

Making our world more productive



Climate Transition Plan

Issued: July, 2023

FORWARD-LOOKING STATEMENTS

This document contains “forward-looking statements” within the meaning of the Private Securities Litigation Reform Act of 1995. These forward-looking statements are identified by terms and phrases such as: anticipate, believe, intend, estimate, expect, continue, should, could, may, plan, project, predict, will, potential, forecast and similar expressions. They are based on management’s reasonable expectations and assumptions as of the date the statements are made but involve risks and uncertainties. These risks and uncertainties include, without limitation: the performance of stock markets generally; developments in worldwide and national economies and other international events and circumstances, including trade conflicts and tariffs; changes in foreign currencies and in interest rates; the cost and availability of electric power, natural gas and other raw materials; the ability to achieve price increases to offset cost increases; catastrophic events including natural disasters, epidemics, pandemics such as COVID-19 and acts of war and terrorism; the ability to attract, hire and retain qualified personnel; the impact of changes in financial accounting standards; the impact of changes in pension plan liabilities; the impact of tax, environmental, healthcare and other legislation and government

regulation in jurisdictions in which the company operates; the cost and outcomes of investigations, litigation and regulatory proceedings; the impact of potential unusual or non-recurring items; continued timely development and market acceptance of new products and applications; the impact of competitive products and pricing; future financial and operating performance of major customers and industries served; the impact of information technology system failures, network disruptions and breaches in data security; and the effectiveness and speed of integrating new acquisitions into the business. These risks and uncertainties may cause future results or circumstances to differ materially from adjusted projections, estimates or other forward-looking statements.

Linde plc assumes no obligation to update or provide revisions to any forward-looking statement in response to changing circumstances. The above listed risks and uncertainties are further described in Item 1A. Risk Factors in Linde plc’s Form 10-K for the fiscal year ended December 31, 2022, filed with the SEC on February 28, 2023, which should be reviewed carefully. Please consider Linde plc’s forward-looking statements in light of those risks.

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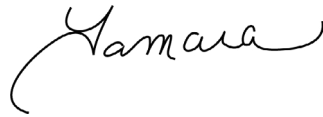
FOREWORD

Dear Stakeholder:

Linde stands for more than a century of technological progress. Our mission of *making our world more productive* defines Linde's role in bringing forward solutions and tackling challenges. Climate change is one of greatest challenges the world faces today.

Over the last several years, we have provided information to our shareholders on the steps we are taking in our climate agenda. We also recently released our science-based 2035 absolute greenhouse gas reduction targets and 2050 climate neutrality ambition. This plan continues our tradition of transparency, following CDP's latest guidance.

These steps to reduce our own emissions and to work across our value chain will keep Linde poised for sustainable growth through the next hundred years.



Tamara E. Brown
Chief Sustainability Officer



PURPOSE OF LINDE'S CLIMATE TRANSITION PLAN

Linde plc's (Linde) Climate Transition Plan forms part of the company's long-term strategy to achieve climate neutrality by 2050. This plan lays the foundation for achieving this commitment. The sections that follow describe Linde's:

- **Commitment to climate neutrality** and its three key milestones: 2028, 2035 and 2050.
- **Assessment of climate risks and opportunities**, including the use of **scenario analysis**, to develop its greenhouse gas (GHG) emissions targets.
- **Actions across the value chain** to reduce emissions, including its work with customers and suppliers as well as **financial planning** and activities in its own operations.
- **Engagement** with governments on climate policy, and with other stakeholders, such as industry associations and non-governmental organizations (NGOs).
- **Governance** of climate-related issues at the Board level and within the company.
- **Accountability mechanisms**, such as **financial incentives** for meeting GHG targets, progress against **targets**, its annual GHG **inventory** and third-party data **verification**.



Linde's Climate Transition Plan is aligned to:

1	Linde's 2028 climate change targets
2	Linde's science-based GHG reduction target (35% reduction by 2035), which was validated by SBTi
3	The recommendations of the Task Force on Climate-related Financial Disclosures (TCFD)
4	The recommendations in CDP's Technical Note: Reporting on Climate Transition Plans

WHO WE ARE

Linde is a leading global industrial gases and engineering company with 2022 sales of \$33.4 billion. Linde lives its mission of *making our world more productive* every day by providing high-quality solutions, technologies and services that are making customers more successful and helping to sustain and protect the planet.

The company serves a variety of end markets including chemicals and energy, food and beverage, electronics, healthcare, manufacturing, and metals and mining. Linde's industrial gases are used in countless applications, from life-saving oxygen for hospitals to high-purity and specialty gases for

electronics manufacturing, hydrogen for clean fuels and much more. Linde also delivers state-of-the-art gas processing solutions to support customer expansion, efficiency improvements and GHG emissions reductions.

Linde's business model is to transform air and other process gases into applications that, in many cases, help customers become more energy- and resource-efficient or provide social benefits. Linde's business model creates additional enduring value that amplifies its mission of *making our world more productive*.

[Learn more about Linde's mission and the virtuous circle it supports.](#)

Mission, Vision and Values

Our Vision

We are committed to fulfilling our vision to be the **best performing global industrial gases and engineering company**, where our people deliver innovative and sustainable solutions for our customers in a connected world.

Our Mission

We live our mission of *making our world more productive* every day. Through our high-quality solutions, technologies and services we are making our customers more successful and **helping to sustain and protect our planet**.

Our Values

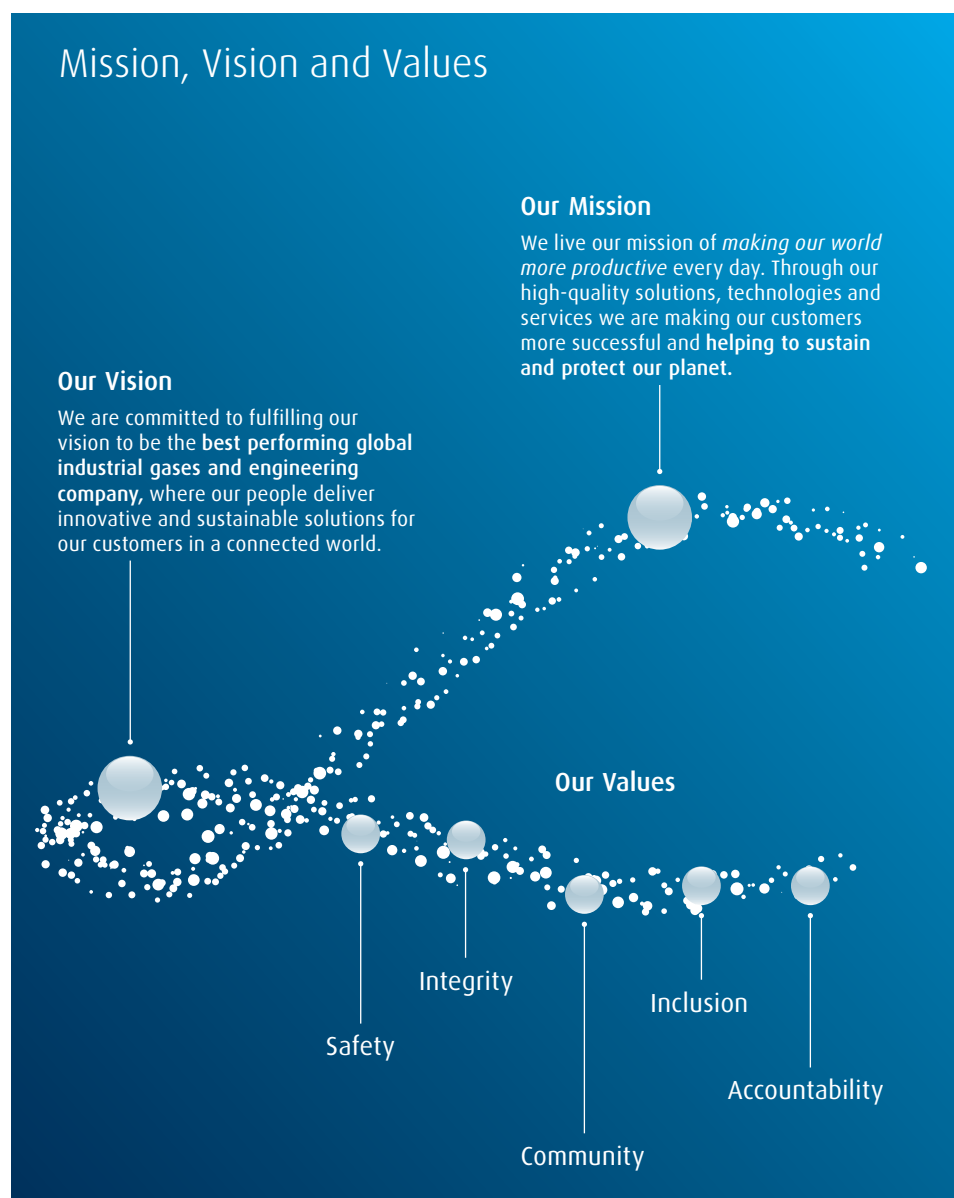
Safety

Integrity

Community

Inclusion

Accountability



OUR AMBITION: CLIMATE NEUTRALITY BY 2050

Climate change is no longer a future environmental crisis. It is a socio-economic crisis impacting the lives and livelihoods of millions of people, and it's happening now. Climate change, including more frequent and intense natural disasters, has caused widespread adverse impacts to nature and people, beyond natural climate variability.

