



Welcome to your CDP Climate Change Questionnaire 2022

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 70% of Linde’s scope 1 emissions in 2021. The rest stems from using natural gas as energy in production plants, from distribution and release of other GHGs.

The majority (85%-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”) and the Frankfurt Stock Exchange (“FSE”) under the ticker symbol "LIN". Linde issues an annual report Form 10-K according to US GAAP and a Financial Report/Director’s Report according to IFRS, including a non-financial report following European CSR Directives 2014/95/EU and 2013/34/EU.

C0.2

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

	Start date	End date	Indicate if you are providing emissions data for past reporting years	Select the number of past reporting years you will be providing emissions data for
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Reporting year	January 1, 2021	December 31, 2021	Yes	3 years
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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
 Guernsey
 Hong Kong SAR, China
 Hungary
 Iceland
 India
 Indonesia
 Ireland
 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
Republic of Korea
Romania
Russian Federation
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(s)	Please explain
Board Chair	<p>The full Board of Directors, under the chair's leadership, has responsibility for climate-related issues.</p> <p>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 furthermore 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, including 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.</p> <p>Climate-related decision: In 2021, the full Board, under the chair's leadership, approved Linde's new 2035 absolute GHG reduction target and 2050 net zero ambition.</p>

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

<p>Scheduled – some meetings</p>	<p>Reviewing and guiding strategy</p> <p>Reviewing and guiding major plans of action</p> <p>Reviewing and guiding risk management policies</p> <p>Monitoring implementation and performance of objectives</p> <p>Monitoring and overseeing progress against goals and targets for addressing climate-related issues</p>	<p>Sustainable Development including climate change is overseen by the Board and Linde’s executive leadership and integrated throughout the company.</p> <p>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.</p> <p>The EVP Clean Energy and VP Sustainability report to the Board at least quarterly on climate-related topics such as Linde’s hydrogen strategy or Linde’s decarbonization opportunities and strategy.</p> <p>Climate-related issues have been a topic at 80% of Board meetings held in 2021.</p> <p>Examples: in January 2021, the Linde Board reviewed Linde’s 2021 performance towards its 2028 Sustainable Development Targets.</p> <p>In fall 2021, the full Board approved Linde’s new 2035 GHG reduction target - to reduce absolute scope 1 and 2 emissions by 35% from a 2021 baseline – and its 2050 net zero ambition.</p> <p>In addition, the EVP Clean Energy briefed the Board about Linde’s clean energy strategy and clean energy technologies.</p> <p>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.</p> <p>To reinforce a culture where pay is directly linked to performance and to recognize the contributions of individuals to overall Company results, an individual performance component is included in the annual variable compensation design. The Human Capital Committee of the Board will consider various qualitative factors, including driving the Company’s key values (incl. sustainable development, safety, health & environment, diversity & inclusion, community engagement, and integrity & compliance)</p>
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		<p>and competencies that are important to the success of the Company.</p> <p>In October 2021 the Linde Board added a Sustainability Board Committee, created in November 2021.</p> <p>The Sustainability Committee assists the Board with its oversight of 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.</p> <p>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.</p>
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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	<p>In order to assess whether Board members have competency on climate-related issues the following criteria were used:</p> <ul style="list-style-type: none"> - 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

		<p>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.</p> <p>One example: Edward G. Galante: 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.</p>
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C1.2

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

Name of the position(s) and/or committee(s)	Responsibility	Frequency of reporting to the board on climate-related issues
Other C-Suite Officer, please specify Executive Vice President Clean Energy	Both assessing and managing climate-related risks and opportunities	Quarterly
Other C-Suite Officer, please specify Executive Vice President and Chief Human Resources Officer	Other, please specify Assessing and managing climate-related risks and compliance	Quarterly

C1.2a

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

Where in the org structure these positions lie: Linde’s EVP and Chief Human Resources Officer (CHRO) as well as EVP Clean Energy are both part of Linde’s Executive Leadership Team, reporting to the CEO.

Why responsibilities for climate change have been assigned to these positions:

Linde's Executive Vice President Clean Energy is globally responsible for Technology, R&D, Clean Energy, Business Development and Digitalization. These functions assess market risks, trends and opportunities, and developing new products and applications, with a focus on low-carbon and clean energy solutions. The EVP Clean Energy also oversees Linde's global sustainability function. The Vice President Sustainability (equivalent to the Chief Sustainability Officer) reports directly to the EVP Clean Energy.

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

Responsibilities of the EVP Clean Energy with regards to assessing and managing climate-related risks and opportunities and how those are monitored:

Under the EVP's direction, Linde routinely conducts sensitivity analyses for strategic and market risks. The Business Development and Clean Energy Functions, both reporting to the EVP Clean Energy, assess and monitor market and other transition risks resulting from changing customer and market behaviour and regularly report on those to the EVP. The Vice President Sustainability who is equivalent to the Chief Sustainability Officer reports to the EVP Clean Energy and heads the Sustainability function which is – among others – responsible for monitoring performance against Linde's climate change targets.

Responsibilities of the CHRO with regards to assessing and managing environmental incl. climate-related risks and compliance and how those are monitored:

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

The Board reviews and monitors environmental and safety risks and their mitigation actions at each Board meeting, incl. risks from climate change. These may include climate-related issues such as the impacts of extreme weather, flooding and hurricanes. In addition, issues related to climate change are closely monitored by the Board and are a topic at almost every Board meeting (e.g. low-carbon market opportunities and trends). In addition, the VP Sustainability reports to the Board's Sustainability Committee, regularly, e.g. on performance against SD targets, including its climate change targets. Responsibility for achieving these targets rests with the businesses. Progress against Linde's main climate change targets are reported monthly to the full leadership and executive team.

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 the achievement of these targets provides regular insight into the company's overall performance in the areas of energy management, GHG emissions intensity, the amount of renewable energy

sourced, the benefits to customers in 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 in the 2021 Annual Report (10-K) as material to the business.

C1.3

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

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	Type of incentive	Activity incentivized	Comment
Corporate executive team	Monetary reward	Emissions reduction target Energy reduction target Efficiency target	<p>The Board has confirmed the importance of setting nonfinancial objectives as part of variable compensation to reinforce leadership's focus on maintaining a culture that supports both short- and long-term sustainable results. It has established non-financial goals with respect to elements such as safety, compliance, sustainability and inclusion. These measures are described in Linde's April 2022 proxy statement. Annual pay-out of executive variable compensation depends on performance in several strategic non-financial areas, as noted.</p> <p>After the end of the year, management presented to the Human Capital Committee the degree of achievement in meeting each goal, and for each element, provided its view of the relative degree of importance to long term success. Based on the results, the Human Capital Committee determined that the Company's performance with respect to the strategic and non-financial goals was favorable and set the Corporate strategic and non-financial payout factor at 140% of target variable compensation (relative to a 200% maximum). The Human Capital Committee noted the following as examples of actions that support the Company's strategic objectives in determining 2021 variable compensation payouts:</p>

			<p>- Environmental Sustainability efforts made good progress with reduction in greenhouse gas intensity, which was down -24% by year-end (NB: -24% was estimate as of time of Proxy; final result -26%) and on track to achieving -35% by 2028. In addition, Linde announced new absolute greenhouse gas emission reduction targets of 35% by 2035 and climate neutrality by 2050 (GHG emission reduction targets relate to Linde's Scope 1 and 2 emissions).</p> <p>- Dedicated Clean Energy team set up to develop and pursue opportunities for low carbon intensity Hydrogen in mobility, energy and industrial end markets.</p>
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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 identifies the main risks affecting that unit on an ongoing basis. 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 downstream 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 2021 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	<p>Linde's 2021 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.</p> <p>Legislation that limits GHG emissions may impact growth by increasing capital, compliance, operating and maintenance costs and/or decreasing demand .</p> <p>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 \$ 150 million (gross risk) in the near future which need to be mitigated (see chapter 2.3a).</p>
Emerging regulation	Relevant, always included	<p>Linde's 2021 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</p>

		<p>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 .</p> <p>Example: In 2021, the percentage of Linde's scope 1 emissions subject to some form of carbon taxation or trading scheme increased from 9% to 10% (1.6 million tons). This reflects the worldwide development that more and more countries and states are introducing some form of carbon taxation. In 2021 for example, the UK ETS and German BEHG (local carbon certificate scheme) were introduced which are relevant for Linde. 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.</p>
Technology	Relevant, always included	<p>Linde's 2021 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 27% in 2021, and it is expected that this investment is yielding positive business results.</p> <p>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.</p>
Legal	Relevant, always included	<p>Linde's 2021 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.</p> <p>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</p>

		lawsuits may rise with increasing (regional) regulatory requirements (e.g. arising from European Green Deal, EU taxonomy, etc.).
Market	Relevant, always included	<p>Markets for sourcing raw materials and energy: Linde's 2021 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.</p> <p>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.</p> <p>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.</p> <p>Change in end markets: Linde's 2021 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.</p>
Reputation	Relevant, always included	Linde's 2021 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.

		<p>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.</p> <p>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 -35% by 2028, and is on track to achieving, currently at -26%. 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.</p> <p>Linde constantly assesses risks related to both R&D and changing customer behaviour 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 .</p> <p>We continuously monitor evolving attitudes toward climate-related issues and the associated expectations that may impact how Linde's actions and products are viewed.</p>
<p>Acute physical</p>	<p>Relevant, always included</p>	<p>Linde's 2021 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 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.</p> <p>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</p>

		<p>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.</p> <p>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.</p>
Chronic physical	Relevant, always included	<p>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.</p> <p>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.</p> <p>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.</p> <p>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.</p>

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 and the UK Emissions Trading System, the latter just 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 11.4 million tons CO₂ in 2021. Those and other plants are e.g. subject to carbon regulations in California, the EU and the UK.

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 2021, the percentage of Linde's scope 1 emissions subject to carbon taxation increased from 9% to 10% (1.6 million tons). This reflects the worldwide trend that more and more countries are introducing 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 was also launched in 2021. Linde plants are currently not covered by the China ETS. Additional and higher carbon prices in 2021 led to a higher cost (of energy) for Linde or its customers. A majority of those emissions (over 87%) were subject to the EU and UK ETS. Certificate cost for the EU ETS in 2021 varied between \$35 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 and 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)

145,000,000

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 (compare chapter 11). The EU ETS certificate price has considerably increased during the last year and – according to Reuters - is expected to further increase to over \$100 in 2022. For some new GHG regulations carbon prices are not yet published. For those Linde considers for its calculations information from public media such as Financial Times about the future pricing.

Linde expects that an amount of 1,580,000 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 1,580,000 tons of emissions = \$145,360,000 which were rounded to \$145 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

53,100,000

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.

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.

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 \$ 53 million in productivity projects completed in 2021 that yielded CO₂e savings of 427,000 tons, and help to reduce the risk from carbon legislation. In addition, 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 to authorities. \$53,000,000 + \$100,000 = \$53,100,000.

Case Study: Linde's products are energy-intensive. Linde is therefore constantly seeking ways to promote reductions in scope 1 and 2 emissions and thus reduce the risk from carbon regulations. Linde for example recently launched its "Linde Green" product line in the US, Eastern and Central Europe. "Linde Green" products have a zero-carbon-footprint, and Linde is extending this offering to more and 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.

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

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.

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.

Finally, Linde works with its insurance providers to evaluate the risk from all perils including natural hazards such as 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. The company also secures risk transfer insurance coverage for any business interruption.

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. $\$20,000 + \$180,000 = \$200,000$

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.

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 governmental regulation of GHG and the increasing demand for low-carbon applications. Hydrogen (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. It 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.

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.

Linde today has a \$2.5-billion H₂ business and possesses the necessary infrastructure, technology and experience that will support a transition to clean hydrogen. It owns 600 miles of pipeline and 180 major H₂ plants in the world.

At the moment Linde is actively working on nearly 300 clean energy related projects, 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 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 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 \$ 5.5 billion from 2021. Therefore, the estimate of \$ 5.5 billion is within reasonable estimates.

Example:

In 2021 Linde partnered with Hyosung, one of South Korea's largest industrial conglomerates, to build, own and operate extensive new liquid H2 infrastructure in South Korea. This robust H2 network will support the country's ambitious decarbonization agenda to achieve net zero emissions by 2050. This partnership is a cornerstone of the development of South Korea's national hydrogen economy and will advance the entire liquid H2 value chain across the country.

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)

5,500,000,000

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 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 \$ 5.5 billion from today. Therefore, the estimate of \$ 5.5 billion is within reasonable estimates and, given our advantages in building off an existing business and infrastructure, a case could be made that this would represent the low end of our expected hydrogen growth.

