowering)

2021

Comment

approx contract date used

Country/area of low-carbon energy consumption

China

Sourcing method

Other, please specify

Nuclear Power Contract

Energy carrier

Electricity

Low-carbon technology type

Nuclear

Low-carbon energy consumed via selected sourcing method in the reporting year (MWh)

300,000

Tracking instrument used

Contract

Country/area of origin (generation) of the low-carbon energy or energy attribute

China

Are you able to report the commissioning or re-powering year of the energy generation facility?

Yes

Commissioning year of the energy generation facility (e.g. date of first commercial operation or repowering)

2022

Comment

Contract date used

C8.2g

(C8.2g) Provide a breakdown by country/area of your non-fuel energy consumption in the reporting year.

Country/area

Other, please specify

EMEA

Consumption of purchased electricity (MWh)

9,669,000

Consumption of self-generated electricity (MWh)

0

Consumption of purchased heat, steam, and cooling (MWh)

151,000

Consumption of self-generated heat, steam, and cooling (MWh)

0

Total non-fuel energy consumption (MWh) [Auto-calculated]

9,820,000

Country/area

Other, please specify

AMERICAS

Consumption of purchased electricity (MWh)

17,568,000

Consumption of self-generated electricity (MWh)

0

Consumption of purchased heat, steam, and cooling (MWh)

62,000

Consumption of self-generated heat, steam, and cooling (MWh)

0

Total non-fuel energy consumption (MWh) [Auto-calculated]

17,630,000

Country/area

Other, please specify

APAC

Consumption of purchased electricity (MWh)

12,862,000

Consumption of self-generated electricity (MWh)

0

Consumption of purchased heat, steam, and cooling (MWh)

9,807,000

Consumption of self-generated heat, steam, and cooling (MWh)

0

Total non-fuel energy consumption (MWh) [Auto-calculated]

22,669,000

C-CH8.3

(C-CH8.3) Does your organization consume fuels as feedstocks for chemical production activities?

Yes

C-CH8.3a

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

Fuels used as feedstocks

Natural gas

Total consumption

197,000

Total consumption unit

million cubic feet

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

55.5

Heating value of feedstock, MWh per consumption unit

280

Heating value

LHV

Comment

Figures back calculated using standard conversions as Feedstock is originally measured in MWh as per fuel above.

Using the feedstock data provided here and the fuel consumption data provided in C8.2c to calculate GHG emissions does not take into account the carbon that leaves HYCO plants as product. Not all of the carbon feedstock is emitted in the form of a greenhouse gas, because a portion is captured and sold as product (for example, Linde sells CO2 to beverage makers for carbonation).

Fuels used as feedstocks

Heavy fuel oil

Total consumption

240

Total consumption unit

thousand metric tons

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

3,412

Heating value of feedstock, MWh per consumption unit

12,000

Heating value

HHV

Comment

Figures back calculated using standard conversions as Feedstock originally measured in MWh as per fuel above

Fuels used as feedstocks

Naphtha

Total consumption

236

Total consumption unit

thousand metric tons

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

3,800

Heating value of feedstock, MWh per consumption unit

13,300

Heating value

HHV

Comment

Figures back calculated using standard conversions as Feedstock originally measured in MWh as per fuel above.

Using the feedstock data provided here and the fuel consumption data provided in C8.2c to calculate GHG emissions does not take into account the carbon that leaves HYCO plants as product. Not all of the carbon feedstock is emitted in the form of a greenhouse gas, because a portion is captured and sold as product (for example, Linde sells CO2 to beverage makers for carbonation).

Fuels used as feedstocks

Other, please specify

Range of fuels and customer waste gases

Total consumption

27,000

Total consumption unit

million cubic feet

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

65

Heating value of feedstock, MWh per consumption unit

240

Heating value

HHV

Comment

Figures back calculated using standard conversions as Feedstock originally measured in MWh, average values calculated across range of fuels consumed as feedstocks

C-CH8.3b

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

	Percentage of total chemical feedstock (%)
Oil	4
Natural Gas	85
Coal	0
Biomass	0
Waste (non-biomass)	0
Fossil fuel (where coal, gas, oil cannot be distinguished)	11
Unknown source or unable to disaggregate	0

C9. Additional metrics

C9.1

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

C-CH9.3a

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

Output product

Specialty chemicals

Production (metric tons)

0

Capacity (metric tons)

0

Direct emissions intensity (metric tons CO2e per metric ton of product)

0

Electricity intensity (MWh per metric ton of product)

0

Steam intensity (MWh per metric ton of product)

0

Steam/ heat recovered (MWh per metric ton of product)

0

Comment

This information is considered business confidential.

C-CE9.6/C-CG9.6/C-CH9.6/C-CN9.6/C-CO9.6/C-EU9.6/C-MM9.6/C-OG9.6/C-RE9.6/C-ST9.6/C-TO9.6/C-TS9.6

(C-CE9.6/C-CG9.6/C-CH9.6/C-CN9.6/C-CO9.6/C-EU9.6/C-MM9.6/C-OG9.6/C-RE9.6/C-ST9.6/C-TO9.6/C-TS9.6) Does your organization invest in research and development (R&D) of low-carbon products or services related to your sector activities?

	Investment in low-carbon R&D	Comment
Row 1	Yes	Linde believes that it can benefit from business opportunities arising from governmental regulation of GHG and other emissions and the increasing demand for low-carbon products and applications. Linde is a technology leader and at the forefront of innovation when it comes to low-carbon products and services. Already today low carbon applications and services help Linde customers to avoid CO2. This was about 90 million metric tons of CO2 equivalents in 2022, equaling 2.3 times the (scope 1 and 2) emissions emitted by all Linde operations. Linde has set itself targets to invest more than 33% of its annual R&D budget in low-carbon products and applications until 2028 and to further invest over 1 billion of capital expenditures in low carbon projects till 2028. In 2022, Linde invested 39% of its total annual R&D budget ($56 million of $143 million USD tot al R&D budget) in low carbon product and service developments.

C-CH9.6a

(C-CH9.6a) Provide details of your organization's investments in low-carbon R&D for chemical production activities over the last three years.

Technology area

Unable to disaggregate by technology area

Stage of development in the reporting year

Average % of total R&D investment over the last 3 years

32

R&D investment figure in the reporting year (unit currency as selected in C0.4) (optional)

56,000,000

Average % of total R&D investment planned over the next 5 years

33

Explain how your R&D investment in this technology area is aligned with your climate commitments and/or climate transition plan

Linde has a SD 2028 target to invest more than one third of the annual R&D Budget to decarbonization.

The scope includes annual spend to develop lower-carbon technology for Linde assets or to develop lower-carbon solutions for our customers.
Linde invested 39 percent of its 2022 R&D budget ($56 million of $143 million total) into decarbonization (2021: 27 percent). Initiatives include
developing industry-leading carbon capture technologies, investing in promising green hydrogen technologies and driving operational
efficiency to further reduce GHG intensity.

These actions are key to achieving steps outlined in the climate transition plan and to the overall 35 by 35 absolute GHG reduction target.
For example, carbon capture is a larger part of Linde's strategy to reduce Scope 1 emissions. Linde has already deployed solutions and is still working and doing research to continuously improve applications and increase those more efficiency. For example, in May, 2022, bp and Linde announced plans to advance a major carbon capture and storage (CCS) project in Texas that will enable low carbon hydrogen production at Linde’s existing facilities. The development will also support the storage of carbon dioxide (CO2) captured from other industrial facilities – paving the way for large-scale decarbonization of the Texas Gulf Coast industrial corridor.

Linde's portion of R&D investment in low-carbon technologies has increased steadily from 2018-2022, from 23% to 39%- exceeding the goal to
achieve a 33% share of annual R&D related to decarbonization topics by 2028. Linde is active in several of the technology areas listed in the drop and considers information about the shares of the single R&D activities as part of total R&D budget as business confidential. In
each technology area Linde is doing permanent research, this means that there are developments within each technology area which
are already in small- and large-scale deployment, others are just in a pilot stage or in the middle of the R&D process.

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 emissions, and attach the relevant statements.

Verification or assurance cycle in place

Annual process

Status in the current reporting year

Complete

Type of verification or assurance

Reasonable assurance

Attach the statement

Linde KPI Data Assurance Statement FY 2022 Rev 1.pdf

Page/ section reference

See page 1 for auditor's statement and page 2 for the data verified.