Climate change is caused by the emissions of GHGs, which trap heat in the Earth's atmosphere and bring about changes to weather patterns.

In 2015, a United Nations conference on climate change concluded with the first legally binding international treaty on climate change. Known as the Paris Climate Agreement, it set a goal to limit global warming to well below 2°C, preferably to 1.5°C, compared to pre-industrial levels. To achieve this temperature goal, countries agreed to aim to reach global peaking of GHG emissions as soon as possible to achieve a climate neutral world by 2050.

Linde has the technology, resources and people to help address this crisis. For more than 100 years, it has been providing solutions to help solve global energy challenges. The company's mission of making our world more productive is fully aligned with the goals of addressing the global challenges of sustainable energy and climate change. Through its high-quality solutions, products, technologies and services, Linde is making its customers more successful and helping to sustain and protect the planet.

Issues related to long-term energy availability and future climate change will only continue to intensify. Addressing these issues is one of the highest priorities for Linde. This Climate Transition Plan (CTP) outlines how the company intends to set and meet its strategy to pivot existing assets, operations and plans towards a trajectory that aligns with the latest and most ambitious climate science and to reach net zero by 2050 at the latest. The CTP describes Linde's objectives and priorities for responding and contributing to an early and orderly transition.

Climate Change Commitment

Linde is committed to reaching climate neutrality by 2050. The world is at the beginning of an energy transformation, and Linde's climate neutrality ambition demonstrates its long-term commitment to be an active contributor to the transformation. Linde's climate strategy is aligned with the Paris Climate Agreement.

Milestones on the Road to Climate Neutrality

By 2028, Linde expects to have achieved:

- Thirty-five percent improvement in GHG intensity versus EBITDA – from 5.31 to 3.45.
- Hold Scope 2 GHG emissions flat or reduced, even with a substantial increase in power use.
- More than 2x low-carbon power procured.
- An increase in overall, renewable energy and low-carbon energy sources from 35 percent to more than 50 percent (all power).
- Development of blue and/or green hydrogen projects.

By 2035, Linde expects to have achieved:

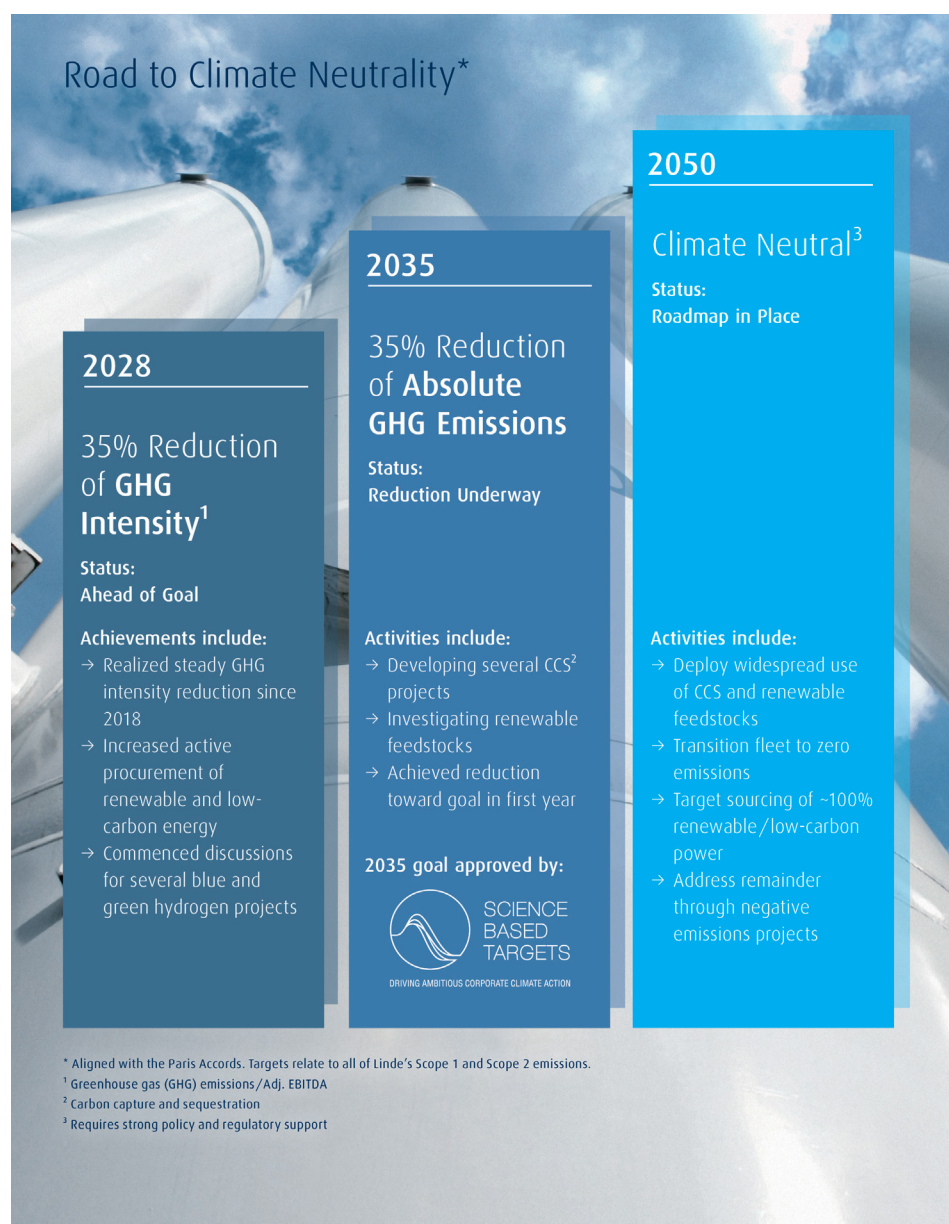
- Thirty-five percent reduction in absolute GHG emissions from its 2021 inventory.
- More than 3x low-carbon power procured.
- Execution of carbon capture and sequestration (CCS) projects at some of Linde's largest steam methane reforming (SMR) plants that will, with other efficiency efforts, reduce Scope 1 emissions.

By 2050, Linde aspires to achieve climate neutrality.

Linde's 2050 climate neutrality ambition is based upon the International Energy Agency's (IEA) scenario analysis, as described in its 2020 Energy Technology Perspectives (ETP)

paper. This well-below 2 degrees Sustainable Development Scenario (SDS) recognized that the chemical sector 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.

Linde intends to neutralize any unabated emissions with permanent carbon removal in 2050.



CLIMATE RISKS & OPPORTUNITIES

Linde assesses climate risks and opportunities annually as part of an enterprise-wide risk management process. This process is complemented by scenario analysis to further explore the physical and transition risks of climate change and how they might impact Linde's business model, strategies and performance. These analyses contributed to the development of Linde's climate change targets for 2028 and 2035, and informed the trajectory needed to reach climate neutrality by 2050.

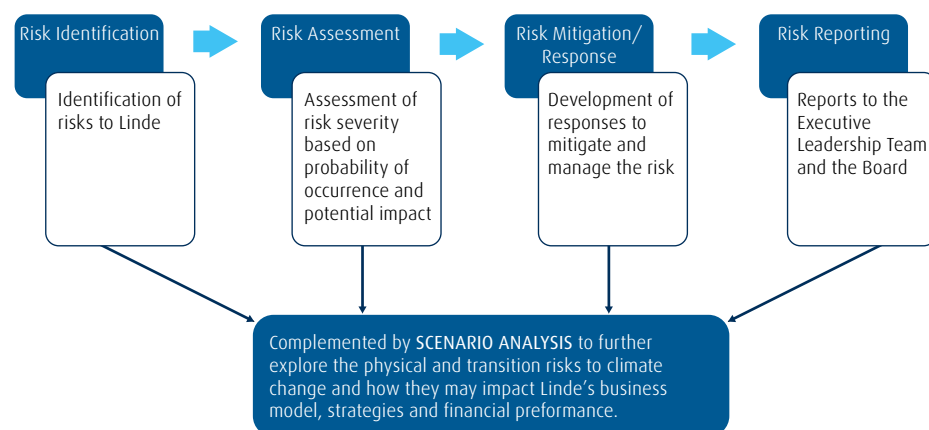
Risk Management Process

The identification, assessment of and response to climate-related risks is integrated into Linde's company-wide risk management process and covers direct operations as well as upstream and downstream activities.