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 times 4 = \$8 billion future annual hydrogen-related revenues, minus \$2.5 billion in current revenues (2021) = \$5.5 billion/year additional hydrogen-related revenues in the long term.

Cost to realize opportunity

100,000,000

Strategy to realize opportunity and explanation of cost calculation

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 is a global leader in (clean) H2 and a founding member of the Hydrogen Council. Furthermore, Linde implemented a dedicated Clean Energy organization to focus and accelerate activity in this area.

Linde today has a \$2.5-billion H2 business and possesses the necessary infrastructure. It owns 600 miles of pipeline and 180 major H2 plants and operates some of the most complex fulfilment processes around handling H2.

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 January 2021, Linde announced that it will build and operate the world's largest electrolysis plant in Leuna, Germany. Scheduled to go on stream in the second half of 2022, the PEM electrolyzer will produce 4,500 standard cubic meters of green H2 per hour and up to 3,200 tons per year. This would be sufficient to power around 600 fuel cell buses, enabling them to travel 40 million kilometers while saving up to 40,000 tons of CO2 per year. Linde furthermore is investing in its first large PEM electrolyzer plant in North America at Niagara falls, to be finalized in 2023. Both projects will help strengthen Linde's position as a technology leader in this area.

Explanation of cost calculation: Linde intends to invest >\$1 billion in decarbonization projects till 2028. The figure of \$1 billion is cumulative over 10 years and includes Linde's investments in H2 technologies and projects. Under “cost to realize opportunity” Linde discloses the average annual cost/investment being made. From 2019 – 2021 Linde invested \$299 million in decarbonization projects, the 3-years average is therefore about \$ 100 million. 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.

Comment

We 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). Linde has estimated probability-weighted investments of approximately \$ 5 billion in H2 capacities around the world in the next few years, and 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 transition plan that aligns with a 1.5°C world?

Row 1

Transition plan

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

Publicly available transition plan

Yes

Mechanism by which feedback is collected from shareholders on your 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 whereas 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 transition plan (optional)

Sustainable Development Report 2021

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		<p>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.</p> <p>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.</p> <p>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.</p> <p>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.</p>

		<p>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.</p> <p>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.</p> <p>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.</p> <p>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.</p>
<p>Physical climate scenarios RCP 4.5</p>	<p>Company-wide</p>	<p>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.</p> <p>Parameters, assumptions and analytical choices:</p> <p>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</p>

			<p>events.</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>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.</p> <p>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.</p>
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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). Linde chose 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. The SDS further stipulates a specific GHG pathway for the chemical industry - as a hard to abate sector - to meet a well-below 2 degrees world.

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 conducted scenario analysis and picked the RCP 4.5 scenario in order to gain a better understanding on how physical climate change impacts under a more conservative scenario could affect its business and company assets worldwide. Based on a detailed, context-specific assessment by plant and using context-specific scenario assumptions (e.g. regional area, plant specifics) Linde was able to estimate the potential impacts on its business and determine the financial effects of the physical climate change scenario in the short- mid and long term. Based on this the company draw conclusions about mitigation actions which need to be taken.

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

Q 1)

Linde used the SDS to explore policy, legal risks, technological risks, market risks and

reputational risks, as well as opportunities.

As a result of the analysis Linde gained more clarity on important business aspects like 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 Linde is falling behind competition. This could also have a negative impact on reputation. 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. The scenario analysis further revealed the financial risks connected with regulatory developments such as increasing carbon cost in the single geographies, especially in the European Union (EU and UK ETS). Risks in other business sectors, e.g. for ASU operations, include e.g. access to sufficient low carbon energy in the regions where needed and the risk of rising energy cost.

Based on the outcome of its analysis, Linde defined its new 2035 and 2050 GHG strategy and targets in 2021. Those address the risks assessed while contributing to the requirements of Paris Agreement. Specific actions include investing in clean energy generation and to triple the amount of low-carbon power sourced within 15 years. Linde furthermore plans to have several large H2 facilities in the US equipped with CCS by the end of the decade.

Q 2)

Under an RCP 4.5 scenario Linde could suffer in the mid and 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 for example, 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 increase in certain geographies, e.g. risk of hurricanes at the US Gulf coast. The global increase of water stress on the other side represents an opportunity for Linde as Linde offers clean-water solutions.

As a result of scenario analysis, mitigation strategies were defined to address the risks, for specific assets and regional areas. This 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	Description of influence
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influenced your strategy in this area?	
Products and services	<p>Yes</p> <p>Linde is a technology leader and at the forefront of innovation in many technology areas, including low-carbon products and services.</p> <p>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 has implemented an own product line for zero-carbon products “Linde Green” which is currently introduced in many regions worldwide.</p> <p>Linde has furthermore decided to put a strategic focus on the growing market of hydrogen, especially clean hydrogen.</p> <p>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.</p> <p>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 recently established an internal clean energy 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 recently announced that it will build, own and operate the world’s largest PEM (Proton Exchange Membrane) electrolyzer plant at the Leuna Chemical</p>

		<p>Complex in Germany. The new 24-megawatt electrolyzer will produce green hydrogen to supply Linde's industrial customers through the company's existing pipeline network.</p>
<p>Supply chain and/or value chain</p>	<p>Yes</p>	<p>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”.</p> <p>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.</p> <p>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 has implemented an own product line for zero-carbon products “Linde Green” which is currently introduced in many regions worldwide.</p> <p>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.</p> <p>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 recently established an internal clean energy 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 recently announced that it will build, own and operate the world's largest PEM (Proton Exchange</p>

		<p>Membrane) electrolyzer plant at the Leuna Chemical Complex in Germany. The new 24-megawatt electrolyzer will produce green hydrogen to supply Linde's industrial customers through the company's existing pipeline network.</p>
Investment in R&D	Yes	<p>Linde is a technology leader and at the forefront of innovation in many technology areas, including in low-carbon products and services.</p> <p>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.</p> <p>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.</p> <p>Those investments are targeted to find and implement innovative solutions and products/applications that can help mitigate climate change.</p> <p>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 recently established an internal clean energy and hydrogen organization with a focus on R&D and innovation in the area of clean hydrogen..</p>
Operations	Yes	<p>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</p>

	<p>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.</p> <p>For example, Linde has a target to realize \$ 1.3 billion in cost savings from sustainable productivity projects by 2028.</p> <p>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.</p> <p>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 2021, low carbon electricity procured increased to 17 TWh.</p>
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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	<p>Revenues</p> <p>Direct costs</p> <p>Indirect costs</p> <p>Capital expenditures</p>	<p>Revenues:</p> <p>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 opportunities from new low-carbon products and applications into its mid and long-term business plan.</p> <p>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).</p> <p>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, to reach up to \$ 8 billion in annual revenues, from currently \$ 2.5 billion, which represents an increase of over 300 %. 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.</p> <p>Direct Cost:</p> <p>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).</p> <p>Case Study: Linde needs to include in its annual budgets the expected cost from carbon legislation/taxation or trading schemes. For example, Linde is including cost estimates for the EU ETS fourth trading period (starting in 2021) and the expected level of allowances into its 2021 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.</p>

		<p>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.</p> <p>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 2021 Linde spent 27% 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.</p> <p>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.</p> <p>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. Linde recently announced that it will build, own and operate the world's largest PEM (Proton Exchange Membrane) electrolyzer plant at the Leuna Chemical Complex in Germany, to be operational by mid 2022. Furthermore, Linde is building its first PEM electrolyzer plant at Niagara Falls which will yield financial results starting 2023. From 2018-2021, Linde invested about \$ 300 million in decarbonization projects/initiatives. The CAPEX required for such projects/initiatives are factored into the overall annual CAPEX planning/budget of the company.</p>
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C3.5

(C3.5) In your organization’s financial accounting, do you identify spending/revenue that is aligned with your organization’s transition to a 1.5°C world?

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

Intensity target

C4.1a

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

Target reference number

Abs 1

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 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 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)

16,321,000

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

23,573,000

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)

39,894,000

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

0

Target status in reporting year

New

Is this a science-based target?

Yes, we consider this a science-based target, and the target is currently being reviewed by the Science Based Targets initiative

Target ambition

Well-below 2°C aligned

Please explain target coverage and identify any exclusions

The target covers Linde's scope 1 and 2 emissions. The scope, boundaries and any exclusions are aligned with the scope and boundaries for our environmental reporting for consolidated entities. The target thus covers all entities included in the eKPI reporting cycle.

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

This is a new target, approved by executive leadership and the Linde Board in fall 2021. It is a subsequent target to Linde's GHG intensity target which runs till 2028 and where good progress has been made so far. The new absolute emission target has a baseline of 2021. There currently is no specific chemical sector guidance for a science based target. Therefore, Linde's absolute emissions reduction target has been calculated in accordance with the general cross-sectoral SBTi criteria for a well-below 2 degrees scenario. Linde previously committed to setting a Science Based Target with the Science Based Targets initiative and continues to work with SBTi regarding its climate change commitments.

Linde has put into place detailed measures to reach this target. For example, Linde plans to triple its low-carbon energy sourced within 15 years, and to have its major H2 facilities equipped with carbon capture and storage (CCS) by the end of the decade. Linde also plans to expand usage of renewable feedstock and offer green (carbon-free) products as alternatives to conventional products. Hydrogen will gradually move from grey to blue and green hydrogen. Linde is already actively working towards this target, e.g. in 2021 more and more Linde sales regions have adopted the "Linde Green" product line, offering carbon-free atmospheric gases. Furthermore, studies were conducted about the feasibility of different carbon capture solutions at Linde's existing hydrogen plants.

The 2035 absolute emissions reduction target forms a prerequisite and a key mark on Linde's pathway to climate neutrality by 2050.

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

C4.1b

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

Target reference number

Int 1

Year target was set

2019

Target coverage

Company-wide

Scope(s)

Scope 1

Scope 2

Scope 2 accounting method

Market-based

Scope 3 category(ies)

Intensity metric

Other, please specify

Million metric tons of CO₂e per EBITDA in billion USD

Base year

2018

Intensity figure in base year for Scope 1 (metric tons CO₂e per unit of activity)

2.22

Intensity figure in base year for Scope 2 (metric tons CO₂e per unit of activity)

3.09

Intensity figure in base year for Scope 3 (metric tons CO₂e per unit of activity)

Intensity figure in base year for all selected Scopes (metric tons CO₂e per unit of activity)

5.31

% of total base year emissions in Scope 1 covered by this Scope 1 intensity figure

100

% of total base year emissions in Scope 2 covered by this Scope 2 intensity figure

100

% of total base year emissions in Scope 3 (in all Scope 3 categories) covered by this Scope 3 intensity figure

% of total base year emissions in all selected Scopes covered by this intensity figure

100

Target year

2028

Targeted reduction from base year (%)

35

Intensity figure in target year for all selected Scopes (metric tons CO₂e per unit of activity) [auto-calculated]

3.4515

% change anticipated in absolute Scope 1+2 emissions

-8

% change anticipated in absolute Scope 3 emissions

0

Intensity figure in reporting year for Scope 1 (metric tons CO₂e per unit of activity)

1.6

Intensity figure in reporting year for Scope 2 (metric tons CO₂e per unit of activity)

2.32

Intensity figure in reporting year for Scope 3 (metric tons CO₂e per unit of activity)

Intensity figure in reporting year for all selected Scopes (metric tons CO₂e per unit of activity)

3.92

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

74.7914985203

Target status in reporting year

Underway

Is this a science-based target?

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

Target ambition

Please explain target coverage and identify any exclusions

During 2019, Linde defined its new 10-year climate change targets to address its energy and GHG intensity. Those targets run against a 2018 pro forma baseline. Linde's GHG intensity target covers its scope 1 and 2 emissions. The scope, boundaries and any exclusions are aligned with the scope and boundaries for our environmental reporting for consolidated entities. The target thus covers all entities included in the periodic eKPI reporting cycle.

In order to show GHG efficiency against a business denominator, Linde selected the adjusted pro forma EBITDA, which is one of the non-GAAP measures reported by Linde plc. It reflects the size of the business for which the emissions are being reported and the efficiency improvements that are being targeted. Adjusted pro forma EBITDA is a

non-GAAP measure prepared on a basis consistent with Article 11 of Regulation S-X of the U.S. Securities and Exchange Commission and includes certain non GAAP adjustments. Linde's 2021 adjusted pro forma EBITDA was \$10.2 billion.