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 2 emissions and attach the relevant statements.

Scope 2 approach

Scope 2 market-based

Verification or assurance cycle in place

Annual process

Status in the current reporting year

Complete

Type of verification or assurance

Reasonable assurance

Attach the statement

Linde KPI Data Assurance Statement FY 2022 Rev 1.pdf

Page/ section reference

See page 1 for auditor's statement and page 2 for the data verified.

Relevant standard

ISO14064-3

Proportion of reported emissions verified (%)

100

C10.1c

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

Scope 3 category

Scope 3: Purchased goods and services
Scope 3: Fuel and energy-related activities (not included in Scopes 1 or 2)
Scope 3: Upstream transportation and distribution

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

Linde Scope 3 Assurance Statement FY 2022.pdf

Linde KPI Data Assurance Statement FY 2022 Rev 1.pdf

Page/section reference

On the Scope 3 assurance letter, see pages 1 and 2 for auditor's statement and page 3 for the data verified (three categories of Scope 3).

On the FY2022 assurance letter with a number of parameters, see page 1 for auditor's statement and page 2 for the data verified (pertains to only one category of Scope 3).

Relevant standard

ISO14064-3

Proportion of reported emissions verified (%)

100

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
C5. Emissions performance	Year on year change in emissions (Scope 2)	ISO 14064-3 (2006), which is consistent with the requirements for ISAE 3000	Linde has the change in Scope 2 emissions verified because it directly relates to Linde's climate change subtarget to double its renewable energy sourcing, which is related to our science-based target validated by SBTi to reduce absolute Scopes 1+2 emissions by 35% by 2035.
C8. Energy	Energy consumption	ISO 14064-3 (2006), which is consistent with the requirements for ISAE 3000	Verifying the sources of GHG emissions is an important aspect of ensuring our GHG emissions data is complete and accurate. Verified energy data include total electricity consumption, electricity broken down by renewable and non-renewable, steam, non-renewable fuel consumption, and non-renewable energy consumption.

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.

Beijing pilot ETS
California CaT - ETS
EU ETS
Fujian pilot ETS
Germany ETS
Korea ETS
Shanghai pilot ETS
Singapore carbon tax
UK ETS

C11.1b

(C11.1b) Complete the following table for each of the emissions trading schemes you are regulated by.

Beijing pilot ETS

% of Scope 1 emissions covered by the ETS

0

% of Scope 2 emissions covered by the ETS

0.5

Period start date

January 1, 2022

Period end date

December 31, 2022

Allowances allocated

86,562

Allowances purchased

10,821

Verified Scope 1 emissions in metric tons CO2e

0

Verified Scope 2 emissions in metric tons CO2e

106,354

Details of ownership

Facilities we own and operate

Comment

The amount of allowances based on latest available information; under review.

California CaT - ETS

% of Scope 1 emissions covered by the ETS

0.4

% of Scope 2 emissions covered by the ETS

0

Period start date

January 1, 2022

Period end date

December 31, 2022

Allowances allocated

0

Allowances purchased

0

Verified Scope 1 emissions in metric tons CO2e

73,348

Verified Scope 2 emissions in metric tons CO2e

0

Details of ownership

Facilities we own and operate

Comment

No allowances purchased in 2022

EU ETS

% of Scope 1 emissions covered by the ETS

6.5

% of Scope 2 emissions covered by the ETS

6.1

Period start date

January 1, 2022

Period end date

December 31, 2022

Allowances allocated

393,304

Allowances purchased

176,702

Verified Scope 1 emissions in metric tons CO2e

1,100,000

Verified Scope 2 emissions in metric tons CO2e

1,350,000

Details of ownership

Facilities we own and operate

Comment

Scope 2 emissions reported are for countries with Linde plants where there is an ETS scheme. Allowances purchased estimated, to be determined. Note some emissions are also covered in Germany ETS, below.

Fujian pilot ETS

% of Scope 1 emissions covered by the ETS

0

% of Scope 2 emissions covered by the ETS

0.7

Period start date

January 1, 2022

Period end date

December 31, 2022

Allowances allocated

145,592

Allowances purchased

5,200

Verified Scope 1 emissions in metric tons CO2e

0

Verified Scope 2 emissions in metric tons CO2e

142,467

Details of ownership

Facilities we own and operate

Comment

The amount of allowances based on latest available information; under review.

Germany ETS

% of Scope 1 emissions covered by the ETS

3.8

% of Scope 2 emissions covered by the ETS

5.5

Period start date

January 1, 2022

Period end date

December 31, 2022

Allowances allocated

0

Allowances purchased

3,491

Verified Scope 1 emissions in metric tons CO2e

630,000

Verified Scope 2 emissions in metric tons CO2e

1,210,000

Details of ownership

Facilities we own and operate

Comment

Note: Some plants covered in Germany are also part of the EU ETS and are included in the data above.

Korea ETS

% of Scope 1 emissions covered by the ETS

0.2

% of Scope 2 emissions covered by the ETS

3.9

Period start date

January 1, 2022

Period end date

December 31, 2022

Allowances allocated

956,570

Allowances purchased

0

Verified Scope 1 emissions in metric tons CO2e

32,174

Verified Scope 2 emissions in metric tons CO2e

849,965

Details of ownership

Facilities we own and operate

Comment

The amount of allowances based on latest available information; under review.

Shanghai pilot ETS

% of Scope 1 emissions covered by the ETS

0

% of Scope 2 emissions covered by the ETS

0.5

Period start date

January 1, 2022

Period end date

December 31, 2022

Allowances allocated

109,276

Allowances purchased

8,000

Verified Scope 1 emissions in metric tons CO2e

0

Verified Scope 2 emissions in metric tons CO2e

116,350

Details of ownership

Facilities we own and operate

Comment

The amount of allowances based on latest available information; under review.

UK ETS

% of Scope 1 emissions covered by the ETS

1.1

% of Scope 2 emissions covered by the ETS

0.1

Period start date

January 1, 2022

Period end date

December 31, 2022

Allowances allocated

157,000

Allowances purchased

9,600

Verified Scope 1 emissions in metric tons CO2e

180,000

Verified Scope 2 emissions in metric tons CO2e

30,000

Details of ownership

Facilities we own and operate

Comment

Allowances purchased estimated, to be determined

C11.1c

(C11.1c) Complete the following table for each of the tax systems you are regulated by.

Singapore carbon tax

Period start date

January 1, 2022

Period end date

December 31, 2022

% of total Scope 1 emissions covered by tax

0.6

Total cost of tax paid

500,000

Comment

Tax has been converted approximately from SGD to USD.

C11.1d

(C11.1d) What is your strategy for complying with the systems you are regulated by or anticipate being regulated by?

Linde participates in GHG emissions trading programs wherever they apply: California's Greenhouse Gas Cap and Trade program, Singapore’s carbon tax, EU and UK ETS and three pilot emissions trading schemes in China, as well as Korea and Germany. Linde's strategy for complying with these systems is embedded in our overall climate strategy.

In order to manage risk from current and emerging carbon legislation, Linde 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 Leadership Team and Board on various cost scenarios under different potential GHG tax regimes; and explores renewable energy options.

Linde's commercial contracts routinely provide rights to recover increased electricity, natural gas and other costs that are incurred by the company. Linde estimates that in a majority of cases, the price increases incurred by carbon legislation can be passed on to customers over Linde’s standard contracts.

Linde also includes information on carbon risk (e.g., from emerging legislation) and selected climate KPIs in each investment proposal to the Executive Leadership Team. The company presents GHG intensity and related climate KPIs monthly to the CFO and management team. In addition, the company has recently implemented an internal carbon price reflecting climate-related risks, including risk from carbon legislation, in order to be used to inform investment decisions and carry out scenario evaluations.

To further manage the risk from carbon legislation and comply with current and future carbon schemes, 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 continuous improvement in energy efficiency.

However, efficiency measures can only mitigate the risk from carbon legislation to a certain extent. Until new technologies like CCS or green hydrogen are widely applied, industries like the chemical industry will still be subject to different emission regulation schemes or not be able to completely comply with the reduction paths targeted by regulators. However, regulatory bodies acknowledge that, for our industry, the required reductions in emissions cannot happen in the short term and need to be balanced with economic viability. Therefore, Linde receives free allowances from regulators for a substantial part of its emissions that are subject to cap and trade schemes. For the EU ETS, it has been decided that Linde will receive free allowances for the 4th trading period starting 2021, although there is no guarantee of the exact amount of those allowances. Linde also receives free allowances for the UK ETS.