The risk management process is complemented by scenario analysis 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 Linde's Clean Energy team.

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 are considered and reported. The risk management process allows for the identification of **short-term risks (0–2 years)**, as well as risks with a **medium-term (2–5 years)** or **long-term (5–100 years)** horizon and impact.

Methodology for Risk Management



Risk Assessment: The executives in the various units categorize each risk 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. The operating units award each risk with a rating based on the risk's potential impact and its probability. The risk rating scale is standardized across the company and has four risk ratings ranging from low risk to substantive risk. Risks with the highest potential impact (severity) rating meeting the definition of a substantive financial impact¹ for the company are presented in detail to executive leadership on a regular basis.

Linde has defined four risk areas related to climate change that may pose inherently substantive impacts: regulatory risks, market risks, reputational risks and physical risks.

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. The Board reviews substantive 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 group (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 Annual Report (Form 10-K), which covers, for example, risks from the supply of energy and from natural catastrophes, such as extreme weather.

Details of the risks posed to Linde by climate-related issues, the estimated potential financial impact of these risks at the corporate level, and the response strategy to manage these risks as well as details of the opportunities posed to Linde by climate-related issues, the estimated potential scale of these opportunities at the corporate level, and the response strategy required to take advantage of these opportunities are all discussed in Linde's annual [CDP Climate Change response](#).

Assessing Opportunities

Linde's business development department assesses market trends and customer behavior and requirements on an ongoing basis and shares the outcomes with the R&D and technology functions. They, in turn, propose solutions for the short, medium and long term that address those changing market conditions and customer requirements. Opportunities are evaluated up and down the value chain. 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.

Market and Reputation Opportunities

- Develop and expand low-carbon goods and services and increase revenue, especially from the sale of hydrogen. The IEA expects an approximately four times increase in worldwide hydrogen production, 2019–2050. Linde estimates it can increase its revenue from hydrogen from \$2.5 billion to \$8 billion annually.

Strategy to Realize Opportunities

- Invest more than \$1 billion in decarbonization projects and spend at least one-third of R&D budget on decarbonization by 2028.
- Invest across the hydrogen value chain to accelerate the clean energy transition, including in low-carbon sources of hydrogen, electrolysis with renewable electricity, and CCS.

¹ If a risk has a potential negative financial impact on company results of more than \$30 million, it's considered a substantive financial impact. Risks that could cause considerable harm to people or the environment (e.g., loss of life) are considered substantive, regardless of their monetary impact.

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

Scenario Analysis

Linde uses scenario analysis to complement its risk management process. Linde evaluates multiple climate-related scenarios to help develop its climate strategy to ensure it is flexible and robust across a range of plausible future states. Linde relies on the scenarios developed by the IEA and Intergovernmental Panel on Climate Change (IPCC), which have

long been used by scientists and policy analysts to assess future vulnerability to climate change. Two of the scenarios evaluated by Linde, including the implications for business impacts related to climate change, are described below:

1. The IEA Sustainable Development Scenario (SDS)
2. The IPCC Representative Concentration Pathway (RCP) 4.5 scenario

Additionally, Linde has conducted analysis using the IEA NZE 2050 scenario and the IPCC's Representative Concentration Pathway (RCP) 6.0 scenario.

Examples of Climate Risk

Transition Risk: Regulations

- New, emerging and changing regulations that could lead to an increase in the price of carbon and/or increased restrictions on carbon emissions.

Risk Management Responses

- Monitors regulatory developments and analyzes different potential GHG tax regimes.
- Increases relevant resources and training.
- Consults with vendors, insurance providers and industry experts.
- Incorporates GHG provisions in commercial agreements, which routinely provide rights to recover increased energy and related costs that are incurred by the company.
- Conducts regular sensitivity analyses of the impacts of potential energy and raw material cost increases.
- Explores renewable energy options.
- Improves operational productivity and energy efficiency.

Financial Impact

- Assumes 1.58 million MT of GHG emissions could be subject to carbon taxation in the short term. At an estimate \$92/MT CO₂, this rounds to \$145 million in potential additional carbon-related fees.

Scenario Analysis using IEA's Sustainable development Scenario

Assumptions:

- Growth projections for the chemical, hydrogen and power sectors are based on IEA's latest Energy Technology Perspectives.
- Regulatory conditions support a transition to clean power post-2050.

Outcomes:

- Developed an emission reduction trajectory that is more aggressive than SDS to achieve climate neutrality by 2050.
- Developed absolute GHG reduction targets for 2035.

Physical Risks

- Catastrophic weather events.
- Temperature increases.
- Sea level rise and flooding.

Risk Management Responses

- Conducts business impact analysis.
- Invests in facilities with suitably resilient design and technology.
- Implements lessons learned from weather events to implement new procedures and to protectively retrofit plants to mitigate impact from future events.
- Works with insurance providers to evaluate the risk from catastrophic weather events and flooding.
- Procures risk transfer insurance.

Financial Impact

- Based on evaluations from insurance companies regarding catastrophic weather events, such an event could lead to an estimated \$100 million in financial impact for a plant 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.

Scenario Analysis using RCP 4.5

Assumptions:

- Increase in extreme weather events.
- Temperature increase of 2.5-3°C.
- Sea level increase of 0.3 m by 2050.

Outcomes:

- Developed context-based climate adaptation plans for all production assets. These plans include plant design specifications, R&D into plant design specifications, R&D into plant infrastructure and efficiencies for reducing energy and water use.

Transition Risk Scenario: IEA Sustainable Development Scenario

Linde evaluated the IEA's SDS, which is consistent with limiting global warming to well below 2°C. 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. The analysis was both qualitative and quantitative.

The scope of this scenario analysis was company-wide, with a focus on its industrial gases operations, which contribute to a majority of Scope 1 and 2 emissions. 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. Financial parameters included expected sales growth, regional carbon prices, cost of investments (e.g., to retrofit existing hydrogen facilities with CCS) and potential government support through subsidies or other incentives.

The SDS projects chemical sub-sector emissions to continue to grow for the next five 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 more than 80 percent of worldwide hydrogen production by 2050. The power sector is expected to achieve net zero after 2050. These projections are supported by assumptions on economic and regulatory conditions, such as a stronger policy push through carbon taxation, a trajectory for the decarbonization of the power

sector, and the availability of negative emissions technologies to offset certain hard-to-abate emissions.

The SDS analysis was instrumental in Linde's development of the 2028 GHG emissions 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 SDS.

Physical Risk Scenario: RCP 4.5

RCP 4.5 is a stabilization and mitigation scenario in which the radiative forcing level (or heating effect) stabilizes at 4.5 watts per square meter (approximately 650 ppm [parts per million] CO₂e) before 2100 by employing a range of technologies and strategies for reducing GHG emissions. This scenario allows Linde to analyze the potential business impacts in case the 2°C goal cannot be reached worldwide, and the temperature rises beyond 2 degrees.

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 approximately 0.3 m by 2050, an increase in climate-related physical impacts (e.g., drought), and an increase in extreme weather events.

The time horizon was through 2050. This covers the lifetime of Linde's production plants, which usually have a contractual run time of 15–20 years.

The risk analysis was context-based, meaning it was conducted on a single asset basis considering regional specifics, and covered the majority of assets. Linde evaluated which sites will be exposed to high water-stress in the next 20 years according to different future climate scenarios. Linde also calculated the impact of climate variables, such as temperature and ambient contaminants (e.g., less than 500 ppm carbon dioxide), on its plant operations (e.g., impact on energy consumption/cost), using a self-developed tool.

Linde's scenario analysis showed that Linde might be exposed to several acute and chronic physical climate change risks in the long term, resulting from an increase in mean temperature, higher carbon dioxide concentrations in the air, and/or higher water stress. This could lead to higher operating costs, and in the worst case, loss of revenue due to reduced production capacity.