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

Linde's GHG intensity target runs from 2018-2028. By the end of 2021 target achievement already was 75%. Linde has defined several operational targets by business area which will help achieve its overall GHG efficiency target. Those include an ASU energy intensity target, HyCO GHG intensity target, fleet GHG intensity target, "other GHG" absolute reduction targets, and targets for low-carbon project investments and R&D spend, as reported in Linde's 2021 Sustainable Development Report and under C4.2. In 2021, Linde made good progress against all of those targets. The "Other GHG" reduction target has already been overachieved in 2021 by almost 400%, among others due to implementation of process improvements and best practice standards in refrigerant handling and N2O production.

When Linde originally developed its 2028 intensity target, Linde assumed a further increase of absolute emissions till 2028. This was primarily due to assumptions on strong business growth in the area of hydrogen and new technologies reaching large scale commercialization only after the 2028 target horizon (and thus little potential to reduce scope 1 by 2028).

In March 2020, Linde officially committed to work towards setting a science-based target in line with its industry sector, and in accordance with the Science-Based Targets initiative. In fall 2021 Linde leadership and the Board finally approved Linde's new 2035 absolute GHG reduction and 2050 net zero targets (see target "Abs 1"). This had an impact on Linde's planned GHG trajectory, resulting in a shorter time span of growing emissions, and an earlier start of emissions decline, with an assumed 8% reduction in absolute emissions already achieved in 2028, compared to the 2018 baseline.

Due to a major change in electricity emissions factors determined in 2021 and applied retrospectively to 2018-2020 years, scope 2 as well as GHG vs. EBITDA intensity slightly increased compared to last year's reporting, for the baseline year and target year. The improvement rate itself (35% reduction) was not impacted by this change.

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?

- Target(s) to reduce methane emissions
- Net-zero target(s)
- Other climate-related target(s)

C4.2b

(C4.2b) Provide details of any other climate-related targets, including methane reduction targets.

Target reference number

Oth 1

Year target was set

2019

Target coverage

Company-wide

Target type: absolute or intensity

Absolute

Target type: category & Metric (target numerator if reporting an intensity target)

Other, please specify

Other, please specify

Reduction of other scope 1 GHG emissions incl. methane emissions in million tons CO2e

Target denominator (intensity targets only)

Base year

2018

Figure or percentage in base year

1.43

Target year

2028

Figure or percentage in target year

1.29

Figure or percentage in reporting year

0.89

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

385.7142857143

Target status in reporting year

Achieved

Is this target part of an emissions target?

Yes, it is part of the overall GHG intensity target described as Int 1

Is this target part of an overarching initiative?

No, it's not part of an overarching initiative

Please explain target coverage and identify any exclusions

This target relates to a set of "Other" GHG emissions within scope 1 from sources of GHG other than direct CO₂ emitted, including methane emissions. Other GHG emissions within this target are from refrigerant losses from cylinder refilling operations; nitrous oxide (N₂O) emissions from N₂O plants and cylinder filling; and methane releases from helium and CO₂ plants, which account for most of Linde's other GHG emissions. The target is to reduce these absolute emissions by 10% by 2028.

Due to a deconsolidation of a reporting entity in Taiwan Linde has adjusted its baseline value in order to compare the values using the same boundaries between reporting year and baseline year. Linde's 2021 scope 1 figures however reflect the full reduction incl. the change in consolidation cycle.

In 2021, Linde achieved this target, reaching a reduction of 38% of this sort of emissions compared to 2018.

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

List the actions which contributed most to achieving this target

Best practice awareness and programs for refrigerants and nitrous oxide at the plants concerned led to continuous improvements in fugitive emissions since 2018. Part of the effect and reduction is furthermore due to the application of AR5 global warming potentials (GWPs) in 2021, compared to AR4 from IPCC, for N₂O and refrigerants, reflecting the worldwide improvement of global warming potential from such substances.

Target reference number

Oth 2

Year target was set

2019

Target coverage

Company-wide

Target type: absolute or intensity

Absolute

Target type: category & Metric (target numerator if reporting an intensity target)

R&D investments

Percentage of R&D budget/portfolio dedicated to low-carbon products/services

Target denominator (intensity targets only)

Base year

2018

Figure or percentage in base year

23

Target year

2028

Figure or percentage in target year

33

Figure or percentage in reporting year

27

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

40

Target status in reporting year

Underway

Is this target part of an emissions target?

No, our overarching emission reduction target does not factor in results from current R&D developments in the low carbon area, as the results and timing when effects from such new technologies will materialize are difficult to predict. Impacts from low-carbon developments/innovation will come on top of the managed targets defined for 2028 but are rather expected to be effective in the mid and long term.

Is this target part of an overarching initiative?

No, it's not part of an overarching initiative

Please explain target coverage and identify any exclusions

Linde plans to spend more than one third of its annual R&D budget on low carbon technologies, by 2028. The scope includes annual spend to develop lower-carbon technology for Linde assets or to develop lower-carbon solutions for our customers as compared to total R&D spend reported under US-GAAP.

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

Linde invested 27 percent of its 2021 R&D budget (\$144 million) into decarbonization (2020: 26 percent). Initiatives include developing industry-leading carbon capture technologies, driven for example by Linde's engineering division, investing in promising green hydrogen technologies, and driving operational efficiency to further reduce GHG intensity.

List the actions which contributed most to achieving this target

Target reference number

Oth 3

Year target was set

2019

Target coverage

Company-wide

Target type: absolute or intensity

Absolute

Target type: category & Metric (target numerator if reporting an intensity target)

Other, please specify

Other, please specify

Investment in low carbon projects / initiatives

Target denominator (intensity targets only)

Base year

2018

Figure or percentage in base year

0

Target year

2028

Figure or percentage in target year

1,000,000,000

Figure or percentage in reporting year

299,000,000

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

29.9

Target status in reporting year

Underway

Is this target part of an emissions target?

This target is not directly part of Linde's emission reduction target (as a sub target of this), however will help to achieve overall GHG efficiency savings due to a higher portion of low-carbon projects in the future (incl. CCUS projects, etc.)

Is this target part of an overarching initiative?

No, it's not part of an overarching initiative

Please explain target coverage and identify any exclusions

Linde plans to invest more than \$1 billion in low-carbon projects impacting Linde's own carbon footprint or that of its customers. The scope is capital projects of more than \$2 million, 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.

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

Since 2018, Linde has invested a cumulative \$299 million. Investments in low-carbon projects and initiatives are growing year over year. Low-carbon investments made in 2021 were about 3 times the amount invested in 2020. Part of the 2021 investment amount forms Linde's first PEM electrolyzer facility in North America in Niagara Falls to produce green hydrogen. Linde among others is planning to extend its green hydrogen production as well as invest in retrofitting existing hydrogen plants with carbon capture technology in the coming years.

List the actions which contributed most to achieving this target

Target reference number

Oth 4

Year target was set

2019

Target coverage

Company-wide

Target type: absolute or intensity

Absolute

Target type: category & Metric (target numerator if reporting an intensity target)

Other, please specify

Other, please specify

Emissions avoided through the use of Linde products and applications

Target denominator (intensity targets only)

Base year

2021

Figure or percentage in base year

2

Target year

2021

Figure or percentage in target year

2.2

Figure or percentage in reporting year

2.2

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

100

Target status in reporting year

Achieved

Is this target part of an emissions target?

No

Is this target part of an overarching initiative?

No, it's not part of an overarching initiative

Please explain target coverage and identify any exclusions

Linde has set a target to enable annually two times the amount of its own scope 1+2 GHG emissions to be avoided by customers or their end users from certain signature products. The target runs from 2018-2028. The target must be achieved each year, therefore each reporting year is a target year as well as the base year.

The figure or percentage above was set to 2 for the base year as this is the required achievement (2 times emissions avoided by our customers). The values for target year = reporting year were set to 2.2. This is the value which was actually achieved in 2021. The target was therefore 100% achieved.

In 2021, our scope 1 and 2 emissions were 39,900,000 MT, meaning our target was to enable at least 79,800,000 MT to be avoided by customers. ($39,900,000 \text{ MT CO}_2\text{e} * 2 = 79,800,000 \text{ MT CO}_2\text{e}$). In fact, Linde avoided 88,000,000 MT in 2021 which is 2.2 times the amount of our own scope 1 and 2 emitted.

Plan for achieving target, and progress made to the end of the reporting year**List the actions which contributed most to achieving this target**

We calculated the carbon productivity of 5 signature products in 5 markets, including hydrogen sold to make ultra-low sulfur fuel (used in vehicles with diesel particulate filters), oxygen sold to optimize combustion in steelmaking, krypton sold to insulate windows, argon for welding, and specialty coatings to make thermal barriers for industrial gas turbine and jet engine efficiency. These markets contributed around 8% of gases sales in 2021.

Linde does not calculate scope 3 GHG emissions from use of our products. Therefore, we are not able to express this target as a scope 3 reduction target. Instead, we describe it here as "other."

Target reference number

Oth 5

Year target was set

2019

Target coverage

Company-wide

Target type: absolute or intensity

Absolute

Target type: category & Metric (target numerator if reporting an intensity target)

Other, please specify

Other, please specify

Consumption of low-carbon electricity

Target denominator (intensity targets only)

Base year

2018

Figure or percentage in base year

14,000,000

Target year

2028

Figure or percentage in target year

28,000,001

Figure or percentage in reporting year

17,000,000

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

21.428569898

Target status in reporting year

Underway

Is this target part of an emissions target?

Yes. This target feeds into the overall scope 1 and 2 GHG efficiency target (reduce GHG vs. EBITDA intensity by 35% till 2028) as described in the intensity target section. This target tackles Linde's scope 2 emissions.

Is this target part of an overarching initiative?

No, it's not part of an overarching initiative

Please explain target coverage and identify any exclusions

Linde has set a target to more than double its absolute annual consumption of low-carbon electricity, primarily from active renewable energy sourcing, from 2018-2028.

Linde is targeting to increase low-carbon electricity sourced to over 28 TWh, from a 14 TWh baseline in 2018. The scope is all Linde operations within our GHG reporting boundary. Low carbon electricity is defined as electricity produced from non-fossil fuel sources (including renewables, such as solar, wind, biomass, geothermal, hydro and other low-carbon, [e.g., nuclear]). The target includes passive electricity (i.e., from the grid) and active sourcing over PPAs, RECs, certificates and sourcing contracts for specific facilities. It considers all energy consumption where Linde purchases the electricity. It excludes electricity where Linde is not the purchaser.

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

In 2018, the baseline year of the target, Linde sourced 14.0 TWh of low carbon electricity. In 2021, Linde sourced 17.0 TWh low-carbon energy, and is well on track to achieve >28 TWh of low carbon electricity sourcing by 2028. The target achievement by end of 2021 was 21.4% (calculated above as -21.4%).

In 2021, Linde actively sourced 3.5 TWh of renewable/low-carbon energy, an increase of 1 TWh compared to 2018. Linde electricity use in the UK is almost 100 percent renewable. Renewable electricity is also sourced in New York State (U.S.), Colombia, India, Spain, the Philippines and other geographies.

In order to achieve this target Linde pursues various opportunities to increase its renewable/low-carbon electricity sourced. This includes renegotiations/adjustments of utilities supplier contracts, active sourcing over PPAs, RECs, certificates and new sourcing contracts for specific facilities. For each new site options for carbon-free energy provision are thoroughly evaluated.

This target is originally part of Linde's 2018-2028 sustainable development target to reduce GHG intensity by 35% (using EBITDA as the denominator) and continues to be tracked till 2028. For the years 2021-2035 Linde recently defined a new absolute GHG reduction target including a measure to triple low-carbon energy sourced between 2021-2035.

List the actions which contributed most to achieving this target

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*	2	53
Implementation commenced*	744	269,000
Implemented*	1,483	427,000
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)

315,775

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)

55,512,000

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

39,600,000

Payback period

1-3 years

Estimated lifetime of the initiative

Ongoing

Comment

617 voluntary projects were completed in 2021, 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. 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 2021 from projects which are not yet completed.

Initiative category & Initiative type

Transportation
 Company fleet vehicle efficiency

Estimated annual CO2e savings (metric tonnes CO2e)

28,364

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)

34,721,000

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

8,300,000

Payback period

1-3 years

Estimated lifetime of the initiative

Ongoing

Comment

679 voluntary projects were implemented in 2021, 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 2021 from projects which are not yet completed.

Initiative category & Initiative type

Fugitive emissions reductions

Other, please specify

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

Estimated annual CO₂e savings (metric tonnes CO₂e)

35,086

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)

6,168,000

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

4,400,000

Payback period

1-3 years

Estimated lifetime of the initiative

Ongoing

Comment

69 projects were implemented in 2021 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 2021 from projects which are not yet completed.