Case Study:
At several sites in Europe, Linde operates Steam Methane Reformers, which use a natural gas feedstock to produce Hydrogen and Carbon Monoxide for pipeline customers and capture the excess heat as steam. In order to operate, these plants have to comply with the rules of the EU Emissions Trading Scheme. Each plant has, therefore, been allocated a benchmark emission in metric tons of CO2/year; however, to incentivize efficiency and promote emission reductions, the actual number of free allowances each EU ETS installation receives decreases every year. To minimize the number of CO2 allowances it has to procure to make up that shortfall, Linde has a target to improve GHG efficiency at all its H2 plants by 4% by 2028; in the EU, this has reduced Linde's average CO2 emissions compared with business-as-usual. To accomplish these reductions, Linde benchmarks all of its production processes against one another and runs many of them through remote operating centers coordinated by the Global Center of Excellence. Centralizing control and performance through the operating centers facilitates the implementation of process improvements and allows best practices to be shared more rapidly across sites. In 2022, Linde's H2 plants achieved a 6.7% cumulative reduction in GHG intensity compared to 2018.

C11.2

(C11.2) Has your organization canceled any project-based carbon credits within the reporting year?

No

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.

Type of internal carbon price

Shadow price

How the price is determined

Other, please specify

Linde uses as a reference $85 based upon IRA value of $85 per ton for carbon stored by industry for consideration purposes only.

Objective(s) for implementing this internal carbon price

Drive low-carbon investment

Other, please specify

discussion of potential opportunity evaluation

Scope(s) covered

Scope 1

Pricing approach used – spatial variance

Uniform

Pricing approach used – temporal variance

Static

Indicate how you expect the price to change over time

Actual price(s) used – minimum (currency as specified in C0.4 per metric ton CO2e)

85

Actual price(s) used – maximum (currency as specified in C0.4 per metric ton CO2e)

85

Business decision-making processes this internal carbon price is applied to

Capital expenditure

Opportunity management

Mandatory enforcement of this internal carbon price within these business decision-making processes

No

Explain how this internal carbon price has contributed to the implementation of your organization's climate commitments and/or climate transition plan

Linde has not traditionally used an internal price on carbon. With the pricing set by IRA for carbon stored, this gives a basis upon which to further inform discussions on potential opportunities and potential investments.

C12. Engagement

C12.1

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

Yes, our suppliers

Yes, our customers/clients

C12.1a

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

Type of engagement

Engagement & incentivization (changing supplier behavior)

Details of engagement

Directly work with suppliers on exploring corporate renewable energy sourcing mechanisms
Offer financial incentives for suppliers who reduce your operational emissions (Scopes 1 & 2)
Offer financial incentives for suppliers who increase the share of renewable energy in their total energy mix
Other, please specify

The supplier offers financial incentives to customers like Linde who can reduce energy consumption or react flexibly on available grid power. Measure of success : increase in the share of renewable energy in the suppliers energy mix.

% of suppliers by number

26

% total procurement spend (direct and indirect)

% of supplier-related Scope 3 emissions as reported in C6.5

43

Rationale for the coverage of your engagement

Linde engages with electricity suppliers in order to explore renewable energy sourcing mechanisms and realize efficiency savings which helps decrease non-renewable energy consumption. With higher proportions of renewables in the grid managing power demand is getting increasingly complex and challenging for utility providers. For those Linde normally represents a high-impact customer who can influence the overall grid load and therefore has the capacity to help with demand-side management. Linde

furthermore participates in energy efficiency and energy reduction programs offered by electricity suppliers and thus helps them to achieve their energy efficiency obligations and targets. Electricity suppliers are chosen for engagement because they represent the largest portion of Linde's Scope 2 and 3 GHG footprints. We mostly include utilities supplying our air separation units (ASUs) in our engagement, since these are our largest electricity users and account for 85% of Linde's Scope 2 emissions. Scope 3 from upstream electricity and T&D losses from ASUs account for about 50% of Linde's supplier-related scope 3 emissions (which we define as categories purchased goods and services, capital goods, and fuel and energy related emissions). Linde is discussing and exploring such kind of collaboration and support with most of its electricity providers worldwide, especially in the US and in Europe. The engagement is estimated to cover about 85% of the utilities supplying our ASUs, so we estimate the percentage of supplier-related scope 3 emissions to be 43% (50% x 0.85).

Impact of engagement, including measures of success

By engaging with energy providers to better cope with demand side management, Linde helps utilities increase the proportion of renewables in the grid and/or decrease the required capacity for brown electricity. Several of Linde's plant designs (ex: Flex ASU concept) help to balance the grid by increasing the flexibility of its production plants and using more (renewable) electricity when readily available, or reduce energy consumption in times of limited capacity. This helps the utility deal with increasing volatility in the grid and supports decisions to increase the share from such intermittent power sources (wind, solar). Linde, can benefit from favorable pricing mechanisms (e.g. low energy prices during high load hours) or special discounts offered.

Working with customers (like Linde), utilities can also reduce non-renewable energy by increasing energy efficiency & incentivizing energy efficiency.

Impact of engagement:
The collaboration and programs described lead to energy cost savings and help to achieve Linde's targets for energy and GHG reductions. Energy is a large cost factor, representing 25-30% of Linde's operational costs. Linde measures the impact of its engagement by reductions in energy use, GHG as well as cost reductions. Linde has a target to reduce GHG intensity by 35% by 2028 (threshold). The programs described support this target.

Example: In 2021, Linde's ASU in Memphis, TN (US), achieved a savings in its power costs of $1MM/year and was recognized – for the second year in a row – by the local utility and the Tennessee Valley Authority for cutting its carbon emissions. The Memphis ASU

started a project to operate the facility during off-peak hours. The project – which required piping and compressor modifications– achieved a 20% YOY decrease in power costs and considerable carbon reductions (success).

Linde also invests in projects that reduce suppliers Scope 1. Measure of success: renewable energy in the supplier's energy mix has increased YOY (threshold).

Example: Linde was recognized by one supplier for its participation in a program to directly support solar projects. Fees, determined per kW of solar electricity, help fund projects and increase supply of renewable energy in the area and increase Linde’s share of renewable energy credits. Contributions to the program help the utility to reduce their Scope 1 emissions.

Comment

Type of engagement

Information collection (understanding supplier behavior)

Details of engagement

Collect other climate related information at least annually from suppliers

% of suppliers by number

10

% total procurement spend (direct and indirect)

80

% of supplier-related Scope 3 emissions as reported in C6.5

Rationale for the coverage of your engagement

Suppliers are required to abide by Linde's terms and conditions in new or renewal contracts and agreements. The terms and conditions include a reference to Linde's Supplier Code of Conduct and require suppliers to comply with the principles outlined in the

code. The Supplier Code includes a section on health, safety and environment, and outlines Linde's expectations of suppliers to commit to continuous improvement of environmental protection and support Linde's programs and targets related to climate change.

Linde currently focuses its environmental engagement efforts with critical and strategic suppliers in procurement categories identified to have the greatest environmental impact. Typically, suppliers engaged cumulatively represent at least 80% of total procurement spend. By partnering with our critical and strategic suppliers on environmental and climate impacts, we reduce our own environmental impact, lower risk in our supply chain and mitigate or decrease our overall operating costs. We review suppliers that publicly disclose their environmental performance and use information identified in suppliers' responses to the CDP Climate Change Questionnaire and annual sustainability reports to focus our efforts on climate change initiatives that yield maximum impact.

Impact of engagement, including measures of success

As part of Linde's standard terms and conditions for all new and renewing contracts and agreements, suppliers must meet the principles outlined in Linde's Supplier Code of Conduct. Linde is committed to work with suppliers on remedies through capacity building, education and training. As part of Linde's business reviews with its supply chain, suppliers provide Linde with information on sustainability initiatives, including projects they have undertaken that reduce their GHG emissions. GHG reductions by suppliers reduce Linde's value chain carbon footprint. Linde measures the success of these engagements which are being brought to our attention by collecting information on these GHG reduction and other sustainability initiatives. The level of detail provided by suppliers is increasing.

Comment

C12.1b

(C12.1b) Give details of your climate-related engagement strategy with your customers.