Based on the scenario analysis and risks determined, Linde developed a context-based climate adaptation plan that considers the technical and regional specifics of each site. This plan covers 100 percent of industrial gases production assets. Generally, for all new plants, the physical parameters are assessed, and plant designs are adapted to meet the projected short-, mid- and long-term physical climate parameters and risks, such as an increased risk of flooding. In addition, long-term activities related to R&D and innovation are performed, for example, new plant designs or solutions for reduced freshwater consumption.

ACTIONS ACROSS THE VALUE CHAIN

Linde is acting at all stages of the value chain to reduce GHG emissions and will not get to climate neutrality alone. Linde has identified key stakeholder relationships that are essential to achieving its targets and is collectively working towards a low-carbon future.

Upstream: Suppliers

By partnering with its critical and strategic suppliers to reduce environmental and climate impacts, Linde reduces its own environmental impact, lowers risk in its supply chain and mitigates or decreases its overall operating costs.

To better understand supplier behavior, Linde collects climate change information at least annually from certain suppliers. Linde suppliers are required to comply with the principles outlined in Linde's [Supplier Code of Conduct](#), including the expectations of suppliers

to commit to continuous improvement of environmental protection and to support Linde's programs and targets related to climate change.

Linde has begun collecting product carbon footprint (PCF) information from specific suppliers. Those suppliers who are not already measuring such key performance indicators (KPIs) are asked to complete a self-assessment and standard PCF calculation for products purchased by Linde. Linde is evaluating this information, which will form the basis for potential emission reduction initiatives for Linde products.

Key Supply Chain Categories



Includes goods and services purchased from suppliers, from office products to raw materials used to make our products.



Includes capital goods such as steel used to build ASUs and other plants.



Includes transportation of goods to our plants plus distribution of our products by contract drivers.

Direct Operations

Climate-related risks and opportunities have influenced Linde's financial planning decisions, including operating expenditures and capital expenditures. Improvements in operational efficiencies and renewable energy are important levers to achieve overall GHG emissions reduction targets and contribute to cost savings.

Partnering with Electric Utilities

Linde participates in energy efficiency and energy reduction programs offered by electricity suppliers, thus helping them to achieve their energy efficiency obligations and targets. GHG emissions from electricity represent the largest portion of Linde's Scope 2 and 3 GHG footprint.

As the world transitions to a more sustainable energy economy, the share of renewables in the mix is increasing, making grids unstable.

Linde represents a high-impact customer who can influence the overall grid load and, therefore, has the capacity to help with demand-side management. Several of Linde's plant designs, such as its new Flex ASU concept, help to balance the grid by increasing the flexibility of its production plants — using more renewable electricity when it is readily available, or reducing energy consumption in times of limited capacity. This helps the utility manage increasing volatility in the grid and supports decisions to increase the share from intermittent power sources (like wind or solar).

By 2035, as part of its target to reduce absolute GHG emissions by 35 percent, Linde will:



Phase out ASUs that run on natural gas



Retrofit 13 plants with CCS technology, including large steam methane reformers that produce hydrogen



Replace 50 percent of steam drives with electric drives



Discontinue construction of large grey hydrogen plants by 2030



Exchange high-emission fleet vehicles with low or zero emission alternatives



Increase purchases of renewable electricity at offices and plants



Build and operate new proton exchange electrolyzers to increase green hydrogen capacity

Operating Expenditures (OPEX)

The cost of energy is one of Linde's largest operating expenses. Current and emerging GHG regulations influence the cost of energy. Linde's annual budget/financial planning considers the carbon taxes to be paid or carbon credits to be purchased for existing production plants, as well as plants that are about to become operational. If these costs can be passed through to the customer (e.g., over the sales price), Linde factors this into its financial planning (as increased sales revenues).

In addition to routine maintenance, Linde plants undergo major turnarounds every 3–5

years. The cost of these overhauls is included in the budget year in which it occurs.

OPEX projects through 2035 will include the replacement of steam drives with electric drives and retrofitting large steam methane reformers (SMRs) with CCS.

Capital Expenditures (CAPEX)

Linde expects that it can benefit from increasing demand for low-carbon products and applications. To meet this demand, Linde recognizes that capital investments are required in addition to R&D. Capital investments are needed for innovation and include construction of pilot production plants

for testing new applications, investment in know-how, acquisition of technology companies. Linde considers these types of capital expenditures (CAPEX) in its short-, mid- and long-term CAPEX planning process.

From 2018–2021, Linde invested about \$300 million in decarbonization projects/initiatives. The CAPEX required for these projects/initiatives was factored into the overall annual CAPEX planning/budget of the company.

CAPEX projects through 2035 will include CCS projects, construction of new proton exchange membrane (PEM) electrolyzers and the purchase of new zero-emission fleet trucks.



Operational Efficiencies:

Linde completes hundreds of voluntary projects each year that provide permanent improvements to energy requirements for turbines, compressors, fans and other primary process equipment; heat transfer efficiency and control equipment for process efficiency and reliability optimization; lighting retrofits; and adjustments to HVAC controls.

In 2021, Linde saved 875 million kWh, 1,800 billion BTU of natural gas, 6 million gallons of diesel fuel and 696,000 MT CO₂e.



Renewable Energy:

Linde has a 10-year target to double the amount of low-carbon electricity sourced, especially through active procurement of renewable electricity.

Linde's energy management team in India signed several long-term power contracts in 2021 to source renewable energy by setting up photovoltaic systems and wind turbines at nine ASU sites. All projects are planned to be fully commissioned by 2024. These contracts will more than triple renewable energy use in India as compared to 2021 and reduce Scope 2 GHG emissions by 20 percent.

In eight European countries, all of Linde's electricity purchases from the grid are zero-carbon. To guarantee a pipeline of additional renewables, Linde has continued to negotiate more long-term Power Purchase Agreements, including in Sweden, where power from Statkraft's hydropower plant in Bassalt came online in 2022.



Company Fleet Vehicles:

Part of Linde's vision for 2050 is a zero-emissions fleet. Linde implements hundreds of voluntary projects each year that provide permanent reductions in diesel and gasoline use and corresponding GHG emissions from fuel efficiency or route efficiency programs, on-site tank size optimization, trailer size optimization and track engine modifications to maximize fuel economy.

Linde has already taken steps, including evaluations of both hydrogen fuel cell and electric vehicles. Working together with fuel manufacturers, Linde Gas & Equipment has evaluated renewable diesel, which, in many cases, can be phased in progressively without modification to truck engines. Testing of this technology has begun in some geographies, including California, Washington and Oregon. GHG emissions from transportation can be reduced by up to 83 percent using renewable diesel compared to fossil diesel.

Downstream: Customers

Linde believes that transparency about carbon-related information will be an accelerator in the global race to zero emissions, and is committed to informing and educating its customers about the climate change impacts of using Linde's products and services, as well as Linde's own initiatives to reduce emissions. As part of its customer engagement campaign, Linde shares its sustainability and climate-related performance, including its targets, plans and details of its portfolio of products, and solicits discussion on any topic, including climate change, for example, during regional customer days. Although Linde does not yet calculate or disclose customer-related Scope 3 emissions, there are plans to implement this in the future.

The exchange of ideas, practices and performance around sustainability leads to strategic relationships with customers, and Linde has teamed up with its customers to develop low-carbon solutions and new technologies. For example, bp and Linde are planning a major CCS project to advance decarbonization efforts across the Texas Gulf Coast. Linde will use its proprietary technology and operational expertise to capture and compress the carbon dioxide from its hydrogen production facilities. 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 CCS solutions.

Financial Planning

Climate-related risks and opportunities have influenced Linde's financial planning decisions, including R&D spend and revenues.

R&D Spend: Linde is an innovation leader. To stay ahead of competitors and offer the low-carbon products and services customers want, Linde continually invests in R&D. R&D expense analysis is conducted every year as part of the annual R&D budget planning process.

Linde has a target to increase R&D spend on low-carbon products:

- By 2028, direct more than 33 percent of annual R&D expenses to new technologies and especially low-carbon applications.

Revenues: Linde is a technology leader and at the forefront of innovation in many technology areas, including low-carbon products and services. Linde believes that it can achieve increased revenue from business opportunities arising from government regulation of GHGs and other emissions and the increasing demand for low-carbon products and applications. Linde offers several products and applications that help customers and their clients avoid carbon dioxide emissions. Linde's strategy is to maintain its focus and expand on such offerings in the short-, mid- and long-term.

Linde is incorporating the impact of business opportunities from new low-carbon products and applications into its mid- and long-term business plan.

Linde has two targets related to low-carbon product revenue:

- Avoid more than two times the GHG emissions from its own operations.
- Earn more than 50 percent revenue annually from products in its sustainability portfolio.