Initiative category & Initiative type

Energy efficiency in buildings

Other, please specify

different initiatives providing savings in power consumptions incl. efficient lightning solutions, insulations or solar panel installation

Estimated annual CO₂e savings (metric tonnes CO₂e)

2,556

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

Scope 2 (market-based)

Voluntary/Mandatory

Voluntary

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

1,318,000

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

300,000

Payback period

1-3 years

Estimated lifetime of the initiative

Ongoing

Comment

45 voluntary projects providing permanent reduction in power consumption for lighting retrofits, HVAC controls and building power improvements like installation of solar panels.

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 2021 from projects which are not yet completed.

Initiative category & Initiative type

Company policy or behavioral change

Resource efficiency

Estimated annual CO₂e savings (metric tonnes CO₂e)

45,480

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)

13,404,000

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

400,000

Payback period

4-10 years

Estimated lifetime of the initiative

Ongoing

Comment

73 projects 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 2021 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	<p>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.</p> <p>As part of Linde's new 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</p>

	<p>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.</p> <p>In 2021, energy and GHG efficiency projects resulted in savings of more than \$187 million, and 696,000 MT CO₂e avoided (counting both implemented projects and projects where implementation has commenced but full benefits will accrue in 2021). These projects contributed to a reduction in electricity use as well as reductions in natural gas and fuel use.</p>
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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 2021 led to CO₂ savings of 61,700,000 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% of Linde revenues in 2021 and led to 88 million MT CO₂e avoided which is 2.2 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 2021;

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

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 (CO2). 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 CO₂ and water vapour. The flue gas stream is therefore smaller and easier to handle. This vapour is easily condensable, leaving a highly concentrated CO₂ 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).

CO₂ savings by applying Linde's oxyfuel technology amounted to 11,600,000 tons in 2021.

<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% in 2021 and led to 88 million MT CO₂e avoided, 2 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

1.584

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 2021;
 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 1.58 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

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 insulation. Application of Linde's krypton for insulation of windows led to CO2 savings of 3.1 million tons in 2021.

CO2 avoided by use of krypton for windows isolation was 3,100,000 tons in 2021.

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% in 2021 and led to 88 million MT CO2e avoided, 2 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

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 2021 were 1 million tons CO₂.

Total revenues for Linde's 5 signature products incl. argon represented 8% in 2021.

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

1,000,000

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 2021;

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

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 speciality 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 2021 amounted to 10,500,000 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% in 2021 and led to 88 million MT CO2e avoided, 2 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

777.1

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 Boeing data, 23,715 commercial jet aircraft with more 30 seats were in service WW in 2021. (This number excludes turbo props, biz jets and 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 2021 is 957,128 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 55%.

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 2021 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 natural 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

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

Linde has de-consolidated its operational entities in Taiwan which are now accounted for as at-equity joint ventures.

Details of structural change(s), including completion dates

For 2021, Linde Taiwan is not fully consolidated anymore, this means Linde corporate sales and EBIT do not include results from Linde Taiwan business. The entities are now held as joint ventures. In line with this change environmental KPIs are not included anymore within scope 1 and 2 emissions. Emissions from Taiwan business are now shown under scope 3 category 15 "investments".

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	<p>Yes, a change in methodology</p> <p>Yes, a change in boundary</p>	<p>Scope 2 market-based, methodology changes: In 2021 Linde performed an in-depth review of its plant-specific electricity emissions factors. In the course of this exercise Linde updated market-based factors for some production plants which in the past were still using regional factors. The adjustment of emission factors resulted in an increase of market-based scope 2 for 2021. In addition, Linde is now classifying GHG for compressed air purchased as scope 3 from raw materials instead of electricity invoiced (scope 2). Both changes impact scope 2 by about 1.4 million tons.</p> <p>Scope 3, categories 1 and 2, methodology and boundary change: In 2021 Linde defined a new methodology and new boundaries for calculating scope 3 from purchased goods and services. The calculation is now based upon a 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. (This "estell" model is proprietary of Sustain Consulting.) The calculation now considers all relevant raw materials and capital items sourced (covering >95% of raw material spend). In addition, Linde started collecting carbon information directly from its suppliers and integrated this information in the</p>

	<p>overall calculation. The change results in an increase of about 1.2 million tons.</p> <p>Scope 3, category 4 and 9 reclassification: Linde in the past disclosed transport emissions for its outbound transports by external carriers generally as scope 3 downstream emissions. Linde did thereby not differentiate between who is paying for the transport. However, a closer review of GHG reporting guidelines revealed that outbound logistics paid by the reporting entity is to be disclosed as upstream emissions. This led to a reclassification of downstream emissions category 9 to upstream emissions category 4 in 2021.</p> <p>Scope 3, category 4 change of boundaries: In 2021 Linde took a closer look at its scope 3 emissions from its worldwide construction business (Linde Engineering). Emissions from purchased products and services, including freight services, were calculated using estell model. The analysis showed that emissions caused by construction components transported to construction sites (e.g. over air or sea) are material and need to be included into Linde's overall scope 3 category 4 disclosure. Thus, Linde is including those emissions for the first time in its 2021 reporting (increase by 170.000 tons).</p>
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C5.1c

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

	Base year recalculation	Base year emissions recalculation policy, including significance threshold
Row 1	Yes	<p>According to Linde's GHG Emissions Recalculation Policy (available on Linde website), Linde will restate its baseline, if any changes drive an increase/decrease in emissions of greater than 5%, in accordance with the GHG Protocol guidance Tracking Emissions Over Time.</p> <p>Scope 2 (market-based): The changes described above (change in emissions factors and reclassification of energy for purchased compressed air) exceed 5%, therefore market-based scope 2 emissions have been recalculated for the baseline year 2018 and following years.</p> <p>Scope 3 emissions, category 1+2: The required pro-forma data from 2018 for legacy companies is not available in order to perform a proper estimate of prior years based on the same methodology.</p> <p>Scope 3 emissions, category 4+9 : reclassification : This is a change of reporting category. Emissions from contractor driving were previously classified as downstream emissions (category 9) and have been reclassified to category 4, per guidance in the Greenhouse Gas Protocol.</p>

		<p>Scope 3, category 4 change of boundaries: Starting 2021, Linde includes the upstream transport emissions from its engineering business (by external carriers). The required pro-forma data from 2018 for legacy companies is not available in order to perform a proper estimate of prior years based on the same methodology.</p>
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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. In the future should Linde decide to define 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. In the future if Linde might decide to define specific scope 3 targets, the company may also decide to change/shift the 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 2 legacy companies, 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. In the future should Linde decide to define 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 2 legacy companies, which is based on the available data and calculations for this category at the time of the merger. These emissions were previously categorized and disclosed as downstream emissions, but have been reclassified to upstream emissions in accordance with the GHG Protocol.

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. In the future should Linde decide to define 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, 2018

Base year end

December 31, 2018

Base year emissions (metric tons CO2e)

0

Comment

This value is insignificant to Linde (<1% of scope 3) and therefore not tracked.

Scope 3 category 6: Business travel

Base year start

January 1, 2018

Base year end

December 31, 2018

Base year emissions (metric tons CO2e)

0

Comment

This value is insignificant to Linde (<1% of scope 3). However, Linde has previously reported the value and reports on this number from 2019 onwards.

Scope 3 category 7: Employee commuting

Base year start

January 1, 2018

Base year end

December 31, 2018

Base year emissions (metric tons CO2e)

0

Comment

This value is insignificant to Linde (<1% of scope 3) and therefore not reported.

Scope 3 category 8: Upstream leased assets

Base year start

January 1, 2018

Base year end

December 31, 2018

Base year emissions (metric tons CO2e)

0

Comment

This value is insignificant to Linde (<1% of scope 3) and therefore not tracked.

Scope 3 category 9: Downstream transportation and distribution

Base year start

January 1, 2018

Base year end

December 31, 2018

Base year emissions (metric tons CO2e)

0

Comment

In the past Linde reported this category including emissions from downstream transportation to the customer by external transport agencies. However, due to a further review of GHG protocol guidance, these have been reclassified as upstream transportation (category 4), as they are paid for by the reporting entity.

Outbound transports by external carriers are generally paid by Linde and not by the customer, therefore this category is not relevant to Linde.

Scope 3 category 10: Processing of sold products

Base year start

January 1, 2018

Base year end

December 31, 2018

Base year emissions (metric tons CO2e)

0

Comment

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. This category is therefore not relevant for Linde.

Scope 3 category 11: Use of sold products

Base year start

January 1, 2018

Base year end

December 31, 2018

Base year emissions (metric tons CO₂e)

0

Comment

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. Despite the complexity and diversity of application, Linde has started to evaluate the CO₂ impact of the use of its products sold and plans to consider expanding its reporting in the future.

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

Base year start

January 1, 2018

Base year end

December 31, 2018

Base year emissions (metric tons CO₂e)

0

Comment

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. It is estimated that such emissions represent <1% of total scope 3. This category is therefore not relevant for Linde.

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. In the future should Linde decide to define 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

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. Currently there are no targets set for scope 3. In the future should Linde decide to define 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

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)

16,321,000



Start date

January 1, 2021

End date

December 31, 2021

Comment

In 2021, absolute scope 1 emissions slightly increased by 0.5% compared to 2020.

The primary source of scope 1 emissions for Linde is the combustion of natural gas at hydrogen plants, which represented 11.4 million tons of scope 1 emissions in 2021, an increase of 8% compared to 2020, which was mainly due to a strong increase in hyco/hydrogen production.

Emissions from non-hyco plants including ASUs run by natural gas as well as CO2 plants kept stable from 2020 to 2021.

Other GHG emissions from sources such as refrigerant filling losses or N2O dropped substantially in 2021 by 38% or 640,000 tons. This was due to good progress in implementing best practice standards and process optimizations. A small impact stems from the application of AR5 global warming potentials (GWPs) in 2021, compared to AR4 from IPCC, for N2O and refrigerants, reflecting the worldwide improvement of global warming potential from such substances.

Past year 1

Gross global Scope 1 emissions (metric tons CO2e)

Start date

End date

Comment

no change

Past year 2

Gross global Scope 1 emissions (metric tons CO2e)

Start date

End date

Comment

no change

Past year 3**Gross global Scope 1 emissions (metric tons CO2e)****Start date****End date****Comment**

no change

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

21,413,000

Scope 2, market-based (if applicable)

23,573,000

Start date

January 1, 2021

End date

December 31, 2021

Comment

In 2021 Linde performed an in-depth review of its plant-specific electricity emissions factors. In the course of this exercise Linde updated market-based factors for some production plants which in the past were still using regional factors. The adjustment of emission factors resulted in an increase of market-based scope 2 for 2021. In addition, Linde is now classifying GHG for compressed air purchased as scope 3 from raw materials instead of electricity invoiced (scope 2). The changes together lead to an overall increase in market-based scope 2 by about 1.4 million tons. There is no impact on location based scope 2.

Based on the materiality Linde decided to restate market-based scope 2 emissions for the years 2018-2020.

On a new comparable basis, Linde's market-based scope 2 emissions increased by 1.3 million tons CO₂e in 2021 compared to 2020, or by 5.7%. The main reason for this is that 3 steam plants in China went on-stream in 2021 or completed their ramp up which leads to a considerable increase in steam consumption in 2021 (more than 3 million MWh). In addition, in 2021 outputs increased in general for Linde's ASUs. Overall, Linde's sales increased by 13% from 2020 to 2021. Due to Linde's efforts in low carbon energy procurement and improvements in energy efficiency the impacts from this business growth on Linde's overall emissions could be limited.

Past year 1

Scope 2, location-based

19,818,000

Scope 2, market-based (if applicable)

22,299,000

Start date

January 1, 2020

End date

December 31, 2020

Comment

In 2021 Linde performed an in-depth review of its plant-specific electricity emissions factors. In the course of this exercise Linde updated market-based factors for some production plants which in the past were still using regional factors. The adjustment of emission factors resulted in an increase of market-based scope 2 for 2021. In addition, Linde is now classifying GHG for compressed air purchased as scope 3 from raw materials instead of electricity invoiced (scope 2).

The changes were applied retrospectively to 2018-2020 market-based scope 2. For 2020 this led to an increase of market-based scope 2 by about 1.3 million tons. There is no impact on location-based scope 2.