Type of engagement & Details of engagement

Education/information sharing

Run an engagement campaign to educate customers about the climate change impacts of (using) your products, goods, and/or services

% of customers by number

100

% of customer - related Scope 3 emissions as reported in C6.5

Please explain the rationale for selecting this group of customers and scope of engagement

Linde communicates climate-related information, including our performance, targets, activities, and details of our sustainability portfolio of products, to all of our customers.

Linde engages with customers to foster an understanding of Linde's sustainability and climate change activities and further our mission of making our world more productive - which means helping our customers to become more productive. Introduction to and highlights of Linde's SD and climate change activities, performance and recognition are included in our corporate as well as opportunity-specific business development presentations. It is simply how we do business and how we engage with existing and prospective clients. Linde communicates climate-related information to any customer that requests such data. For example, Linde responds to customer requests through CDP's Supply Chain program and scored well above industry average each year. In addition, Linde provides detailed sustainability and climate-related information to strategic customers over several global supplier portals such as Ecovadis and Integrity Next. We also complete many customer sustainability and climate change surveys, assessments and questionnaires throughout the year, as well as specific information requests by customers, e.g., on Linde's certifications or product carbon footprint. Linde also organizes customer days in each region where we operate, where all customers are invited to discuss any topic, including climate change. Linde has 2 targets that are supported by a strong customer engagement process: to avoid more than two times the GHG emissions from our own operations, and to annually earn >50% revenue from products in our sustainability portfolio.

Achieving these targets depends on our customers being aware of our efforts to reduce our own carbon footprint as well as invest in products that will help them reduce their footprint. Customers interested in products that are part of our sustainability portfolio accounted for 54% of Linde's revenue in 2022. A subset of this portfolio helped customers avoid 90 million metric tons of CO2e emissions in 2022.

Impact of engagement, including measures of success

Measure of success: We measure the success of our engagement by whether we help customers avoid at least 2 times our own Scope 1+2 emissions (our threshold is therefore 2X). This is one of our global targets: to enable > 2 times avoided emissions than

emitted from Linde's global operations. In all, the use of five of Linde's applications enabled 90 million metric tons of CO2e to be avoided in 2022, which is 2.3 times more than Linde's total Scopes 1+2 emissions. By providing all current and potential customers with information related to our low carbon products and our initiatives to reduce emissions, we expect to see this metric continue to increase over time.

We believe that this increased customer interest can be attributed in part to Linde's SD information sharing, our climate change activities and the recognition these have gathered. We've found that the exchange of ideas, practices and performance around sustainability can be a critical element to developing strategic relationships with our customers. We see that sharing of our sustainability and climate activities, targets and performance, has led to improved customer relationships and maintained our high rates of customer retention as customers acknowledge our activities and performance with regards to environment and climate change.

In October 2022 Linde expanded its existing long-term agreement for the supply of industrial gases with one of the largest stainless steel producers in India. Linde will build a second ASU, more than tripling the current total capacity of its plant. Usage of additional amount of oxygen will result in avoiding of approximately further 5,000 tons of CO2 per year at customer's steel plant.

C12.2

(C12.2) Do your suppliers have to meet climate-related requirements as part of your organization's purchasing process?

Yes, climate-related requirements are included in our supplier contracts

C12.2a

(C12.2a) Provide details of the climate-related requirements that suppliers have to meet as part of your organization's purchasing process and the compliance mechanisms in place.

Climate-related requirement

Complying with regulatory requirements

Description of this climate related requirement

Linde’s suppliers are required to abide by Linde's terms and conditions in new or renewal contracts and agreements. The terms and conditions reference Linde's Supplier Code of Conduct (“SCoC”) and require suppliers to comply with the outlined principles. The SCoC defines Linde’s requirements of its suppliers concerning their responsibilities towards Linde, its stakeholders, societies and the environment. Linde expects its suppliers to comply with all applicable laws and regulations, including regulatory requirements related to environment and climate change. Further, the SCoC outlines Linde's expectations of suppliers to commit to continuous improvement of environmental protection and support Linde's programs and targets related to climate change. Linde engages with its suppliers to collect details about climate change initiatives and performance, promote increased awareness and develop collaborative and mutually beneficial relationships.

Linde's Global Safety and Engineering functions perform supplier audits and assessments, on a planned schedule, for suppliers considered critical to Linde's supply chain. Audits and assessments are conducted based on an evaluation of risks in the supply chain, including safety and environmental risks. As part of the assessment process, an evaluation of conformance with Linde's terms and conditions, Supplier Code of Conduct and a search of public databases such as EPA's Enforcement and Compliance History Online (ECHO), is performed.

% suppliers by procurement spend that have to comply with this climate-related requirement

100

% suppliers by procurement spend in compliance with this climate-related requirement

100

Mechanisms for monitoring compliance with this climate-related requirement

Supplier self-assessment
Grievance mechanism/Whistleblowing hotline
Supplier scorecard or rating

Response to supplier non-compliance with this climate-related requirement

Suspend and engage

Climate-related requirement

Implementation of emissions reduction initiatives

Description of this climate related requirement

Linde's Supplier Code of Conduct requires suppliers to support Linde regarding its emission reduction targets. Linde itself has set ambitious climate targets in alignment with the Paris agreement and is in active dialogue with its suppliers regarding their own emission reduction programs and targets. Many of Linde's suppliers already regularly report on emissions from their operations, and have already set official GHG reduction targets, among other objectives, to set a science-based target or to reach carbon neutrality by 2050.

Linde monitors the status of targets and emission reduction initiatives during regular supplier reviews and audits.

% suppliers by procurement spend that have to comply with this climate-related requirement

100

% suppliers by procurement spend in compliance with this climate-related requirement

100

Mechanisms for monitoring compliance with this climate-related requirement

Supplier self-assessment

First-party verification

Response to supplier non-compliance with this climate-related requirement

Retain and engage

Climate-related requirement

Measuring product-level emissions

Description of this climate related requirement

Linde has started an initiative with its relevant supplier groups to collect and evaluate product carbon footprint ("PCF") information. Our procurement and sustainability groups collaboratively lead this effort. Linde has requested such information from specific suppliers and subsequently has asked suppliers who are not measuring such KPIs so far, to complete a self-assessment and standard PCF calculation for Linde's products purchased by Linde. Linde regularly follows up with its suppliers on the process. By collecting this information, Linde targets to improve its own scope 3 emission disclosure and gain more transparency about the environmental and climate change impact of each specific supplier. Collecting such information will also form the basis for discussing

potential emission reduction initiatives for Linde products. Through this direct engagement and capacity building, we have been successful in advancing supplier awareness of environmental and climate change topics and continue to improve the data accuracy of our most impactful scope 3 emissions. Linde acknowledges that suppliers are measuring their GHG emissions, however in the long-term Linde plans to request and collect PCF information from additional relevant suppliers, and to offer the support needed to do so.

% suppliers by procurement spend that have to comply with this climate-related requirement

2

% suppliers by procurement spend in compliance with this climate-related requirement

1

Mechanisms for monitoring compliance with this climate-related requirement

Supplier self-assessment

First-party verification

Other, please specify

Supplier alignment / collaboration meetings on product carbon footprint measurement relevant to products supplied to Linde

Response to supplier non-compliance with this climate-related requirement

Retain and engage

C12.3

(C12.3) Does your organization engage in activities that could either directly or indirectly influence policy, law, or regulation that may impact the climate?

Row 1

External engagement activities that could directly or indirectly influence policy, law, or regulation that may impact the climate

Yes, we engage directly with policy makers

Yes, our membership of/engagement with trade associations could influence policy, law, or regulation that may impact the climate

Does your organization have a public commitment or position statement to conduct your engagement activities in line with the goals of the Paris Agreement?

Yes

Attach commitment or position statement(s)

Linde is aligned with the Paris Accords and contribute to accelerating the transition to a clean energy economy. See page 21 of prior year's SD Report.

Linde 2021 SD Report page 21 COPY.pdf

Describe the process(es) your organization has in place to ensure that your external engagement activities are consistent with your climate commitments and/or climate transition plan

Linde has a strong global ethics and compliance program. Linde maintains a detailed oversight process to ensure our activities are conducted in a legal, ethical and transparent manner and are consistent across business units and geographies. This includes oversight by the Chief Compliance Officer and an annual program review by the Board of Directors. Linde's Government Relations department provides regular reporting on such activities to the Chief Compliance Officer and reports to the General Counsel.

In addition, all Linde employees are certified on issues related to doing business with the government, complying with anti-trust and competition laws, and the U.S. Foreign Corrupt Practices Act (FCPA).