For example, Linde is investing in low-carbon R&D as well as initiatives and projects with the aim to enable future growth of its hydrogen business. Additional revenues from new hydrogen business/projects (such as green hydrogen projects in Germany and New York) are factored into Linde's short-, mid- and long-term financial planning.

- In its 2020 Energy Technologies Perspective paper, the IEA projects a roughly four times increase of worldwide hydrogen 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 would mean a low estimate for potential annual hydrogen-related revenues of more than \$8 billion in the long term, assuming same market share and product pricing, an increase of over \$5 billion from 2022, which is less than expected by Linde.

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

Helping Customers Avoid GHG Emissions

Linde calculates its carbon productivity (emissions avoided by the use of Linde's products) for five signature products, for specific applications, in five markets:

1. Hydrogen used to make ultra-low sulfur diesel fuel (ULSD)
2. Oxygen used to optimize combustion processes (Oxyfuel technology)
3. Krypton used to insulate thermal windows
4. Argon used in welding
5. Thermal barrier coatings for industrial gas turbine and jet engine efficiency

Hydrogen is used to make ULSD fuel. When used in trucks fitted with diesel particulate filters, it eliminates black carbon.^{2,3}

Oxyfuel technology 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. 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 carbon dioxide and water vapor. The flue gas stream is therefore smaller and easier to handle. This vapor is easily condensable, leaving a highly concentrated carbon dioxide stream that can be compressed and stored.

Linde's oxyfuel technology is especially applicable to steelmaking. The blast furnace requires large amounts of coke as a fuel. In the oxyfuel process, high levels of oxygen are added to the hot blast, increasing the productivity of the combustion process. The

energy savings occur during the use of the oxygen/oxyfuel technology (use phase).

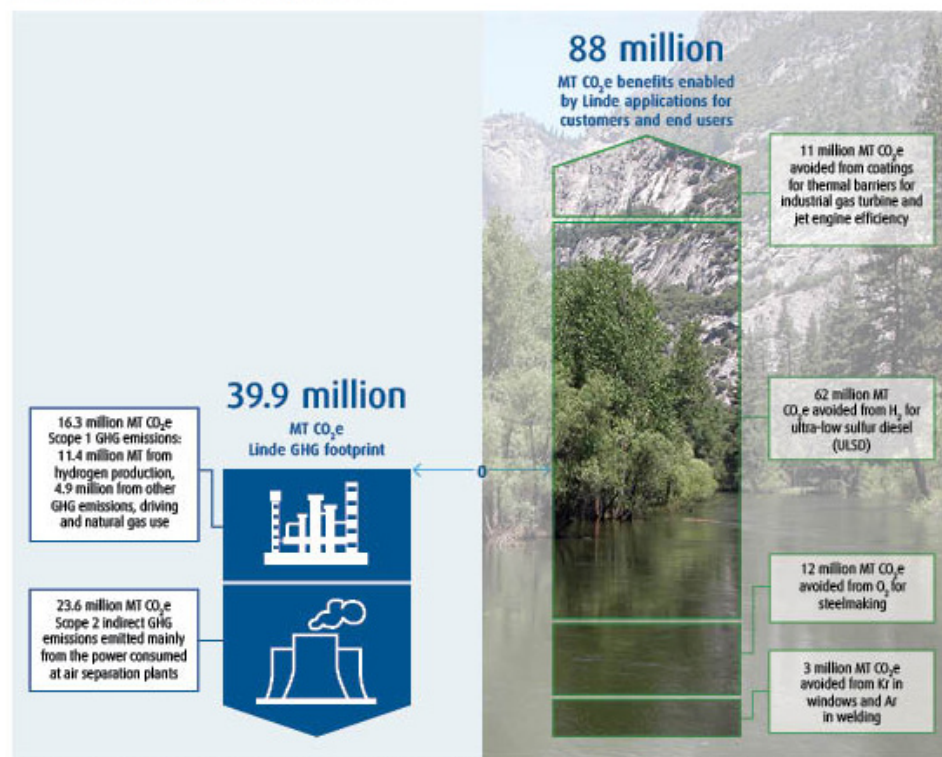
Krypton is a product/gas of the air separation process. When used in double-pane windows (filling the space between two panes), krypton can drastically increase the thermal barrier, and therefore, the insulation of the window.

Argon, carbon dioxide and mixtures thereof in the 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. The welding gases are vented to the atmosphere once they have fulfilled their role in the arc zone and are considered Scope 1 fugitive emissions. Replacing carbon dioxide with argon reduces the users' Scope 1 emissions.

Applications Enable 2.2x Carbon Productivity

Linde is a company in the business of resource transformation in a world that is dealing with climate change. Below are our 2021 actual results as reported by Linde plc entities. We demonstrate that a subset of Linde applications allow our customers or their end users to avoid more than twice the GHG emissions of all Linde operations. In 2021, total GHG emissions were 39.9 million MT CO₂e, versus 88 million MT CO₂e avoided by our customers or end users, based upon several applications as shown below.

Again in 2021, a subset of Linde applications enabled more than twice the GHG benefit than was emitted in all global operations.



Values are based on 2021 reported and consolidated results from Linde plc subsidiaries following Linde plc reporting standards.
CO₂e = CO₂ equivalents

² 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 being a crucial short-term strategy to reduce the rate of global warming.

³ <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>

Clean Hydrogen

Hydrogen is the most abundant element in the universe and a powerful energy carrier. Due to its versatility, hydrogen is a key enabler of the transition to low and zero carbon energy (clean energy). It can be produced from (renewable) electricity and from carbon-abated fossil fuels. It produces zero emissions at the 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.

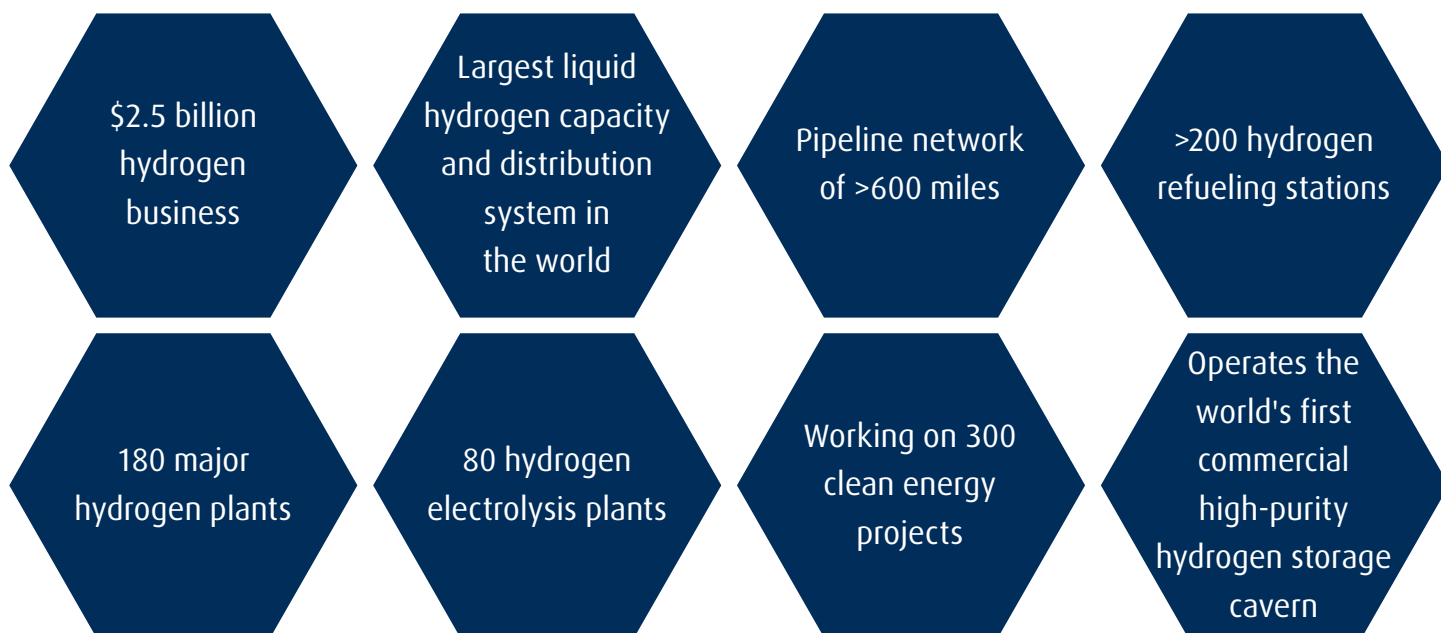
Linde has been harnessing the power of hydrogen for over 100 years and continues to invest in effective and economic ways to deliver gray, blue and, ultimately, green hydrogen. Linde can produce hydrogen from a range of feedstocks and natural resources. Using processes like steam methane reforming, Linde generates gray hydrogen from natural gas, liquefied petroleum gas (LPG) or

naphtha. This is the most common hydrogen production process today. Gray hydrogen can be converted into blue hydrogen by adding CCS technologies to the production process. Linde produces green hydrogen using electrolysis powered by renewable energy. An alternative green hydrogen production method is steam reforming using biomethane as feedstock. Gray and blue hydrogen are important stepping stones on the path to green hydrogen as they allow the necessary frameworks and infrastructures to be developed in the interim while green hydrogen production reaches the necessary scale.