Past year 2**Scope 2, location-based**

20,806,000

Scope 2, market-based (if applicable)

23,448,000

Start date

January 1, 2019

End date

December 31, 2019

Comment

In 2021 Linde performed an in-depth review of its plant-specific electricity emissions factors. In the course of this exercise Linde updated market-based factors for some production plants which in the past were still using regional factors. The adjustment of emission factors resulted in an increase of market-based scope 2 for 2021. In addition, Linde is now classifying GHG for compressed air purchased as scope 3 from raw materials instead of electricity invoiced (scope 2).

The changes were applied retrospectively to 2018-2020 market-based scope 2. For 2019 this led to an increase of market-based scope 2 by about 1.2 million tons. There is no impact on location-based scope 2.

Past year 3

Scope 2, location-based

0

Scope 2, market-based (if applicable)

23,518,000

Start date

January 1, 2018

End date

December 31, 2018

Comment

In 2021 Linde performed an in-depth review of its plant-specific electricity emissions factors. In the course of this exercise Linde updated market-based factors for some production plants which in the past were still using regional factors. The adjustment of emission factors resulted in an increase of market-based scope 2 for 2021. In addition, Linde is now classifying GHG for compressed air purchased as scope 3 from raw materials instead of electricity invoiced (scope 2).

The changes were applied retrospectively to 2018-2020 market-based scope 2. For 2018 this led to an increase of market-based scope 2 by about 1.2 million tons. There is no impact on location-based scope 2 (Linde doesn't report a baseline value for 2018 location based scope 2).

C6.4

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

Yes

C6.4a

(C6.4a) Provide details of the sources of Scope 1 and Scope 2 emissions that are within your selected reporting boundary which are not included in your disclosure.

Source

Small sales offices or workshops which consume small amounts of electricity which are not relevant to Linde's overall footprint; start-ups during ramp-up phase.

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 (if applicable)

Emissions are not relevant

Explain why this source is excluded

Linde has defined de-minimis criteria for the reporting of climate related KPIs from its over 1000 locations worldwide. For example, Linde has small sales offices or workshops which consume small amounts of electricity which are not relevant to Linde's overall footprint. Furthermore, Linde considers emissions from facilities three months after start-up, to allow for stabilization of processes and when the plant is close to reaching targeted loads.

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

1

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

Linde evaluated how many offices and sites would fall under the de-minimis criteria and multiplied that by the mid-range de-minimis value (conservative approach as many of these sites have minimal to no energy consumption). The calculated total of all such small entities times the middle de-minimis value was approximately 1% of Linde's total energy consumption.

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)

4,250,000

Emissions calculation methodology

Hybrid method
 Spend-based method
 Fuel-based method

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

18

Please explain

In 2021, Linde defined a new company-wide methodology to calculate its scope 3 category 1 emissions, as well as expanded its boundaries, leading to a substantial increase of its reported emissions in this category (by 2.6 million tons CO₂e).

Linde's scope 3 category 1 now considers scope 3 emissions from Linde's purchased raw materials representing >95% of Linde's procurement spend 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. Those have considerably increased in 2021 also impacting Linde's scope 3 category 1.

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 18% of scope 3 category 1.

Capital goods

Evaluation status

Relevant, calculated

Emissions in reporting year (metric tons CO₂e)

810,000

Emissions calculation methodology

Hybrid method

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

4

Please explain

In 2021, Linde applied a new company-wide methodology to calculate its scope 3 category 1 emissions, which considers 100% of capital goods procured by Linde allocated to a procurement category, like cylinders, tanks, healthcare, automotive or plant components capitalized, as well as production plants operated by Linde.

The calculation 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 Sustain 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 4% of total emissions in this category for 2021.

The scope 3 category 2 value dropped in 2021 compared to previous year. This is due to a reclassification of some procurement categories which were previously considered as capital goods which are now correctly disclosed under raw materials.

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

Evaluation status

Relevant, calculated

Emissions in reporting year (metric tons CO₂e)

7,430,000

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.

In 2021 DEFRA adjusted its methodology and underlying assumptions to calculate its scope 3 emissions factors for fuel and energy. This led to a significant increase of the scope 3 factors relevant for category 3, and as a consequence an increase in Linde's scope 3 emissions in this category by more than 2 million tons CO₂. A small portion of the increase in 2021 is also based on higher fuel and electricity consumption due to increased production/output.

Upstream transportation and distribution

Evaluation status

Relevant, calculated

Emissions in reporting year (metric tons CO₂e)

780,000

Emissions calculation methodology

Spend-based method

Distance-based method

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

78

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. Downstream transports to the customer have previously been reported under category 9 downstream transportation. A closer look at the GHG protocol guidance in 2021 however revealed that inbound and outbound logistics paid by the reporting entity are to be disclosed as upstream emissions, category 4. As generally Linde pays for product deliveries to its clients, those emissions are now classified under category 4 (reclassification from category 9 to category 4).

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, Apr. 6, 2018. Transport emissions from the outbound distribution of gases by external contractors represented 78% of scope 3 category 4 in 2021.

In addition, in 2021 Linde implemented a new third party tool ("estell") to calculate emissions from products and services procured which is using a spent-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 22% of this scope 3 category in 2021.

Waste generated in operations

Evaluation status

Not relevant, explanation provided

Please explain

Emissions from waste generated in operations represent <1% of total scope 3 emissions and are therefore not calculated.

Business travel

Evaluation status

Not relevant, calculated

Emissions in reporting year (metric tons CO2e)

21,000

Emissions calculation methodology

Distance-based 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 anyway started to calculate and report that value in 2019. The calculation is based on air miles travelled by country of destination. Calculation uses CO2 factors provided by the respective airline. For 2021 the calculated value of 2020 has been carried forward.

Employee commuting

Evaluation status

Not relevant, explanation provided

Please explain

Emissions from employee commuting represent <1% of total scope 3 emissions and are therefore not calculated. Furthermore, in 2021 the health-protection measures due to Covid-19 led to a strong decrease in employee commuting.

Upstream leased assets

Evaluation status

Not relevant, explanation provided

Please explain

Emissions from upstream leased assets are not considered relevant by Linde as Linde rarely leases assets. In a few cases small office spaces are rented. Linde estimates that scope 3 from leased assets represent less than 1% of its total scope 3 emissions

Downstream transportation and distribution

Evaluation status

Not relevant, explanation provided

Please explain

Linde has in the past reported emissions from outbound logistics by external carriers under this category. This transportation cost is paid by Linde and these emissions have now been reclassified as upstream logistics (see category 4).

Processing of sold products

Evaluation status

Not relevant, explanation provided

Please explain

According to the GHG Protocol's Technical Guidance for Calculating Scope 3 Emissions (version 1.0), guidance for category 10, this category includes emissions from processing of sold intermediate products by third parties (e.g., manufacturers), subsequent to sale by the reporting company. Linde produces industrial gases for multiple uses in e.g. industrial applications, by commercial or private customers. In most instances industrial gases are used as a finished product e.g. in industrial processes (steel making, desulphurization of diesel, in food industry, etc.) or in healthcare applications. In some cases industrial gases, e.g. specialty gases are used as an ingredient to another end product, e.g. in electronics. This however represents only a small portion of gases sold.

Despite the complexity and diversity of application, Linde has started to evaluate methodologies that will provide reasonable estimates of the downstream CO₂ impact of Linde's products and the company expects to expand its reporting in the future.

Linde engineering sells turnkey plants which also do not require further processing before end usage by the customer.

Linde therefore considers scope 3 category 10 as not relevant.

Use of sold products

Evaluation status

Relevant, not yet calculated

Please explain

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. In most instances industrial gases are used as a finished product e.g. in industrial processes (steel making, desulphurization of diesel, in food industry, etc.) or in healthcare applications. In some cases industrial gases, e.g. specialty gases, are used as an input for another end product, for example in electronics.

Some of the gases sold are contributing to global warming when released during their usage (e.g. CO₂). Sales of greenhouse gases other than CO₂ (e.g. 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.

Despite the complexity and diversity of application, Linde has started to evaluate methodologies that will provide reasonable estimates of the downstream CO₂ impact of Linde's products and the company expects to expand its reporting in the future.

End of life treatment of sold products

Evaluation status

Not relevant, explanation provided

Please explain

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 substances (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 Linde's business. It is therefore estimated that such emissions represent <1% of total scope 3. This category is therefore not considered relevant for Linde.

Downstream leased assets

Evaluation status

Relevant, calculated

Emissions in reporting year (metric tons CO₂e)

2,520,000

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

This category includes emissions for assets like smaller on-site facilities which are leased out to the customer and where the customer is paying for the power and in many cases is operating the plant. This also includes a couple of major plants where customers are paying the power and where Linde is operating the plant and charging a facility fee to the customer. Emissions for those plants where the customer pays for power are not included in Linde's scope 2. Linde has a significant number of smaller on-site plants leased out to and operated by the customer all over the world. Hyco plants/facilities which are owned by Linde are fully reported under scope 1, regardless of who is running the plant or providing the fuel or feedstock. Emissions from leased out or charged out entities are calculated on a plant level, using same calculation methodology as for calculating indirect/scope 2 emissions for other Linde plants. For such plants where the customer pays the power and the plant specific emission factors are not known, Linde uses country emission factors from the IEA to calculate indirect emissions for those sites. Linde also uses information from its own data collection processes for larger plants which Linde also maintains (asset-specific method) or uses estimates on production volumes per type of plant and energy consumption for small on-site plants (average data method). Linde then applies country emission factors from the IEA to calculate indirect emissions for those sites.

Scope 3 emissions from downstream leased assets increased in 2021, by about 9%. This reflects Linde's worldwide business growth in 2021 of 13% with higher production volumes and e.g. higher amount of leases of small on-sites leading to higher energy consumption by Linde's leased out ASUs and small on-site plants.

Franchises

Evaluation status

Not relevant, explanation provided

Please explain

Linde does not own franchises

Investments

Evaluation status

Relevant, calculated

Emissions in reporting year (metric tons CO₂e)

5,450,000

Emissions calculation methodology

Investment-specific method

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

100

Please explain

Linde includes into its scope 1 and 2 reporting only subsidiaries/holdings which are reporting their financials to the Group and whose results are consolidated into the company P&L. Holdings/investments which are reporting their results but are not consolidated into the profit and loss statement (mainly Joint Ventures 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 are reporting 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 with a country IEA factor.

Emissions in this category increased by about 1 million tons in 2021. The main reason for this is that in 2021 Linde excluded its Taiwan business from its consolidation cycle, and the entity is now held as a joint venture, thus regarded as an "investment".

Therefore, all scope 1 and 2 emissions from that entity are now accounted as scope 3 emissions.

Other (upstream)

Evaluation status**Please explain****Other (downstream)**

Evaluation status**Please explain****C6.5a****(C6.5a) Disclose or restate your Scope 3 emissions data for previous years.****Past year 1**

Start date

January 1, 2020

End date

December 31, 2020

Scope 3: Purchased goods and services (metric tons CO2e)

Scope 3: Capital goods (metric tons CO2e)

**Scope 3: Fuel and energy-related activities (not included in Scopes 1 or 2)
(metric tons CO2e)**

Scope 3: Upstream transportation and distribution (metric tons CO2e)

562,000

Scope 3: Waste generated in operations (metric tons CO2e)

Scope 3: Business travel (metric tons CO2e)

Scope 3: Employee commuting (metric tons CO2e)

Scope 3: Upstream leased assets (metric tons CO2e)

Scope 3: Downstream transportation and distribution (metric tons CO2e)

0

Scope 3: Processing of sold products (metric tons CO2e)

Scope 3: Use of sold products (metric tons CO2e)

Scope 3: End of life treatment of sold products (metric tons CO2e)

Scope 3: Downstream leased assets (metric tons CO2e)

Scope 3: Franchises (metric tons CO2e)

Scope 3: Investments (metric tons CO2e)

Scope 3: Other (upstream) (metric tons CO2e)

Scope 3: Other (downstream) (metric tons CO2e)

Comment

In 2021, Linde reclassified its emissions from outbound logistics performed by external carriers and paid by Linde from downstream transportation to upstream transportation. See explanation under C6.5. For better comparison, Linde subsequently reclassified this type of emissions also for the previous years.