Finally, there is coordination with the Vice President Sustainability, and General Counsel to ensure consistency of public policy advocacy with Linde's global sustainability strategy, including our energy and GHG strategy and targets, which are aligned with the Paris Agreement. The Vice President Sustainability 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.

C12.3a

(C12.3a) On what policy, law, or regulation that may impact the climate has your organization been engaging directly with policy makers in the reporting year?

Specify the policy, law, or regulation on which your organization is engaging with policy makers

Regulatory framework and legislation encouraging the production and use of clean hydrogen

Category of policy, law, or regulation that may impact the climate

Low-carbon products and services

Focus area of policy, law, or regulation that may impact the climate

Alternative fuels

Policy, law, or regulation geographic coverage

Global

Country/area/region the policy, law, or regulation applies to

Your organization's position on the policy, law, or regulation

Support with no exceptions

Description of engagement with policy makers

Linde engaged with political decision-makers in the U.S. (e.g., United States Congress), in Europe (e.g., EU Commission, Member States) and other geographies promoting the benefits of producing and using clean hydrogen to reduce greenhouse gas emissions.

As outlined in question C12.3, Linde ensures that its advocacy activities are consistent with Linde's global sustainability strategy and its energy and greenhouse gas strategy, which is aligned with the Paris Agreement.

Details of exceptions (if applicable) and your organization's proposed alternative approach to the policy, law or regulation

Have you evaluated whether your organization's engagement on this policy, law, or regulation is aligned with the goals of the Paris Agreement?

Yes, we have evaluated, and it is aligned

Please explain whether this policy, law or regulation is central to the achievement of your climate transition plan and, if so, how?

The two largest public policy advocacy issues for 2022 related to the promotion of clean hydrogen production and carbon capture policies.

Decarbonization is a priority for Linde, with the goal of investing in decarbonization technologies in large capital projects, where the primary aim of Linde and/or its customers is to reduce GHG emissions or advance the use of low-carbon fuels and energy.

Global progress and adoption of hydrogen and other alternatives to fossil fuels is key to global reduction of GHGs and Linde's commitment to its own climate change targets. The company is developing several carbon capture and sequestration projects, a key part of the strategy for 35 percent absolute GHG reduction by 2035.

Specify the policy, law, or regulation on which your organization is engaging with policy makers

Legislation and regulation establishing a framework for the promotion and increased use of clean hydrogen in the EU (e.g. delegated acts defining renewable and low-carbon hydrogen under the EU Renewable Energy Directive)

Category of policy, law, or regulation that may impact the climate

Carbon pricing, taxes, and subsidies

Focus area of policy, law, or regulation that may impact the climate

Subsidies on products or services

Policy, law, or regulation geographic coverage

Regional

Country/area/region the policy, law, or regulation applies to

EU27

Your organization's position on the policy, law, or regulation

Support with minor exceptions

Description of engagement with policy makers

Linde engaged in dialogue with political decision-makers (e.g. EU Commission, EU Member States) promoting the essential role of Clean Hydrogen for Europe's transition towards a carbon neutral economy, but also warned of regulatory uncertainties and potential barriers in the design of the delegated acts that could hamper market uptake of clean hydrogen production in Europe.

As outlined in question C12.3, Linde ensures that its advocacy activities are consistent with Linde's global sustainability strategy and its energy and greenhouse gas strategy, which is aligned with the Paris Agreement.

Details of exceptions (if applicable) and your organization’s proposed alternative approach to the policy, law or regulation

Linde argued in favor of a more flexible and pragmatic design of the criteria for additionality, temporal and geographical correlation of the electricity used to generate renewable hydrogen.

Have you evaluated whether your organization’s engagement on this policy, law, or regulation is aligned with the goals of the Paris Agreement?

Yes, we have evaluated, and it is aligned

Please explain whether this policy, law or regulation is central to the achievement of your climate transition plan and, if so, how?

The two largest public policy advocacy issues for 2022 related to the promotion of clean hydrogen production and carbon capture policies.

Decarbonization is a priority for Linde, with the goal of investing in decarbonization technologies in large capital projects, where the primary aim of Linde and/or its customers is to reduce GHG emissions or advance the use of low-carbon fuels and energy.

Global progress and adoption of hydrogen and other alternatives to fossil fuels is key to global reduction of GHGs and Linde’s commitment to its own climate change targets. The company is developing several carbon capture and sequestration projects, a key part of the strategy for 35 percent absolute GHG reduction by 2035.

Specify the policy, law, or regulation on which your organization is engaging with policy makers

Tax credit for carbon oxide sequestration (Section 45Q)

Category of policy, law, or regulation that may impact the climate

Carbon pricing, taxes, and subsidies

Focus area of policy, law, or regulation that may impact the climate

Taxes on products or services

Policy, law, or regulation geographic coverage

National

Country/area/region the policy, law, or regulation applies to

United States of America

Your organization's position on the policy, law, or regulation

Support with no exceptions

Description of engagement with policy makers

Linde advocated for favorable conditions in the context of the carbon oxide sequestration credit scheme (section 45Q)

As outlined in question C12.3, Linde ensures that its advocacy activities are consistent with Linde's global sustainability strategy and its energy and greenhouse gas strategy, which is aligned with the Paris Agreement.

Details of exceptions (if applicable) and your organization's proposed alternative approach to the policy, law or regulation

Have you evaluated whether your organization's engagement on this policy, law, or regulation is aligned with the goals of the Paris Agreement?

Yes, we have evaluated, and it is aligned

Please explain whether this policy, law or regulation is central to the achievement of your climate transition plan and, if so, how?

The two largest public policy advocacy issues for 2022 related to the promotion of clean hydrogen production and carbon capture policies.

Decarbonization is a priority for Linde, with the goal of investing in decarbonization technologies in large capital projects, where the primary aim of Linde and/or its customers is to reduce GHG emissions or advance the use of low-carbon fuels and energy.

Global progress and adoption of hydrogen and other alternatives to fossil fuels is key to global reduction of GHGs and Linde's commitment to its own climate change targets. The company is developing several carbon capture and sequestration projects, a key part of the strategy for 35 percent absolute GHG reduction by 2035.

Specify the policy, law, or regulation on which your organization is engaging with policy makers

Linde advocated for favorable conditions in the context of the carbon oxide sequestration credit scheme (section 45Q)

As outlined in question C12.3, Linde ensures that its advocacy activities are consistent with Linde's global sustainability strategy and its energy and greenhouse gas strategy, which is aligned with the Paris Agreement.

Category of policy, law, or regulation that may impact the climate

Low-carbon products and services

Focus area of policy, law, or regulation that may impact the climate

Low-carbon innovation and R&D

Policy, law, or regulation geographic coverage

National

Country/area/region the policy, law, or regulation applies to

United States of America

Your organization's position on the policy, law, or regulation

Support with no exceptions

Description of engagement with policy makers

Linde advocated for favorable conditions regarding production and investment tax credits for clean hydrogen, as well as carbon capture.

As outlined in question C12.3, Linde ensures that its advocacy activities are consistent with Linde's global sustainability strategy and its energy and greenhouse gas strategy, which is aligned with the Paris Agreement.

Details of exceptions (if applicable) and your organization's proposed alternative approach to the policy, law or regulation

Have you evaluated whether your organization's engagement on this policy, law, or regulation is aligned with the goals of the Paris Agreement?

Yes, we have evaluated, and it is aligned

Please explain whether this policy, law or regulation is central to the achievement of your climate transition plan and, if so, how?

The two largest public policy advocacy issues for 2022 related to the promotion of clean hydrogen production and carbon capture policies.

Decarbonization is a priority for Linde, with the goal of investing in decarbonization technologies in large capital projects, where the primary aim of Linde and/or its customers is to reduce GHG emissions or advance the use of low-carbon fuels and energy.

Global progress and adoption of hydrogen and other alternatives to fossil fuels is key to global reduction of GHGs and Linde's commitment to its own climate change targets. The company is developing several carbon capture and sequestration projects, a key part of the strategy for 35 percent absolute GHG reduction by 2035.