As the world's leading industrial gas and engineering company, Linde covers the full spectrum of the hydrogen value chain and possesses the necessary infrastructure, technology and experience that will support a transition to clean hydrogen. Linde helps customers and stakeholders navigate through the complexities of the transition to a zero

carbon economy. Linde's engineers work with customers to identify their path to zero emissions and has become a leader in designing, building and operating plants and facilities to meet its customers' needs.

Based on Linde's scenario analysis and market research, Linde expects a strong increase in demand, especially for green hydrogen, in the mid- and long- term, and therefore, decided to focus its strategy on this growing business. Linde established an internal Clean Energy and Hydrogen organization and made strategic investments to speed up developments and growth in the area of green hydrogen. Linde set targets to invest more than one-third of annual R&D expenditures in low-carbon projects and initiatives by 2028, and to invest more than \$1 billion in low-carbon projects by 2028. Those investments are targeted on finding and implementing innovative solutions and products/applications that can help mitigate climate change.



The company is investing across the hydrogen value chain to accelerate the clean energy transition:

- Hydrogen 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 is actively working on nearly [300 clean energy-related projects, mostly involving clean hydrogen](#). Business opportunities are emerging worldwide, especially in countries that have already adopted hydrogen strategies, such as Canada, the EU, South Korea and Australia. There are around 50 targets, mandates and policy incentives in place today that directly support hydrogen, with the majority focused on the transportation sector. The number of countries with policies that directly support investment in hydrogen technologies is increasing.
- Linde is part of the AquaVentus initiative, which targets a yearly production of approximately 1 million tons of [green hydrogen](#) from offshore wind by 2035, on the island of Helgoland, Germany. Wind turbines will be used to produce zero carbon hydrogen, which will then be transported through pipelines to the mainland to power homes.
- Linde is building a 35-megawatt PEM electrolyzer to produce green hydrogen in Niagara Falls, NY. The new plant will be the largest electrolyzer installed by Linde globally and will more than double Linde's [green liquid hydrogen production capacity](#) in the United States. Linde will use hydroelectric power to produce green liquid hydrogen. The plant is expected to start up by 2025. Linde will leverage its existing liquefier and distribution infrastructure to supply existing and new customers. This project is the first of several electrolyzers Linde expects to build in the U.S. to address green liquid hydrogen demand.
- At a location south of Mainz, Germany, Linde is realizing the [world's first multi-MW hydrogen energy storage project](#) based on advanced PEM electrolyzer and ionic compressor technology. Up to 1,000 kg of hydrogen are stored on-site to be filled into trailers or injected into the natural gas grid. Project partners are Stadtwerke Mainz AG, Siemens AG and Hochschule RheinMain and funding is provided by the German Federal Ministry for Economic Affairs and Energy.
- Linde joined the H2Accelerate collaboration to further the deployment of [green hydrogen for trucking](#) in Europe. Participants work collaboratively to seek funding for early pre-commercial fuel cell truck projects and engage with policymakers to encourage a policy environment that will support the scale-up of the hydrogen truck market.
- Linde is pursuing numerous strategies to [reduce GHG emissions from the operation of its hydrogen plants](#), including procuring more renewable electricity; investing in significant operating and capital efficiencies; pursuing competitive low-carbon sources of hydrogen including feedstock from biomethane; converting existing SMRs with CCS; building new autothermal reforming (ATR) plants with CCS; and adding new electrolysis with renewable power.

For more information on Linde hydrogen, visit www.lindehydrogen.com.

Linde can envision a future where hydrogen fuel cells will be widely adopted, green electricity will be available commercially, and energy and fuel markets will be linked. Low carbon hydrogen will be cost competitive; SMRs will feature additional energy efficiency and CCS; and electrolysis will be available with renewable electricity sources at much greater capacities and will supply a significant share of new hydrogen demand. By 2035, Linde expects that [hydrogen derivatives will become the new energy vector and an essential means to transport low-cost renewable power around the world](#).

ENGAGEMENT

Societal change remains critical to achieving emissions reduction targets and achieving the Paris Agreement goals and as such, influencing wider society is an integral part of Linde's Climate Transition Plan. The company has a long tradition of working with trade organizations, government, regulators, public sector organizations and civil society to advance the sustainable development agenda and to influence public policy frameworks that will accelerate progress consistent with its commitment to conduct engagement activities in-line with the goals of the Paris Agreement.

Linde maintains a detailed oversight process to ensure its engagement activities are conducted in a legal, ethical and transparent manner, are aligned across business units (BUs) and geographies, and are consistent with its overall climate change strategy. This includes oversight by the Chief Compliance Officer (CCO) and an annual program review by the Board of Directors. Linde's Government Relations department provides regular reporting on engagement activities to the CCO and reports to the General Counsel.

In addition, the Vice President, Sustainability, and the General Counsel coordinate to ensure public policy advocacy is consistent with Linde's global climate change strategy. The Vice President, Sustainability, works closely with the Government Relations department 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.

With Government

Linde is active in several key markets, advocating for ambitious national or regional climate policy. In 2021, Linde:

- Engaged with political decision makers promoting the benefits of producing and using clean hydrogen to reduce GHG emissions.
- Engaged in dialogue with political decision makers in Europe 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.
- 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.
- Advocated for favorable conditions regarding production and investment tax credits for clean hydrogen, as well as carbon capture, as proposed in the "Build Back Better" bill.
- Advocated for favorable conditions in the context of the carbon oxide sequestration tax credit scheme (section 45Q).
- 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 part of the Bipartisan Infrastructure Law.

With Industry, Public Sector & Civil Society

Advocacy is another way in which Linde actively drives the transition to clean energy. Many companies that are transitioning to a low-carbon economy and pioneering net zero pathways face similar issues and challenges, and industry associations offer an education opportunity for their members, a window to learn best practices. Members benefit from industry-wide advocacy and can influence industry standards and developments — a voice to shape the future of the industry. Linde participates extensively in groups that seek to do this — learning from others and sharing its own experience.

Linde is a founding member of the Hydrogen Council and participates in many other hydrogen and climate change forums and advocacy groups, such as the Sustainable Markets Initiative and the Hydrogen Forward Coalition, a coalition of companies across the value chain that are working to ensure hydrogen is a key contributing solution in the energy transition. The coalition works in concert with allies across industries and sectors to educate decision makers and stakeholders on the value hydrogen delivers today and the important role that it should play in the future. This coalition is focused on efforts that drive decarbonization of the U.S. economy and supports the establishment of a national hydrogen strategy that outlines a clear, comprehensive approach to hydrogen and related infrastructure development.

Linde is a member of the following organizations that have climate change positions generally aligned with Linde's:

- European Industrial Gases Association (EIGA)
- Hydrogen Council
- American Chemistry Council (ACC)
- Louisiana Chemical Association
- NY Chemistry Council
- Texas Association of Manufacturers
- American Chamber of Commerce in Germany (AmCham Germany)
- Clean Energy Partnership
- Deutscher Wasserstoff- und Brennstoffzellenverband
- Hydrogen Europe
- German Chemical Industry Association (VCI)
- Verband Deutscher Maschinen- und Anlagenbauer (VDMA)
- Verein der Bayerischen Chemischen Industrie
- HYPOS – Hydrogen Power Storage & Solutions East Germany
- Wirtschaftsrat der CDU
- Deutsches Aktieninstitut

See Linde's [CDP Climate Change response](#) for more information on these memberships.

Linde participates in global initiatives and is a proud supporter of the United Nations Global Compact and is committed to its Ten Principles.

Linde's impact and progress supporting the UN Sustainable Development Goals is described annually in its Sustainability reports, available on Linde's website.

With Investors

Linde maintains a strong dialogue with investors and other stakeholders regarding its climate change strategy and low-carbon initiatives. This includes its quarterly earnings calls, at which time investors and analysts can pose questions and provide feedback.

In such opportunities, Linde reports on its strategy and performance against GHG reduction targets and elements of this transition plan.