Past year 2

Start date

January 1, 2019

End date

December 31, 2019

Scope 3: Purchased goods and services (metric tons CO2e)

Scope 3: Capital goods (metric tons CO2e)

Scope 3: Fuel and energy-related activities (not included in Scopes 1 or 2) (metric tons CO2e)

Scope 3: Upstream transportation and distribution (metric tons CO2e)

577,000

Scope 3: Waste generated in operations (metric tons CO2e)

Scope 3: Business travel (metric tons CO2e)

Scope 3: Employee commuting (metric tons CO2e)

Scope 3: Upstream leased assets (metric tons CO2e)

Scope 3: Downstream transportation and distribution (metric tons CO2e)

0

Scope 3: Processing of sold products (metric tons CO2e)

Scope 3: Use of sold products (metric tons CO2e)

Scope 3: End of life treatment of sold products (metric tons CO2e)

Scope 3: Downstream leased assets (metric tons CO2e)

Scope 3: Franchises (metric tons CO2e)

Scope 3: Investments (metric tons CO2e)

Scope 3: Other (upstream) (metric tons CO2e)

Scope 3: Other (downstream) (metric tons CO2e)

Comment

In 2021, Linde reclassified its emissions from outbound logistics performed by external carriers and paid by Linde from downstream transportation to upstream transportation. See explanation under C6.5. For better comparison, Linde subsequently reclassified this type of emissions also for the previous years.

Past year 3

Start date

January 1, 2018

End date

December 31, 2018

Scope 3: Purchased goods and services (metric tons CO2e)

Scope 3: Capital goods (metric tons CO2e)

Scope 3: Fuel and energy-related activities (not included in Scopes 1 or 2) (metric tons CO2e)

Scope 3: Upstream transportation and distribution (metric tons CO2e)

661,000

Scope 3: Waste generated in operations (metric tons CO2e)

Scope 3: Business travel (metric tons CO2e)

Scope 3: Employee commuting (metric tons CO2e)

Scope 3: Upstream leased assets (metric tons CO2e)

Scope 3: Downstream transportation and distribution (metric tons CO2e)

0

Scope 3: Processing of sold products (metric tons CO2e)

Scope 3: Use of sold products (metric tons CO2e)

Scope 3: End of life treatment of sold products (metric tons CO2e)

Scope 3: Downstream leased assets (metric tons CO2e)

Scope 3: Franchises (metric tons CO2e)

Scope 3: Investments (metric tons CO2e)

Scope 3: Other (upstream) (metric tons CO2e)

Scope 3: Other (downstream) (metric tons CO2e)

Comment

In 2021, Linde reclassified its emissions from outbound logistics performed by external carriers and paid by Linde from downstream transportation to upstream transportation. See explanation under C6.5. For better comparison, Linde subsequently reclassified this type of emissions also for the previous years.

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

0.0013

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

39,894,000

Metric denominator

unit total revenue

Metric denominator: Unit total

30,793,000,000

Scope 2 figure used

Market-based

% change from previous year

8

Direction of change

Decreased

Reason for change

There are two reasons for the decrease: 1) Total sales (the denominator) increased by 13% in 2021 compared to 2020. The high sales increase in 2021 is partly due to price increases driven e.g. by inflation which has no impact on CO2 emissions, and also due to increased output (e.g. several plant start-ups in 2021).

2) Emissions reduction initiatives, which minimized increases in Scopes 1 and 2 emissions despite significant growth: Despite increases in production volumes, Linde was able to minimize the increase of its GHG emissions. For example, Linde made good progress in 2021 reducing its scope 1 emissions (e.g. absolute reductions in refrigerants, methane emissions or transport emissions) as well as increasing its total renewable and low carbon energy by 1.7 TWh. 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.

Intensity figure

0.0039

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

39,894,000

Metric denominator

Other, please specify
EBITDA

Metric denominator: Unit total

10,179,000,000

Scope 2 figure used

Market-based

% change from previous year

12

Direction of change

Decreased

Reason for change

EBITDA in 2021 increased by 18% compared to 2020, whereas total scope 1 and 2 emissions only increased by 3.5%. The high increase in EBITDA is mostly due to increased output (e.g. several plant start-ups in 2021) and cost efficiency measures. Despite high increases in production volumes, Linde was able to minimize the increase of its GHG emissions. For example, Linde made good progress in 2021 reducing its scope 1 emissions (e.g. absolute reductions in refrigerants, methane emissions or transport emissions) as well as increasing its total renewable and low carbon energy by 1.7 TWh. The lower increase in emissions is also due to Linde's continuous efforts in productivity and efficiency measures conducted during the year. These initiatives are described in C4.3b.

The EBITDA number used for this intensity metric is one of the non-GAAP measures reported by Linde plc. It reflects the size of the business for which the emissions are being reported and the efficiency improvements that are being targeted. Adjusted pro forma EBITDA is a non-GAAP measure prepared on a basis consistent with Article 11 of Regulation S-X of the U.S. Securities and Exchange Commission and include certain non GAAP adjustments.

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
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CO2	15,435,000	IPCC Fifth Assessment Report (AR5 – 100 year)
Other, please specify Other Greenhouse gases emitted directly such as N2O, CH4, HFCs etc)	886,000	IPCC Fifth Assessment Report (AR5 – 100 year)

C7.2

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

Country/Region	Scope 1 emissions (metric tons CO2e)
Americas	11,609,000
Europe, Middle East and Africa (EMEA)	2,618,000
Asia, Australasia	1,924,000
Other, please specify Engineering, Global operations and other scope 1 emissions not reported by region D ¹	170,000

D¹This has significantly reduced from 2019 as more emissions are now reported by region rather than as a global total

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)	2,157,000
Hydrogen Production	11,400,000
CO2 Plants	849,000
Trucking	608,000
Speciality Gases operations	845,000
Other Global operations	462,000

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 CO ₂ e	Comment
Chemicals production activities	15,687,000	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/region.

Country/Region	Scope 2, location-based (metric tons CO ₂ e)	Scope 2, market-based (metric tons CO ₂ e)
Americas	6,129,000	5,323,000
Europe, Middle East and Africa (EMEA)	3,893,000	6,605,000
Asia, Australasia D ₁	11,251,000	11,526,000
Other, please specify Other global operations	140,000	119,000

D₁ Calculation for steam and associated scope 2 emissions improved for APAC region in 2020

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 CO ₂ e)	Scope 2, market-based (metric tons CO ₂ e)
Air Separation Units (ASUs)	19,823,000	22,064,000
Hydrogen Production	917,000	853,000
All other operations	673,000	656,000

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 CO ₂ e	Scope 2, market-based (if applicable), metric tons CO ₂ e	Comment
Chemicals production activities	21,273,000	23,453,000	Scope 2 emissions for 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 tCO ₂ e 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 (CO ₂)	0	This information is considered business confidential.
Methane (CH ₄)	0	This information is considered business confidential. Linde's annual sales of methane, nitrous oxide, HFCs, PFCs, NF ₃ and SF ₆ , 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?

Increased

C7.9a

(C7.9a) Identify the reasons for any change in your gross global emissions (Scope 1 and 2 combined), and for each of them specify how your emissions compare to the previous year.

	Change in emissions (metric tons CO2e)	Direction of change	Emissions value (percentage)	Please explain calculation
Change in renewable energy consumption	799,000	Decreased	2.1	The percentage is calculated by 799,000 (scope 2 savings from increased low carbon sourcing), divided by 38,546,000 (scope 1 and 2 combined number for 2020). $799,000/38,546,000*100=2.1\%$. Low carbon (zero fossil) electricity sourced has increased in 2021 from 15.29 TWH to 16.96 TWH, an addition of 1.67 TWH, resulting from higher direct sourcing of low carbon electricity as well as general greening of the grid. The low carbon electricity is replacing conventional electricity sourced in several parts of the world. Linde's average

				emissions factor of electricity sourced in 2020 was 0.4785 tons of CO ₂ per 1 MWh . A reduction of 1,67 TWh of conventional electricity (being replaced by zero carbon electricity) therefore means a saving of 799,000 tons of scope 2 emissions (rounded).
Other emissions reduction activities	696,000	Decreased	1.8	The percentage is calculated by 696,000 (scope 1 and 2 savings from several emissions reduction activities, both implemented and started to be implemented), divided by 38,546,000 (scope 1 and 2 combined number for 2020). $696,000/38,546,000*100=1.8\%$. This refers to several activities counted within our sustainable productivity project portfolio which lead to CO ₂ savings along with financial savings for the Group (from completed or ongoing projects), e.g., due to energy savings. This includes for example scope 2 savings due to optimization of production processes and therefore reduced energy consumption, as well as building optimization, reduction in spills or transport efficiencies. Details of implemented emissions reduction activities leading to those savings are disclosed in this questionnaire under question 4.3 b.
Divestment	780,000	Decreased	2	The percentage is calculated by 780,000 (scope 1 and 2 reduction due to divestment), divided by 38,546,000 (scope 1 and 2 combined number for 2020). $780,000/38,546,000*100=2.0\%$. In 2021 Linde de-consolidated its Taiwan subsidiary which is now accounted for as a joint-venture/investment. Scope 1 and 2 emissions from Linde Taiwan are now included in scope 3 category 15.
Acquisitions				
Mergers				
Change in output	1,961,000	Increased	5.1	The percentage is calculated by 1,961,000 (higher scope 1 and 2 emissions due to higher output), divided by 38,546,000

				<p>(scope 1 and 2 combined number for 2020). $1,961,000/38,546,000 \times 100 = 5.1\%$.</p> <p>In 2021, Linde global revenues increased by 13%, among others due to a higher sales volume and thus higher production output. This led to an increase in consumption of electricity for the production of our ASU products, causing an increase in scope 2, as well as a higher consumption of natural gas used as a fuel or as feedstock for hydrogen production, causing higher scope 1 emissions.</p>
Change in methodology				
Change in boundary	1,662,000	Increased	4.3	<p>The percentage is calculated by 1,662,000 (higher scope 1 and 2 emissions due to increased boundaries), divided by 38,546,000</p> <p>(scope 1 and 2 combined number for 2020). $1,662,000/38,546,000 \times 100 = 4.3\%$.</p> <p>In 2021, Linde went on-stream with several plants causing additional scope 1 and 2 emissions. The company for example went live with a new plant in the US, and started up respectively completed the ramp up of three additional plants in China which run on steam. The latter also lead to a considerable increase of Linde's steam consumption by more than 3 TWh in 2021.</p>
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 25% but less than or equal to 30%

C8.2

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

	Indicate whether your organization 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)	800	21,011,200	21,012,000
Consumption of purchased or acquired electricity		11,901,000	30,874,000	42,775,000
Consumption of purchased or acquired steam		3,500	9,148,500	9,152,000

Consumption of self-generated non-fuel renewable energy		4,000		4,000
Total energy consumption		11,909,300	61,033,700	72,943,000

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

800

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

18,265,200

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

18,266,000

Consumption of purchased or acquired electricity

MWh consumed from renewable sources inside chemical sector boundary

11,757,000

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

30,639,600

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

42,396,600

Consumption of purchased or acquired steam

MWh consumed from renewable sources inside chemical sector boundary

3,500

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

9,141,500

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

9,145,000

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

11,765,300

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

58,046,300

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

69,811,600

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

Other biomass

Heating value

LHV

Total fuel MWh consumed by the organization

800

MWh fuel consumed for self-generation of heat

800

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

58,000

MWh fuel consumed for self-generation of heat

58,000

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

18,520,000

MWh fuel consumed for self-generation of heat

7,518,000

MWh fuel consumed for self-generation of steam

1,014,000

MWh fuel consumed for self- cogeneration or self-trigeneration

9,988,000

Comment

Natural Gas

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

Heating value

LHV

Total fuel MWh consumed by the organization

2,433,000

MWh fuel consumed for self-generation of heat

2,433,000

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

21,012,000

MWh fuel consumed for self-generation of heat

10,010,000

MWh fuel consumed for self-generation of steam

1,014,000

MWh fuel consumed for self- cogeneration or self-trigeneration

9,988,000

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.