Specify the policy, law, or regulation on which your organization is engaging with policy makers

Bipartisan Infrastructure Law

Category of policy, law, or regulation that may impact the climate

Low-carbon products and services

Focus area of policy, law, or regulation that may impact the climate

Low-carbon innovation and R&D

Policy, law, or regulation geographic coverage

National

Country/area/region the policy, law, or regulation applies to

United States of America

Your organization's position on the policy, law, or regulation

Support with no exceptions

Description of engagement with policy makers

Linde advocated for favorable conditions for clean hydrogen and the development of regional clean hydrogen hubs that enable improved production, processing, delivery, storage and end use of clean hydrogen.

As outlined in question C12.3, Linde ensures that its advocacy activities are consistent with Linde's global sustainability strategy and its energy and greenhouse gas strategy, which is aligned with the Paris Agreement.

Details of exceptions (if applicable) and your organization's proposed alternative approach to the policy, law or regulation

Have you evaluated whether your organization's engagement on this policy, law, or regulation is aligned with the goals of the Paris Agreement?

Yes, we have evaluated, and it is aligned

Please explain whether this policy, law or regulation is central to the achievement of your climate transition plan and, if so, how?

The two largest public policy advocacy issues for 2022 related to the promotion of clean hydrogen production and carbon capture policies.

Decarbonization is a priority for Linde, with the goal of investing in decarbonization technologies in large capital projects, where the primary aim of Linde and/or its customers is to reduce GHG emissions or advance the use of low-carbon fuels and energy.

Global progress and adoption of hydrogen and other alternatives to fossil fuels is key to global reduction of GHGs and Linde's commitment to its own climate change targets. The company is developing several carbon capture and sequestration projects, a key part of the strategy for 35 percent absolute GHG reduction by 2035.

C12.3b

(C12.3b) Provide details of the trade associations your organization is a member of, or engages with, which are likely to take a position on any policy, law or regulation that may impact the climate.

Trade association

Other, please specify

European Industrial Gases Association (EIGA)

Is your organization's position on climate change policy consistent with theirs?

Consistent

Has your organization attempted to influence their position in the reporting year?

Yes, we publicly promoted their current position

Describe how your organization's position is consistent with or differs from the trade association's position, and any actions taken to influence their position

We are advised that EIGA is confident that the Industrial Gases sector is well-placed to be a key partner for a thriving, carbon-neutral Europe that meets its 2050 goals, in part through the successful deployment of hydrogen. In this context, EIGA calls for sufficient reliable and affordable electricity from renewable sources to enable industry to meet ambitious climate policy targets but also warns

against significant increases in production costs. EIGA stresses the need for continued protection of energy-intensive industries from carbon leakage and urges policymakers to avoid intersectoral market distortions (e.g., inequality for outsourced production of industrial gases) which would counteract the broadly recognized environmental & economic benefits of industrial gases products.

Funding figure your organization provided to this trade association in the reporting year (currency as selected in C0.4)

Describe the aim of your organization's funding

Have you evaluated whether your organization's engagement with this trade association is aligned with the goals of the Paris Agreement?

Yes, we have evaluated, and it is aligned

Trade association

Other, please specify

Hydrogen Council

Is your organization's position on climate change policy consistent with theirs?

Consistent

Has your organization attempted to influence their position in the reporting year?

Yes, we publicly promoted their current position

Describe how your organization's position is consistent with or differs from the trade association's position, and any actions taken to influence their position

We are advised that The Hydrogen Council believes that hydrogen has a key role to play in the global energy transition by helping to diversify energy sources worldwide, foster business and technological innovation as drivers for long-term economic growth, and decarbonize hard-to-abate sectors. Using its global reach to promote collaboration between governments, industry, and investors, it provides guidance on accelerating the deployment of hydrogen solutions around the world. Moreover, the Hydrogen Council serves

as a resource for safety standards and an interlocutor for the investment community, while identifying opportunities for regulatory advocacy in key geographies.

Funding figure your organization provided to this trade association in the reporting year (currency as selected in C0.4)

Describe the aim of your organization's funding

Have you evaluated whether your organization's engagement with this trade association is aligned with the goals of the Paris Agreement?

Yes, we have evaluated, and it is aligned

Trade association

American Chemistry Council

Is your organization's position on climate change policy consistent with theirs?

Consistent

Has your organization attempted to influence their position in the reporting year?

Yes, we publicly promoted their current position

Describe how your organization's position is consistent with or differs from the trade association's position, and any actions taken to influence their position

We are advised that The American Chemistry Council (ACC) believes in collaboration to develop effective solutions to further reduce GHG emissions and energy use in the operations of its member companies and is committed to developing and deploying clean manufacturing technologies and promoting the adoption of emissions-reducing solutions. Many ACC members have set emission reduction targets and goals and are implementing strategies to make meaningful reductions. ACC is also committed to sharing progress — through Responsible Care®, ACC members publicly report their GHG intensity and energy use and have reduced their GHG emissions intensity.

Funding figure your organization provided to this trade association in the reporting year (currency as selected in C0.4)

Describe the aim of your organization's funding

Have you evaluated whether your organization's engagement with this trade association is aligned with the goals of the Paris Agreement?

Yes, we have evaluated, and it is aligned

Trade association

Other, please specify

Louisiana Chemical Association

Is your organization's position on climate change policy consistent with theirs?

Consistent

Has your organization attempted to influence their position in the reporting year?

Yes, we publicly promoted their current position

Describe how your organization's position is consistent with or differs from the trade association's position, and any actions taken to influence their position

We are advised that The Louisiana Chemical Association (LCA) and its member companies are committed to finding real solutions both to reduce greenhouse gas (GHG) emissions in their operations and to protect the jobs that the chemical industry supports throughout the state. LCA and its member companies support state and federal policies and initiatives on climate change that are aligned with the following principles:

1. Based in science. Emissions reduction policies should involve the scientific community and the resultant recommendations should be technologically and economically reasonable.
2. Support the objectives of the Paris Climate Agreement.

3. Keep Louisiana's chemical industry competitive. Climate policies must protect Louisiana chemical manufacturers' ability to attract major investment opportunities that bring high-salaried jobs and beneficial tax base.
4. Develop low- and lower-carbon energy choices through development of innovative products and technology. Low- and lower-carbon energy choices should be part of the solution to reduce GHG emissions without impairing competitiveness.
5. Recognize that the transition to lower-carbon energy options and economy requires patience.
6. Recognize and account for early actions to reduce GHG emissions and to make allowances for fixed-process emissions.
7. Support carbon pricing.
8. Encourage carbon capture, utilization, and storage (CCUS).
9. Exempt minimal to no-GHG emitting feedstocks.

Funding figure your organization provided to this trade association in the reporting year (currency as selected in C0.4)

Describe the aim of your organization's funding

Have you evaluated whether your organization's engagement with this trade association is aligned with the goals of the Paris Agreement?

Yes, we have evaluated, and it is aligned

Trade association

Other, please specify

NY Chemistry Council

Is your organization's position on climate change policy consistent with theirs?

Consistent

Has your organization attempted to influence their position in the reporting year?

Yes, we publicly promoted their current position

Describe how your organization's position is consistent with or differs from the trade association's position, and any actions taken to influence their position

The New York State Chemistry Council is directly associated with the American Chemistry Council (see previous entry) and we are advised that the organization shares their policy on climate change.

Funding figure your organization provided to this trade association in the reporting year (currency as selected in C0.4)

Describe the aim of your organization's funding

Have you evaluated whether your organization's engagement with this trade association is aligned with the goals of the Paris Agreement?

Yes, we have evaluated, and it is aligned

Trade association

Other, please specify

Texas Association of Manufacturers

Is your organization's position on climate change policy consistent with theirs?

Consistent

Has your organization attempted to influence their position in the reporting year?

Yes, we publicly promoted their current position

Describe how your organization's position is consistent with or differs from the trade association's position, and any actions taken to influence their position

We are advised that the Texas Association of Manufacturers (TAM) knows that being pro-business and pro-environment are not mutually exclusive policy objectives. Texas manufacturers have been working diligently over several decades to improve air quality in Texas and are leading innovators in technologies to protect and improve the environment. TAM supports environmental policies

that are based on sound science and that protect the environment while allowing the economy to grow. Texas manufacturers are keeping their promise to deliver responsible environmental stewardship through a commitment to improving sustainability practices, increasing energy efficiency and reducing emissions. The industry has led the way in driving a sea change in the way businesses address climate change and advance sustainable manufacturing.

Funding figure your organization provided to this trade association in the reporting year (currency as selected in C0.4)

Describe the aim of your organization's funding

Have you evaluated whether your organization's engagement with this trade association is aligned with the goals of the Paris Agreement?