Linde welcomes feedback from investors and shareholders on its Climate Transition Plan and will incorporate such feedback, as appropriate.



Natural Resources		
Resource productivity	<ul style="list-style-type: none"> • Delivered productivity in line with business strategic objectives • Realized \$187 million savings from sustainable productivity, including avoiding >500 million gallons of water usage and 696,000 MT CO₂e*** 	
39.9 million MT CO ₂ e direct and indirect GHG**** emissions	<ul style="list-style-type: none"> • 17 TWh low-carbon energy sourced (40% of all energy) • Enabled 88 million MT CO₂e to be avoided by customers from five of Linde's key technologies 	
80 million m ³ water consumed	<ul style="list-style-type: none"> • Enabled more than 225 million people to have access to safe drinking water through gases used for water treatment and desalination 	

GOVERNANCE & ACCOUNTABILITY

Sustainable development is overseen by Linde's Board of Directors and Executive Leadership Team and is integrated throughout the company. Accountability for the achievement of Linde's climate change strategy reaches every level of the organization.

Governance: Board Oversight

The Board of Directors (the Board) oversees Linde's corporate strategy, and reviews and guides major plans of action and risk management policies. The Board also oversees climate-related issues within the organization and monitors progress against performance objectives and goals. The Board is responsible for making decisions on important matters related to the environment and climate change, based upon recommendations from the Board's Sustainability Committee.

The Sustainability Committee assists the Board with its oversight of the Company's programs, policies, practices and strategies related to environmental matters, including:

1. The Company's decarbonization efforts, including those related to the reduction of GHG 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 and product stewardship.
4. The Company's environmental sustainability goals, including those related to climate change and GHG emissions, the Climate Transition Plan, and the company's Sustainable Development Report.

The Sustainability Committee meets several times throughout the year and reports out to the full Board at every Board meeting about climate change-related strategies, policies, risks and opportunities, and performance.

The Executive Vice President, Clean Energy and the Vice President, Sustainability report to the Board at least quarterly on climate-related topics, including assessing and managing climate-related risks and opportunities, Linde's hydrogen strategy, and Linde's decarbonization opportunities and strategy.

In addition, the Human Capital Committee reviews and approves changes to the non-financial component of the Compensation program, which includes reduction in absolute GHG emissions as a separate pillar.

Several Linde Board members have specific skills, competency and experience in environmental and climate-related issues, primarily from serving for many years on councils and committees dealing with such matters. The following criteria are used to assess competency on climate-related issues:

- Current and prior professional experiences
- Participation in trade associations or other councils or committees dealing with climate-related issues.
- Membership in Sustainability or Environmental/Climate Change Board Committees.

Governance: Senior Management Accountability

The Executive Leadership Team is the highest level of leadership within Linde. They are responsible for economic, environmental and social topics, and oversee and approve sustainable development strategies and programs.

Linde's Executive Vice President (EVP) and Chief Human Resources Officer (CHRO) is a member of Linde's Executive Leadership Team, reporting to the CEO. In addition to oversight of Sustainable Development, he has global responsibility for Human Resources (HR), Communications, Talent Management and Safety, Health, Environment and Quality (SHEQ). Specifically, in relation to sustainability and climate change, the EVP is the highest

management level responsible for coordinating the Sustainable Development (SD) targets, including Linde's climate change targets. The CHRO is also the highest Linde executive responsible for environmental issues and compliance.

The Vice President, Sustainability (equivalent to the Chief Sustainability Officer), reports directly to the EVP and CHRO and is responsible for, among other things, monitoring performance against Linde's climate change targets. The Vice President, Sustainability, reports to the Board's Sustainability Committee regularly on performance against SD targets, including its climate change targets. Responsibility for achieving these targets rests with the businesses.

The Vice President, SHEQ, reporting to the CHRO, manages environmental compliance, management, safety and risk (including from climate change). The Vice President, SHEQ, is

responsible for the global SHEQ management system and the development of global methodologies (including GHG accounting), policies and standards, as well as monitoring compliance. The SHEQ team is also responsible for the periodic collection of safety and environmental KPIs (eKPIs), including data on energy and GHG emissions.

The Corporate Sustainable Development Council (SD Council) is the corporate committee responsible for the proposal and execution of Linde's sustainable development strategy, targets and programs. It consists of the heads of functions that support the implementation of Linde's SD strategy and targets, and the designated heads of Operating Segments (OSs), Engineering and global businesses who lead SD implementation d programs.

Incentives and Remuneration

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 Board 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. The Human Capital Committee of the Board will consider various qualitative factors, including driving the Company's key values (e.g., sustainable development, including transition plan-related considerations, safety, health and environment, diversity and inclusion, community engagement, and integrity and compliance) and competencies that are important to the success of the Company. These measures are described in Linde's annual [Proxy Statement](#).

Coupled with its assessment of performance related to financial goals, the Human Capital Committee reviews the strategic actions taken by management that focused on long-term sustainable success. After the end of the year, management presents to the Human Capital Committee the degree of achievement in meeting each goal, and for each element, its view of the relative degree of importance to long-term success.

In January 2022, the Human Capital Committee approved the design and goals for the Company's annual performance-based variable compensation program for 2022. In recognition of the importance of the Company's standards for, and impacts from, environmental, social and governance (ESG) considerations, the non-financial component will now be comprised of three pillars, each with its own weights: Values, Strategy and Relative Performance.

The 2022 program design included a new component measuring annual performance against pre-established goals related to reducing GHG emissions. This component comprised 20 percent of the strategic non-financial performance payout.

See the payout results in Linde's [Proxy Statement](#).

Examples actions noted for 2022 include:

- Environmental Sustainability efforts made good progress reducing GHG intensity, with a continuous year-over-year decrease through the end of 2022, and on track to achieving a 35 percent reduction by 2028.
- More than \$500 million invested in decarbonization initiatives and projects since 2018.
- Maintained DJSI World constituency for 20th consecutive year, remaining the only company in the chemicals sector with that record.
- Achieved double-A List recognition by CDP for climate change and water stewardship.
- Achieved SBTi validation of our absolute 2035 GHG reduction target.

TARGET & METRICS

The following climate change targets run 2018 through 2028:

Priority Factors	Linde Targets*	2018	2019	2020	2021	Target	Status
Climate Change	Invest in decarbonization initiatives, cumulative \$ million	14	66	128	299	1,000	↗
	Direct >33% of R&D budget to decarbonization, cumulative %	23	25	26	27	>33	↗
	Contribute >50% revenue from sustainability portfolio, annual %	n/a	53	54	55	50	↑
	Enable >2x GHG benefits, annual	2.5x	2.7x	2.3x	2.2x	>2.0x	↑
	35% absolute reduction in Scope 1 and 2 emissions by 2035, 2021 baseline, cumulative % (million tons CO ₂ e)	n/a	n/a	n/a	n/a	-35% (25.9)	n/a
	35% Improvement in GHG intensity vs. EBITDA, cumulative %, (intensity MMT CO ₂ e/\$ billion)	(5.3)	-8.1% (4.9)	-16.1% (4.5)	-26.2% (3.9)	-35% (3.5)	↗
	4% HyCO GHG intensity improvement, cumulative %	0	-3.4	-7.1	-9.3	-4.0	↗
	7% ASU energy intensity improvement, cumulative %	0	-0.6	-0.5	-1.7	-7.0	↗
	10% fleet GHG intensity improvement, cumulative %	0	-0.9	-7.2	-7.5	-10.0	↗
	10% absolute reduction in other GHG emissions, cumulative %	0	0	-9.3	-38	-10.0	↑
	>2x low-carbon power sourcing, primarily from active renewable electricity, cumulative TWh	14	14.3	15.3	17.0	>28.0	↗
Legend	*All Targets terminate in 2028, unless specified otherwise						↑ achieved; ↗ on track; ↘ behind target

See the Performance Towards Targets section of Linde's annual [Sustainable Development Report](#) for information on these targets, including descriptions and methodologies.

Linde has committed to setting Scope 3 emissions reduction targets in 2025–2026. These targets will continue to drive the transformation of the company's product portfolio toward climate neutrality.

2035 Target:

Linde's newest target, validated by the Science Based Targets initiative (SBTi), aims to reduce absolute Scope 1 and 2 emissions by 35 percent by 2035 ("35 by 35" target). Progress against this target is reported in Linde's 2022 Sustainable Development Report, available in July 2023.



2050 Net Zero Target:

Linde will achieve climate neutrality by 2050. This target covers Scopes 1 and 2 emissions.