Sourcing method

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

Energy carrier

Electricity

Low-carbon technology type

Large hydropower (>25 MW)

Country/area of low-carbon energy consumption

Colombia

Tracking instrument used

Contract

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

90,000

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

Colombia

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

2,020

Comment

Contract start date used

Sourcing method

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

Energy carrier

Electricity

Low-carbon technology type

Large hydropower (>25 MW)

Country/area of low-carbon energy consumption

Ecuador

Tracking instrument used

Contract

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

30,000

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

Ecuador

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

2,017

Comment

Contract start date used

Sourcing method

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

Energy carrier

Electricity

Low-carbon technology type

Large hydropower (>25 MW)

Country/area of low-carbon energy consumption

Mexico

Tracking instrument used

Contract

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

107,000

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

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

2,013

Comment

Contract start date used

Sourcing method

Direct procurement from an off-site grid- connected generator e.g. Power purchase agreement (PPA)

Energy carrier

Electricity

Low-carbon technology type

Small hydropower (<25 MW)

Country/area of low-carbon energy consumption

Brazil

Tracking instrument used

Contract

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

33,000

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

Brazil

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

2,011

Comment

Contract start dates varying between 2011 and 2021

Sourcing method

Direct procurement from an off-site grid- connected generator e.g. Power purchase agreement (PPA)

Energy carrier

Electricity

Low-carbon technology type

Nuclear

Country/area of low-carbon energy consumption

United States of America

Tracking instrument used

Contract

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

538,000

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

United States of America

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

1,900

Comment

Commissioning year unknown

Sourcing method

Direct procurement from an off-site grid- connected generator e.g. Power purchase agreement (PPA)

Energy carrier

Electricity

Low-carbon technology type

Large hydropower (>25 MW)

Country/area of low-carbon energy consumption

United States of America

Tracking instrument used

Contract

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

327,000

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

United States of America

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

1,900

Comment

Commissioning year unknown

Sourcing method

Direct procurement from an off-site grid- connected generator e.g. Power purchase agreement (PPA)

Energy carrier

Electricity

Low-carbon technology type

Large hydropower (>25 MW)

Country/area of low-carbon energy consumption

Philippines

Tracking instrument used

Contract

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

103,000

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

Philippines

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

1,983

Comment

Sourcing method

Direct procurement from an off-site grid- connected generator e.g. Power purchase agreement (PPA)

Energy carrier

Electricity

Low-carbon technology type

Solar

Country/area of low-carbon energy consumption

China

Tracking instrument used

GEC

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

29,000

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

China

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

1,900

Comment

Commissioning year unknown

Sourcing method

Direct procurement from an off-site grid- connected generator e.g. Power purchase agreement (PPA)

Energy carrier

Electricity

Low-carbon technology type

Solar

Country/area of low-carbon energy consumption

India

Tracking instrument used

Contract

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

126,000

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

India

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

2,016

Comment

Commissioning years vary between 2016-2020

Sourcing method

Green electricity products from an energy supplier (e.g. green tariffs)

Energy carrier

Electricity

Low-carbon technology type

Renewable energy mix, please specify

74 % directly renewable production, 26 % over COO neutralized

Country/area of low-carbon energy consumption

Austria

Tracking instrument used

No instrument used

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

34,000

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

Austria

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

1,900

Comment

Commissioning year unknown

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

Country/area of low-carbon energy consumption

Poland

Tracking instrument used

REGO

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

118,000

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

Poland

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

2,008

Comment

Sourcing method

Green electricity products from an energy supplier (e.g. green tariffs)

Energy carrier

Electricity

Low-carbon technology type

Renewable energy mix, please specify
Wind 61%, Biomass 32%, Solar 6%, Hydro 1%

Country/area of low-carbon energy consumption

Lithuania

Tracking instrument used

GO

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

22,000

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

Lithuania

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

1,900

Comment

Commissioning year n/a

Sourcing method

Unbundled energy attribute certificates (EACs) purchase

Energy carrier

Electricity

Low-carbon technology type

Hydropower (capacity unknown)

Country/area of low-carbon energy consumption

Sweden

Tracking instrument used

GO

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

14,000

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

Sweden

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

1,900

Comment

Commissioning year unknown

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

Country/area of low-carbon energy consumption

Netherlands

Tracking instrument used

GO

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

71,000

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

Netherlands

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

1,900

Comment

Commissioning year n/a

Sourcing method

Other, please specify
Nuclear long term contract

Energy carrier

Electricity

Low-carbon technology type

Nuclear

Country/area of low-carbon energy consumption

France

Tracking instrument used

Contract

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

22,000

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

France

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

1,900

Comment

Commissioning year unknown

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

Country/area of low-carbon energy consumption

Germany

Tracking instrument used

Other, please specify
Combination of GO and I-REC

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

23,000

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

Germany

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

1,900

Comment

Commissioning year unknown

Sourcing method

Green electricity products from an energy supplier (e.g. green tariffs)

Energy carrier

Electricity

Low-carbon technology type

Renewable energy mix, please specify
70% wind 14% HyDro 7% Solar 9% Biomass

Country/area of low-carbon energy consumption

Portugal

Tracking instrument used

GO

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

32,000

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

Portugal

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

1,900

Comment

Commissioning year unknown

Sourcing method

Green electricity products from an energy supplier (e.g. green tariffs)

Energy carrier

Electricity

Low-carbon technology type

Renewable energy mix, please specify
70% wind 14% HyDro 7% Solar 9% Biomass

Country/area of low-carbon energy consumption

Spain

Tracking instrument used

GO

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

98,000

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

Spain

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

1,900

Comment

Commissioning year unknown

Sourcing method

Green electricity products from an energy supplier (e.g. green tariffs)

Energy carrier

Electricity

Low-carbon technology type

Renewable energy mix, please specify
any UK Government defined eligible technology

Country/area of low-carbon energy consumption

United Kingdom of Great Britain and Northern Ireland

Tracking instrument used

REGO

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

1,538,000

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

United Kingdom of Great Britain and Northern Ireland

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

1,900

Comment

Various unknown commissioning dates

C8.2g

(C8.2g) Provide a breakdown of your non-fuel energy consumption by country.

Country/area

Other, please specify
EMEA

Consumption of electricity (MWh)

12,193,000

Consumption of heat, steam, and cooling (MWh)

170,000

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

12,363,000

Country/area

Other, please specify
AMERICAS

Consumption of electricity (MWh)

17,602,000

Consumption of heat, steam, and cooling (MWh)

93,000

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

17,695,000

Country/area

Other, please specify

APAC

Consumption of electricity (MWh)

12,601,000

Consumption of heat, steam, and cooling (MWh)

8,882,000

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

21,483,000

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

270

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

220

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

230

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

41,000

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 CO ₂ . This was about 88 million metric tons of CO ₂ equivalents in 2021, equaling 2.2 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 2021, Linde invested 27% of its total annual R&D budget (143 million USD) 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	Stage of development in the reporting year	Average % of total R&D investment over the last 3 years	R&D investment figure in the reporting year (optional)	Comment
Unable to disaggregate by technology area		21 - 40%	39,000,000	Linde's portion of R&D investment in low-carbon technologies has increased steadily from 2018-2021, from 23% to 27%. Linde plans to achieve a 33% share of annual R&D related to decarbonization topics by 2028. Linde is active in all technology areas listed in the drop down apart from biotechnology. Linde considers information about the shares of the single R&D activities as part of total R&D



			<p>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.</p> <p>For example: Linde is continuously working on improving its operational processes and plant design to make it more energy and GHG efficient. Linde set a target to achieve 0.7% energy efficiency improvement per year for Linde's ASU operations and 0.4% annual GHG intensity reduction on average for its hyco operations. There are many developments which have already been deployed in the past to new or existing plants, others are still in a development or pilot stage. Same is true for the areas of carbon capture or other technology areas where Linde has already deployed solutions, but still working and doing research to continuously improve applications and make those more efficient. Linde among others focuses research in the area of green hydrogen (e.g. PEM technology). In 2021 Linde announced to build the world's largest PEM electrolyzer plant in Leuna in Germany. The new 24-MW electrolyzer will produce green H2 to supply Linde's industrial customers through the company's existing pipeline network.</p> <p>Example for carbon capture: bp and Linde are planning a major CCS project to advance</p>
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				<p>decarbonization efforts across Texas Gulf Coast. Linde will use its proprietary technology and operational expertise to capture and compress the CO2 from its hydrogen production facilities for the project. Together with its extensive infrastructure of hydrogen production facilities and its storage cavern connected through its pipeline network across the Texas Gulf Coast, this project will enable Linde to supply cost-effective, reliable low carbon hydrogen and, together with bp, provide carbon capture and storage solutions</p>
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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

Limited assurance

Attach the statement

 Linde_eKPI Assurance Statement - 2022.pdf

Page/ section reference

2

Relevant standard

ISO14064-3

Proportion of reported emissions verified (%)

100

C10.1b

(C10.1b) Provide further details of the verification/assurance undertaken for your Scope 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

Limited assurance

Attach the statement

 Linde_eKPI Assurance Statement - 2022.pdf

Page/ section reference

2

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: 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_eKPI Assurance Statement - 2022.pdf

Page/section reference

2

Relevant standard

ISO14064-3

Proportion of reported emissions verified (%)

78


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?

 Linde_eKPI Assurance Statement - 2022.pdf

Disclosure module verification relates to	Data verified	Verification standard	Please explain
C5. Emissions performance	Year on year change in emissions (Scope 2)	The verification protocol employed for verification of Linde plc's GHG emissions was ISO 14064-3 (2006):	Change in market-based scope 2 emissions has been verified. See attachment, page 2. Linde has the change in Scope 2 emissions verified because it directly relates to Linde's climate change targets to double its

		Specification with guidance for the validation and verification of greenhouse gas assertions, and is consistent with the requirements for ISAE 3000.	renewable energy sourcing, which plays a large role in our target to improve GHG efficiency by EBITDA by 35% by 2028. 📎 ₁
C8. Energy	Energy consumption	The verification protocol employed for verification of Linde plc's GHG emissions was ISO 14064-3 (2006): Specification with guidance for the validation and verification of greenhouse gas assertions, and is consistent with the requirements for ISAE 3000.	Total non-renewable fuel, electricity and steam consumption have been verified including the break-down into fossil and low-carbon components, as well as split into active and passive renewable electricity procured. See attachment, page 2. Verifying the sources of GHG emissions is an important aspect of ensuring our GHG emissions data is complete and accurate. 📎 ₁

📎₁ Linde_eKPI Assurance Statement - 2022.pdf

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
 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

0.4

Period start date

January 1, 2021

Period end date

December 31, 2021

Allowances allocated

0

Allowances purchased

0

Verified Scope 1 emissions in metric tons CO₂e

0

Verified Scope 2 emissions in metric tons CO₂e

90,200

Details of ownership

Facilities we own and operate

Comment

The amount of allowances to be allocated has not yet been determined

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, 2021

Period end date

December 31, 2021

Allowances allocated

0

Allowances purchased

0

Verified Scope 1 emissions in metric tons CO₂e

69,681

Verified Scope 2 emissions in metric tons CO₂e

0

Details of ownership

Facilities we own and operate

Comment

The amount of allowances has not yet been determined.

EU ETS

% of Scope 1 emissions covered by the ETS

7

% of Scope 2 emissions covered by the ETS

0

Period start date

January 1, 2021

Period end date

December 31, 2021

Allowances allocated

720,270

Allowances purchased

414,511

Verified Scope 1 emissions in metric tons CO₂e

1,134,781

Verified Scope 2 emissions in metric tons CO₂e

0

Details of ownership

Facilities we own and operate

Comment

Fujian pilot ETS

% of Scope 1 emissions covered by the ETS

0

% of Scope 2 emissions covered by the ETS

0.6

Period start date

January 1, 2021

Period end date

December 31, 2021

Allowances allocated

0

Allowances purchased

0

Verified Scope 1 emissions in metric tons CO₂e

0

Verified Scope 2 emissions in metric tons CO₂e

145,800

Details of ownership

Facilities we own and operate

Comment

The amount of allowances to be allocated has not yet been determined

Germany ETS

% of Scope 1 emissions covered by the ETS

0.02

% of Scope 2 emissions covered by the ETS

0

Period start date

January 1, 2021

Period end date

December 31, 2021

Allowances allocated

0

Allowances purchased

4,000

Verified Scope 1 emissions in metric tons CO₂e

4,000

Verified Scope 2 emissions in metric tons CO₂e

0

Details of ownership

Facilities we own and operate

Comment

BEHG

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, 2021

Period end date

December 31, 2021

Allowances allocated

0

Allowances purchased

0

Verified Scope 1 emissions in metric tons CO₂e

0

Verified Scope 2 emissions in metric tons CO₂e

110,500

Details of ownership

Facilities we own and operate

Comment

The amount of allowances to be allocated has not yet been determined

UK ETS

% of Scope 1 emissions covered by the ETS

1.4

% of Scope 2 emissions covered by the ETS

0

Period start date

January 1, 2021

Period end date

December 31, 2021

Allowances allocated

157,036

Allowances purchased

65,303

Verified Scope 1 emissions in metric tons CO₂e

222,339

Verified Scope 2 emissions in metric tons CO₂e

0

Details of ownership

Facilities we own and operate

Comment

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, 2021

Period end date

December 31, 2021

% of total Scope 1 emissions covered by tax

0.8

Total cost of tax paid

500,000

Comment

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. 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 2021, Linde's H2 plants achieved a 9.3% cumulative reduction in GHG intensity compared to 2018.