Yes, we have evaluated, and it is aligned

Trade association

Other, please specify

American Chamber of Commerce in Germany (AMCHAM Germany)

Is your organization's position on climate change policy consistent with theirs?

Consistent

Has your organization attempted to influence their position in the reporting year?

Yes, we publicly promoted their current position

Describe how your organization's position is consistent with or differs from the trade association's position, and any actions taken to influence their position

We are advised that AmCham Germany supports the goal of greenhouse gas neutrality by 2050 and welcomes the commitment by the new US administration to the Paris Climate Agreement. Guided by common goals, the transatlantic alliance must be revitalized in order to create a global level playing field with compatible CO2 pricing mechanisms in energy and climate policy.

In accordance with the energy triangle AmCham Germany believes that competitive prices, supply security and climate protection lays the groundwork for the efficiency of existing and future regulations and supports a transparent and reliable development path - in line with the 2030 and 2050 climate targets - without creating a double burden for companies.

Funding figure your organization provided to this trade association in the reporting year (currency as selected in C0.4)

Describe the aim of your organization's funding

Have you evaluated whether your organization's engagement with this trade association is aligned with the goals of the Paris Agreement?

Yes, we have evaluated, and it is aligned

Trade association

Other, please specify

Clean Energy Partnership

Is your organization's position on climate change policy consistent with theirs?

Consistent

Has your organization attempted to influence their position in the reporting year?

Yes, we publicly promoted their current position

Describe how your organization's position is consistent with or differs from the trade association's position, and any actions taken to influence their position

We are advised that the Clean Energy Partnership, a strong industry partnership, is in pursuit of a goal: to establish green mobility with hydrogen and fuel cells. As an energy carrier and feedstock, green hydrogen has the potential to be a game changer for a successful transport and energy transition. Therefore, it is essential to create the regulatory framework needed for a timely market

ramp-up. Politicians and industry must now join forces to translate the defined goals into reality and identify and remove obstacles. In line with the 2050 climate targets, with decarbonized mobility and an economy that will remain strong going forward.

Funding figure your organization provided to this trade association in the reporting year (currency as selected in C0.4)

Describe the aim of your organization's funding

Have you evaluated whether your organization's engagement with this trade association is aligned with the goals of the Paris Agreement?

Yes, we have evaluated, and it is aligned

Trade association

Other, please specify

Deutscher Wasserstoff- und Brennstoffstellenverband

Is your organization's position on climate change policy consistent with theirs?

Consistent

Has your organization attempted to influence their position in the reporting year?

Yes, we publicly promoted their current position

Describe how your organization's position is consistent with or differs from the trade association's position, and any actions taken to influence their position

We are advised that the German Hydrogen and Fuel-Cell Association (DWV) is the umbrella organisation in Germany for all those involved in the general application of hydrogen as an energy carrier. DWV advocates for a rapid and sustainable energy transition in Germany and Europe and believes that hydrogen will be a central pillar of the decarbonization of industry and mobility. DWV and its members will work towards this goal in the long term.

Funding figure your organization provided to this trade association in the reporting year (currency as selected in C0.4)

Describe the aim of your organization's funding

Have you evaluated whether your organization's engagement with this trade association is aligned with the goals of the Paris Agreement?

Yes, we have evaluated, and it is aligned

Trade association

Other, please specify

Hydrogen Europe

Is your organization's position on climate change policy consistent with theirs?

Consistent

Has your organization attempted to influence their position in the reporting year?

Yes, we publicly promoted their current position

Describe how your organization's position is consistent with or differs from the trade association's position, and any actions taken to influence their position

We are advised that Hydrogen Europe is the leading organization representing European based companies and stakeholders that are committed to moving towards a (circular) carbon neutral economy. Hydrogen Europe's vision is to propel global carbon neutrality by accelerating European hydrogen industry and to be the industrial key partner of the Clean Hydrogen partnership.

Funding figure your organization provided to this trade association in the reporting year (currency as selected in C0.4)

Describe the aim of your organization's funding

Have you evaluated whether your organization's engagement with this trade association is aligned with the goals of the Paris Agreement?

Yes, we have evaluated, and it is aligned

Trade association

German Chemical Industry Association (VCI)

Is your organization's position on climate change policy consistent with theirs?

Consistent

Has your organization attempted to influence their position in the reporting year?

Yes, we publicly promoted their current position

Describe how your organization's position is consistent with or differs from the trade association's position, and any actions taken to influence their position

We are advised that climate protection is a key concern for VCI and the chemical and pharmaceutical industry in Germany. The industry is committed to the 2-degree target and has described in a roadmap how greenhouse gas neutrality can be achieved technologically in its production by 2050. In this context, VCI has co-founded the "Chemistry4Climate" platform to develop concrete concepts for achieving greenhouse gas-neutral chemistry in 2050 together with other affected and involved stakeholders. In order to achieve climate protection targets, a stable climate and energy policy framework is required to ensure investment security. The VCI roadmap revealed that particularly competitive electricity prices are an essential prerequisite for the economic viability of climate-friendly technologies. Against this background, VCI calls for competitive prices for electricity and hydrogen, sufficient quantities of green electricity, and the rapid expansion of energy infrastructures to make the transformation of the economy a reality.

Funding figure your organization provided to this trade association in the reporting year (currency as selected in C0.4)

Describe the aim of your organization's funding

Have you evaluated whether your organization's engagement with this trade association is aligned with the goals of the Paris Agreement?

Yes, we have evaluated, and it is aligned

Trade association

Other, please specify

Verband Deutscher Maschinen- und Anlagenbauer (VDMA)

Is your organization's position on climate change policy consistent with theirs?

Consistent

Has your organization attempted to influence their position in the reporting year?

Yes, we publicly promoted their current position

Describe how your organization's position is consistent with or differs from the trade association's position, and any actions taken to influence their position

We are advised that from the perspective of the VDMA, the climate policy goals are ambitious, but not impossible as technical solutions to significantly reduce greenhouse gas emissions are already available today. VDMA is calling on policymakers to accelerate the expansion of renewable energies by improving planning and permitting processes, while at the same time establishing global emissions trading opportunities, a true hydrogen economy and common standards for sustainable product design to enable a well-functioning secondary raw materials market.

Funding figure your organization provided to this trade association in the reporting year (currency as selected in C0.4)

Describe the aim of your organization's funding

Have you evaluated whether your organization's engagement with this trade association is aligned with the goals of the Paris Agreement?

Yes, we have evaluated, and it is aligned

Trade association

Other, please specify

Verein der Bayerischen Chemischen Industrie

Is your organization's position on climate change policy consistent with theirs?

Consistent

Has your organization attempted to influence their position in the reporting year?

Yes, we publicly promoted their current position

Describe how your organization's position is consistent with or differs from the trade association's position, and any actions taken to influence their position

The chemical industry in Bavaria is contributing to climate protection. It has done so in the past and will continue to do so in the future - in particular through its products, which help to reduce CO2 directly or enable contributions by other technologies indirectly, but also by reducing its own emissions. We are advised that the VBCI believes that climate protection measures and industrial policy must be well coordinated and that investments in low-CO2 processes will only be made by companies that are sufficiently profitable and can expect economic success from the investment. In this context, the VBCI calls for affordable electricity to minimize "carbon leakage" and prevent migration of industry abroad, which may cause less CO2 emissions in Germany, but significantly more CO2 emissions in total.

Funding figure your organization provided to this trade association in the reporting year (currency as selected in C0.4)

Describe the aim of your organization's funding

Have you evaluated whether your organization's engagement with this trade association is aligned with the goals of the Paris Agreement?

Yes, we have evaluated, and it is aligned

Trade association

Other, please specify

HYPOS - Hydrogen Power Storage & Solutions East Germany

Is your organization's position on climate change policy consistent with theirs?

Consistent

Has your organization attempted to influence their position in the reporting year?

No, we did not attempt to influence their position

Describe how your organization's position is consistent with or differs from the trade association's position, and any actions taken to influence their position

We are advised that HYPOS represents a network of over 100 members from industry, SMEs and research working together to build a green hydrogen economy. Green hydrogen technology can already make a valuable contribution to the cost-efficient design of the energy turnaround. In the medium to long term, electricity-based hydrogen technology is the key technology for achieving climate targets and successfully shaping the energy system transformation.

Funding figure your organization provided to this trade association in the reporting year (currency as selected in C0.4)

Describe the aim of your organization's funding

Have you evaluated whether your organization's engagement with this trade association is aligned with the goals of the Paris Agreement?

Yes, we have evaluated, and it is aligned

Trade association

Other, please specify

Wirtschaftsrat der CDU

Is your organization's position on climate change policy consistent with theirs?

Consistent

Has your organization attempted to influence their position in the reporting year?

No, we did not attempt to influence their position

Describe how your organization's position is consistent with or differs from the trade association's position, and any actions taken to influence their position

We are advised that the Wirtschaftsrat believes that ambitious climate targets and efficient climate protection can only be achieved with market-driven solutions and innovations. Innovative, climate-friendly technologies "Made in Germany" can become the engine for investments after the coronavirus pandemic. While the transition from a linear economy based on fossil raw materials to a circular economy based on renewable energies offers enormous opportunities in the form of new markets for innovative technological approaches, climate change also poses immense challenges for business and society. With the legally binding phase-out of nuclear energy and coal-fired power generation in Germany, it will be essential not only to significantly expand renewable energies but also to replace base-load capable and controllable power generation capacities due to the lack of sufficient storage facilities. At the same time, the high cost of electricity place a burden on industry and consumers and must be reduced to an internationally acceptable level. In this context, the Wirtschaftsrat calls for a market-based orientation of the economy along the lines of the climate protection targets and for an integrated and European energy and climate policy to provide opportunities for sustainable growth while maintaining global competitiveness and security of supply.

Funding figure your organization provided to this trade association in the reporting year (currency as selected in C0.4)

Describe the aim of your organization's funding

Have you evaluated whether your organization's engagement with this trade association is aligned with the goals of the Paris Agreement?

Yes, we have evaluated, and it is aligned

Trade association

Other, please specify

Deutsches Aktieninstitut

Is your organization's position on climate change policy consistent with theirs?

Consistent

Has your organization attempted to influence their position in the reporting year?

Yes, we publicly promoted their current position

Describe how your organization's position is consistent with or differs from the trade association's position, and any actions taken to influence their position

We are advised that Deutsches Aktieninstitut is committed to a strong capital market that enables companies to finance themselves well and contribute to the prosperity of society. Climate change and the resulting necessary transition to a resource-conserving and climate-neutral economy require a comprehensive transformation process. Not only production processes and operational organization, but also corporate business models must be put to the test in order to achieve the goal of net zero greenhouse gas emissions by 2050. This poses new challenges for business and policy-makers. Alongside growing transparency requirements, in particular sustainable finance is on the political agenda. In this context, Deutsches Aktieninstitut calls to ensure that the new requirements and the plethora of new legal provisions are designed in a targeted and practical manner. For a successful transformation toward a carbon-neutral economy, the perspective of the business community should also be taken into account when developing the standards for sustainability reporting

Funding figure your organization provided to this trade association in the reporting year (currency as selected in C0.4)

Describe the aim of your organization's funding

Have you evaluated whether your organization's engagement with this trade association is aligned with the goals of the Paris Agreement?

Yes, we have evaluated, and it is aligned

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 voluntary sustainability report

Status

Complete

Attach the document

Linde 2022 SDR attached to CDP.pdf

Page/Section reference

The following pages relate especially to climate change topics:
Governance: pages 33-35
Strategy: pages 10-11, 16-24
Risks & Opportunities: pages 20-24
Emissions: pages 67-73
Other metrics: pages 73, 114-115
External verification: pages 114-115

Content elements

Governance
Strategy
Risks & opportunities
Emissions figures
Emission targets
Other metrics

Comment

Publication

In mainstream reports

Status

Complete

Attach the document

2022-linde-annual-report-to-shareholders.pdf

Page/Section reference

page 5 - climate neutral strategy with emissions targets
pages 8, 9, 11 - risks
pages 23-24 - climate change risks and risk responses

Content elements

Strategy
Risks & opportunities
Emission targets

Comment

Publication

In mainstream reports

Status

Complete

Attach the document

2023-proxy-statement.pdf

Page/Section reference

Page 10 - ESG highlights and performance against science-based target
Pages 11-12 - Governance - Board oversight of ESG
Page 15 - Board role in risk oversight
Page 26 - Role of Sustainability Committee, including responsibilities related to climate change, emissions, and decarbonization efforts
Pages 54-57 - Compensation and incentives related to non-financial performance, including payout for meeting a GHG emissions goal
Page 57 - GHG emissions figures

Content elements

Governance
Risks & opportunities
Emissions figures
Emission targets

Comment

C12.5

(C12.5) Indicate the collaborative frameworks, initiatives and/or commitments related to environmental issues for which you are a signatory/member.

	Environmental collaborative framework, initiative and/or commitment	Describe your organization's role within each framework, initiative and/or commitment
Row 1	Task Force on Climate-related Financial Disclosures (TCFD) UN Global Compact	In 2022, Linde strengthened its commitment to sustainability and became a signatory to the United Nations Global Compact (UNGC), the world's largest corporate sustainability initiative. Linde aims to align its strategy and activities with the UNGC's Ten Principles. Linde is a TCFD Supporter and are part of a community that see the TCFD recommendations as a useful framework to increase transparency on climate-related risks and opportunities. Linde works to implement TCFD recommendations and publishes a TCFD Index annually.

C15. Biodiversity

C15.1

(C15.1) Is there board-level oversight and/or executive management-level responsibility for biodiversity-related issues within your organization?

	Board-level oversight and/or executive management-level responsibility for biodiversity-related issues	Description of oversight and objectives relating to biodiversity

Row 1	Yes, executive management-level responsibility	Linde's EVP & CHRO is the highest ranking executive officer responsible for environmental issues including environmental risk, performance and compliance, this also includes issues related to biodiversity.

C15.2

(C15.2) Has your organization made a public commitment and/or endorsed any initiatives related to biodiversity?

	Indicate whether your organization made a public commitment or endorsed any initiatives related to biodiversity	Biodiversity-related public commitments
Row 1	Yes, we have made public commitments only	Commitment to not explore or develop in legally designated protected areas Commitment to respect legally designated protected areas Commitment to avoidance of negative impacts on threatened and protected species

C15.3

(C15.3) Does your organization assess the impacts and dependencies of its value chain on biodiversity?

Impacts on biodiversity

Indicate whether your organization undertakes this type of assessment

No, but we plan to within the next two years

Dependencies on biodiversity

Indicate whether your organization undertakes this type of assessment

No, but we plan to within the next two years

C15.4

(C15.4) Does your organization have activities located in or near to biodiversity- sensitive areas in the reporting year?

No

C15.5

(C15.5) What actions has your organization taken in the reporting year to progress your biodiversity-related commitments?

	Have you taken any actions in the reporting period to progress your biodiversity-related commitments?	Type of action taken to progress biodiversity- related commitments
Row 1	Yes, we are taking actions to progress our biodiversity-related commitments	Other, please specify Proximity of global industrial gas production facilities to recognized protected areas, as defined by the International Union for Conservation of Nature (IUCN)

C15.6

(C15.6) Does your organization use biodiversity indicators to monitor performance across its activities?

	Does your organization use indicators to monitor biodiversity performance?	Indicators used to monitor biodiversity performance
Row 1	Yes, we use indicators	Other, please specify Proximity of global industrial gas production facilities to recognized protected areas, as defined by the International Union for Conservation of Nature (IUCN)

C15.7

(C15.7) Have you published information about your organization's response to biodiversity-related issues for this reporting year in places other than in your CDP response? If so, please attach the publication(s).

Report type	Content elements	Attach the document and indicate where in the document the relevant biodiversity information is located

In voluntary sustainability report or other voluntary communications	Impacts on biodiversity Biodiversity strategy	page 66 1
Other, please specify Company website	Content of biodiversity-related policies or commitments Impacts on biodiversity Biodiversity strategy Other, please specify Stakeholder Engagement	https://www.linde.com/sustainable-development/policies-and-position-statements/ecosystems-position-statement 2

[1]Linde 2022 SDR attached to CDP.pdf

[2]Linde Ecosystems Position Statement COPY.pdf

C16. 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.

C16.1

(C16.1) Provide details for the person that has signed off (approved) your CDP climate change response.

	Job title	Corresponding job category
Row 1	EVP & CHRO: Linde does not have a COO. We consider the function of the EVP & CHRO equivalent to those of COO.	Chief Operating Officer (COO)