C11.2

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

No

C11.3

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

No, but we anticipate doing so in the next two years

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

% 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% ($50\% \times 0.85$).

Impact of engagement, including measures of success

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

Another means to reduce consumption of non-renewable energy is to generally increase energy efficiency. In the U.S., many utility companies are required by state renewable portfolio standards to ensure that a percentage of electricity they sell comes from renewable sources. Working with customers (like Linde), utilities can achieve this by incentivizing energy efficiency, which ultimately reduces the amount of non-renewable power needed.

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 percent 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, Tennessee, achieved a savings in its power costs of \$1 million per 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 thereby started a project to operate the facility during off-peak hours. The project – which required piping and compressor modifications – achieved a 20% year-over-year decrease in power costs as well as considerable carbon reductions.

Comment

Type of engagement

Information collection (understanding supplier behavior)

Details of engagement

Collect climate change and carbon 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

Linde 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

0

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 does not yet calculate/disclose customer-related scope 3 emissions, therefore we entered 0 into the field for customer-related scope 3 emissions.

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 55% of Linde's revenue in 2021. A subset of this portfolio helped customers avoid 88 million metric tons of CO₂e emissions in 2021.

Impact of engagement, including measures of success

Linde measures revenue earned from our sustainability portfolio and estimates the amount of GHG emissions avoided by using 5 key applications that reduce customers' GHG footprint. 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 these metrics increase over time. Measures of success: A positive impact of our customer engagement is the reduction in customers' GHG emissions.

For example, customers who use our H₂ in ultra-low sulfur diesel avoided 58.5 million metric tons of CO₂e in 2021. This type of application is especially used by US refineries. Linde has a global target to enable > 2 times avoided emissions than emitted from Linde's global operations (threshold = 2). In all, the use of 5 of Linde's applications enabled 88 million metric tons of CO₂e to be avoided, which is 2.2 times more than Linde's total Scopes 1+2 emissions. Customers looking for products that have an eco-social benefit (Linde's sustainability portfolio) contributed 55% of Linde's revenue in 2021, or \$16.6 billion.

Linde teams up with customers to work on low-carbon solutions and new technologies. E.g. bp and Linde are planning a major CCS project to advance decarbonization efforts across Texas Gulf Coast. Linde will use its proprietary technology and operational expertise to capture and compress the CO₂ from its hydrogen production facilities for the project. Together with its extensive infrastructure of H₂ production facilities and its storage cavern connected through its pipeline network across the Texas Gulf Coast, this project will enable Linde to supply cost-effective, reliable low carbon H₂ and, together with bp, provide CCS solutions.

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.

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

Direct or indirect engagement that could influence policy, law, or regulation that may impact the climate

Yes, we engage directly with policy makers

Yes, we engage indirectly through trade associations

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)

See page 134 / section "Climate Change"

See Linde's Sustainable Development and Climate Change Position Statement under <https://www.linde.com/sustainable-development>

 2021-ifrs-pdf.pdf

Describe the process(es) your organization has in place to ensure that your engagement activities are consistent with your overall climate change strategy

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?

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

Other, please specify

Regulatory framework conditions for clean hydrogen

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

Policy, law, or regulation geographic coverage

Global

Country/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 is aligned with the goals of the Paris Agreement?

Yes, we have evaluated, and it is aligned

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

Subsidies on products

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)

Policy, law, or regulation geographic coverage

Regional

Country/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 is aligned with the goals of the Paris Agreement?

Yes, we have evaluated, and it is aligned

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

Taxes on products

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

Tax credit for carbon oxide sequestration (Section 45Q)

Policy, law, or regulation geographic coverage

National

Country/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 is aligned with the goals of the Paris Agreement?

Yes, we have evaluated, and it is aligned

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

Taxes on products

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

Tax credits for clean hydrogen and carbon capture as proposed in the “Build Back Better” bill

Policy, law, or regulation geographic coverage

National

Country/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 is aligned with the goals of the Paris Agreement?

Yes, we have evaluated, and it is aligned

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

Other, please specify

Funding opportunities for clean hydrogen

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

Bipartisan Infrastructure Law

Policy, law, or regulation geographic coverage

National

Country/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 is aligned with the goals of the Paris Agreement?

Yes, we have evaluated, and it is aligned

C12.3b

(C12.3b) Provide details of the trade associations your organization 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 consistent with theirs?

Consistent

Has your organization influenced, or is your organization attempting to influence their position?

We publicly promote their current position

State the trade association's position on climate change, explain where your organization's position differs, and how you are attempting to influence their position (if applicable)

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, if applicable (currency as selected in C0.4) (optional)

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 consistent with theirs?

Consistent

Has your organization influenced, or is your organization attempting to influence their position?

We publicly promote their current position

State the trade association's position on climate change, explain where your organization's position differs, and how you are attempting to influence their position (if applicable)

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, if applicable (currency as selected in C0.4) (optional)

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 consistent with theirs?

Consistent

Has your organization influenced, or is your organization attempting to influence their position?

We publicly promote their current position

State the trade association's position on climate change, explain where your organization's position differs, and how you are attempting to influence their position (if applicable)

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, if applicable (currency as selected in C0.4) (optional)

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 consistent with theirs?

Consistent

Has your organization influenced, or is your organization attempting to influence their position?

We publicly promote their current position

State the trade association's position on climate change, explain where your organization's position differs, and how you are attempting to influence their position (if applicable)

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, if applicable (currency as selected in C0.4) (optional)

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 consistent with theirs?

Consistent

Has your organization influenced, or is your organization attempting to influence their position?

We publicly promote their current position

State the trade association's position on climate change, explain where your organization's position differs, and how you are attempting to influence their position (if applicable)

The New York State Chemistry Council is directly associated with the American Chemistry Council (see previous entry) and shares their policy on climate change.

Funding figure your organization provided to this trade association in the reporting year, if applicable (currency as selected in C0.4) (optional)

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 consistent with theirs?

Consistent

Has your organization influenced, or is your organization attempting to influence their position?

We publicly promote their current position

State the trade association's position on climate change, explain where your organization's position differs, and how you are attempting to influence their position (if applicable)

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, if applicable (currency as selected in C0.4) (optional)

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 Chemical Council

Is your organization's position on climate change consistent with theirs?

Consistent

Has your organization influenced, or is your organization attempting to influence their position?

We publicly promote their current position

State the trade association's position on climate change, explain where your organization's position differs, and how you are attempting to influence their position (if applicable)

Texas Chemical Council (TCC) supports and promotes science-based environmental policy that results in measurable improvement in human health and the environment while preserving a sound business economy.

Funding figure your organization provided to this trade association in the reporting year, if applicable (currency as selected in C0.4) (optional)

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 consistent with theirs?

Consistent

Has your organization influenced, or is your organization attempting to influence their position?

We publicly promote their current position

State the trade association's position on climate change, explain where your organization's position differs, and how you are attempting to influence their position (if applicable)

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, if applicable (currency as selected in C0.4) (optional)

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 consistent with theirs?

Consistent

Has your organization influenced, or is your organization attempting to influence their position?

We publicly promote their current position

State the trade association's position on climate change, explain where your organization's position differs, and how you are attempting to influence their position (if applicable)

The Clean Energy Partnership is a strong industry partnership 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, if applicable (currency as selected in C0.4) (optional)

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 consistent with theirs?

Consistent

Has your organization influenced, or is your organization attempting to influence their position?

We publicly promote their current position

State the trade association's position on climate change, explain where your organization's position differs, and how you are attempting to influence their position (if applicable)

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, seeing hydrogen as 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, if applicable (currency as selected in C0.4) (optional)

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

econsense – Forum Nachhaltige Entwicklung der Deutschen Wirtschaft e.V.

Is your organization's position on climate change consistent with theirs?

Consistent

Has your organization influenced, or is your organization attempting to influence their position?

We are not attempting to influence their position

State the trade association's position on climate change, explain where your organization's position differs, and how you are attempting to influence their position (if applicable)

econsense is a network of internationally operating companies with a common goal: They want to actively shape the change to a more sustainable economy and society. econsense's member companies not only stand by the goals of the Paris climate agreement, but in some cases even go beyond. econsense supports their members along this ambitious path.

Funding figure your organization provided to this trade association in the reporting year, if applicable (currency as selected in C0.4) (optional)

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 consistent with theirs?

Consistent

Has your organization influenced, or is your organization attempting to influence their position?

We publicly promote their current position

State the trade association's position on climate change, explain where your organization's position differs, and how you are attempting to influence their position (if applicable)

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, if applicable (currency as selected in C0.4) (optional)

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 consistent with theirs?

Consistent

Has your organization influenced, or is your organization attempting to influence their position?

We publicly promote their current position

State the trade association's position on climate change, explain where your organization's position differs, and how you are attempting to influence their position (if applicable)

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, if applicable (currency as selected in C0.4) (optional)

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 consistent with theirs?

Consistent

Has your organization influenced, or is your organization attempting to influence their position?

We publicly promote their current position

State the trade association's position on climate change, explain where your organization's position differs, and how you are attempting to influence their position (if applicable)

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. Against this background, the 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, if applicable (currency as selected in C0.4) (optional)

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 consistent with theirs?

Consistent

Has your organization influenced, or is your organization attempting to influence their position?

We publicly promote their current position

State the trade association's position on climate change, explain where your organization's position differs, and how you are attempting to influence their position (if applicable)

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. 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, if applicable (currency as selected in C0.4) (optional)

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 consistent with theirs?

Consistent

Has your organization influenced, or is your organization attempting to influence their position?

We are not attempting to influence their position

State the trade association's position on climate change, explain where your organization's position differs, and how you are attempting to influence their position (if applicable)

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, if applicable (currency as selected in C0.4) (optional)

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 consistent with theirs?

Consistent

Has your organization influenced, or is your organization attempting to influence their position?

We are not attempting to influence their position

State the trade association's position on climate change, explain where your organization's position differs, and how you are attempting to influence their position (if applicable)

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 Corona crisis. 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, if applicable (currency as selected in C0.4) (optional)

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 consistent with theirs?

Consistent

Has your organization influenced, or is your organization attempting to influence their position?

We publicly promote their current position

State the trade association's position on climate change, explain where your organization's position differs, and how you are attempting to influence their position (if applicable)

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, if applicable (currency as selected in C0.4) (optional)

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 mainstream reports

Status

Complete

Attach the document

 2021-ifrs-directors report.pdf

Page/Section reference

page 134 / section "Climate Change"

Content elements

Governance
Strategy
Risks & opportunities
Emission targets
Other metrics
Other, please specify

Comment

Targets


Publication

In voluntary sustainability report

Status

Complete

Attach the document

 Linde_2021-sustainable-development-report_final.pdf

Page/Section reference

17-26, 66-71

Content elements

Governance
Strategy

Risks & opportunities
Emissions figures
Emission targets
Other metrics

Comment

pages above are specifically about climate change, but climate change issues are also included in many further sections and pages throughout the document.

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 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 impact of its value chain on biodiversity?

	Does your organization assess the impact of its value chain on biodiversity?
Row 1	No, but we plan to assess biodiversity-related impacts within the next two years

C15.4

(C15.4) 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 In 2021, Linde reviewed the current biodiversity surveillance practices and reviewed policies in this area. As a result of the work, Linde recently confirmed the commitment in the new Position Statement on the Importance of Ecosystems.


C15.5

(C15.5) 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)

C15.6

(C15.6) 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	p. 65  1
Other, please specify Company Web Site	Content of biodiversity-related policies or commitments Impacts on biodiversity Biodiversity strategy	https://www.linde.com/sustainable-development/policies-and-position-statements/ecosystems-position-statement

	Other, please specify Stakeholder Engagement	
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 ¹Linde_2021-sustainable-development-report_final.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.

Question: C8.2g (breakdown of energy consumption by country): For Linde, energy is a key input and cost driver for production. Therefore, Linde considers the split of energy use per country as business confidential. Linde is therefore not providing energy and steam values per country but combined numbers for its main regional segments under C8.2g.

Question C11.3 (Shadow carbon price): Linde did not apply a shadow carbon price in 2021 and is currently re-evaluating how to best use this instrument to steer investment decisions and factor in the impact from transition and physical risks for new investments for the short-, mid- and long-term. Linde will continue to evaluate over the course of next two years. Linde does review GHG emissions of potential projects and assess alignment with the company's sustainability goals.

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	Executive Vice President Clean Energy	Other C-Suite Officer