Annual Inventory & Verification

Linde has a third-party verification/limited assurance process in place with an annual verification of Scope 1 and 2 (market-based) and certain Scope 3 emissions. Carbon Verification Service, LLC, provides assurance of Linde's KPIs and other social metrics. The year 2021 was the 12th consecutive year that

Carbon Verification Service was retained by the company to verify its KPIs. The objective of the verification was to provide limited assurance of the reported KPI values and to assess the accuracy, completeness, relevance, consistency and transparency of Linde's information and assertions. Carbon Verification Service assessed the conformance of Linde's GHG emissions inventory with The Greenhouse Gas Protocol.

Based upon the verification work performed from March through June 2021, Carbon Verification Service found no evidence that Linde's KPI data assertions, which appear in the table at right, are not materially correct, are not a fair representation of data and information and have not been prepared in accordance with accepted standards and practices. See [Linde's website](#) for the verification statement.

GHG Metrics: Scopes 1 and 2

Scope 1 GHG Emissions

	2019	2020	2021	2022
Scope 1	16,461,000	16,247,000	16,321,000	16,813,000

EN (8): Scope 1 GHG Emissions

Units: Metric Tons CO₂e

Scope 2 GHG Emissions (Market-based)

	2019	2020	2021	2022
Scope 2	23,448,000	22,299,000	23,573,000	21,981,000

EN (9): Scope 2 GHG Emissions

Units: Metric Tons CO₂e

GHG Intensity by EBITDA

	2019	2020	2021	2022
Total Scope 1+2 (thousands) in Metric Tons CO ₂ e	39,909	38,546	39,894	38,794
EBITDA (millions) in USD	\$8,178	\$8,645	\$10,179	\$10,873
GHG Intensity	4.88	4.46	3.92	3.57

EN (12): GHG Intensity by EBITDA

Units: Metric Tons CO₂e/Thousand USD EBITDA

GHG Intensity by Revenue

	2019	2020	2021	2022
Total Scope 1+2 (thousands) in Metric Tons CO ₂ e	39,909	38,546	39,894	38,794
Revenue (millions) in USD	\$28,228	\$27,243	\$30,793	\$33,364
GHG Intensity	1.41	1.41	1.30	1.16

EN (11): GHG Intensity by Revenue

Units: Metric Tons CO₂e/Thousand USD Revenue

GHG Metrics: Scope 3

Linde has provided an inventory of Scope 3 emissions for several years, and these emissions are significantly smaller than its total Scope 1 and 2 emissions. Historically, categories not reported are areas that are small or deemed not relevant to Linde's business, or areas that — like for many of its peers — are difficult to estimate or for which credible methodologies did not exist. In keeping with its practice of delivering the most transparent information to stakeholders, Linde has been engaged in a rigorous process to (1) understand Scope 3 sources and estimation methodologies; (2) define the baseline; and (3) set reduction targets. Having published a Scope 1 and Scope 2 absolute reduction target, which was validated as science-based by SBTi, Linde is now strongly focused on Scope 3 emissions and on having a strong basis upon which to set additional Scope 3 emissions reduction targets.

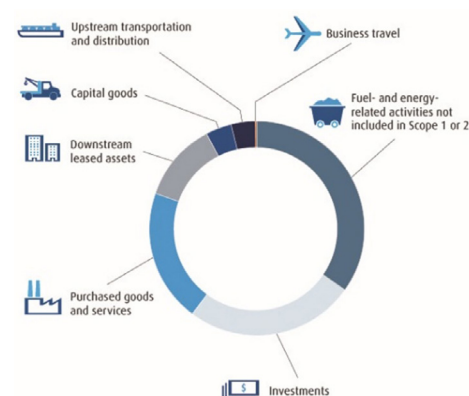
For information on Scope 3 boundaries and methodologies, see [Overview: Scope 3 GHG Emissions](#).

Activities and Progress:

- On an ongoing basis, Linde seeks readily available emissions factors from trusted sources, including a recent update of factors for electricity from the UK Department for Environment, Food & Rural Affairs (DEFRA). A new source of emissions data for capital goods is being used, based upon the Organization for Economic Co-operation and Development (OECD), EXIOBASE, the U.S. Bureau of Economic Analysis and the World Bank.
- Linde seeks the most specific factors for key commodities. For example, the company recently engaged academia and suppliers for key commodities, including cylinder and tank assets, to validate emissions factors and streamline data collection methods.
- For 2021, Linde increased the coverage of purchased goods and services to 95 percent.
- Linde reviewed spend-based methodologies for products and services and expanded activities to include transport.
- Linde is engaging suppliers and customers to understand their programs and targets, along with ways to collaborate and leverage

synergies. For example, like Linde, many suppliers and customers participate in the CDP Supply Chain Response, and such inputs are critical elements of Linde's engagement strategy.

- In order to baseline emissions, Linde re-screened all 15 Scope 3 emissions categories in 2022. This important work includes the process of estimation and methodology development and updates.
- Linde is on track to begin publishing estimates for all categories relevant to its business in 2023.



Scope 3 GHG Emissions

	2019	2020	2021	2022
Upstream				
Fuel-and Energy-Related Activities	5,590,000	5,290,000	7,430,000	6,990,000
Purchased Goods and Services	1,540,000	1,640,000	4,250,000	3,774,000
Capital Goods	965,000	931,000	810,000	1,036,000
Upstream Transportation & Distribution (including Contractor Driving)	577,000	562,000	780,000	726,000
Employee Commuting				105,000
Leased Assets				65,000
Business Travel			21,000	16,000
Waste				14,000
Downstream				
Use of Sold Products/ Processing of Sold Products				7,831,000
Downstream Leased Assets	2,280,000	2,050,000	2,520,000	2,655,000
Investments	4,460,000	3,930,000	5,450,000	2,630,000
Downstream Transportation & Distribution				10,000
End-of-Life of Sold Products				7,000
Franchises				N/A
Total	15,412,000	14,403,000	21,261,000	25,859,000

EN (10): Scope 3 GHG Emissions

Units: Metric Tons CO₂e

Energy Metrics

Total Energy

	2019	2020	2021	2022
a. Non-renewable fuels purchased and consumed	21,246,000	21,298,000	21,012,000	19,707,000
b. Non-renewable electricity consumed ¹	39,448,000	39,129,000	39,999,000	38,621,000
c. Steam consumption	6,012,000	6,357,000	9,152,000	10,027,000
d. Total non-renewable energy consumption (a+b+c)	66,706,000	66,784,000	70,163,000	68,355,000
e. Total renewable electricity purchased or generated ²	2,432,000	2,493,000	2,780,000	3,316,000
Total Energy Consumed (d+e)	69,138,000	69,277,000	72,943,000	71,671,000

¹ Row b (non-renewable electricity consumed) includes both fossil-fuel based electricity and passive renewable electricity. Since passive renewables are consumed from the grid, Linde does include this in row b since it did not directly purchase or generate this power.

² Row e includes only active renewable energy consumed.

EN(4): Total Energy

Units: MWh

Non-Renewable Fuel Consumption

	2019	2020	2021	2022
Non-renewable fuels purchased and consumed	21,246,000	21,298,000	21,012,000	19,707,000

EN (1): Non-renewable Fuel Consumption

Units: MWh

Electricity

	2019	2020	2021	2022
Active renewable electricity consumed	2,431,000	2,493,000	2,780,000	3,316,000
Passive renewable electricity consumed	8,161,000	8,534,000	9,125,000	9,236,000
Low carbon (nuclear) electricity consumed	3,687,000	4,264,000	5,051,000	5,469,000
Fossil electricity consumed	27,600,000	26,331,000	25,823,000	23,916,000
Total Electricity Consumed	41,879,000	41,622,000	42,779,000	41,937,000

EN (2): Electricity

Units: MWh

Steam

	2019	2020	2021	2022
Steam consumption	6,012,000	6,357,000	9,152,000	10,027,000

EN (3): Steam

Units: MWh

MAPPING TO CDP'S TECHNICAL NOTE

Linde has mapped this Climate Transition Plan against the Transition Plan Elements outlined in the **CDP Technical Note: Reporting on Transition Plans**, version 1.0, February 2022.

Transition Plan Element	Location in Linde's CTP	Location in CDP
Governance	Governance: Board Oversight Governance: Senior Management Accountability Incentives and Remuneration	C1.1, C1.1a, C1.1b C1.1d C1.2, C1.2a C1.3, C1.3a
Strategy	Linde's Climate Transition Plan, 2023 Our Ambition: Climate Neutrality by 2050 Climate Risks & Opportunities Actions Across the Value Chain Engagement With Investors	C3.1 C3.3
Scenario Analysis	Scenario Analysis	C3.2, C3.2a, C3.2b
Financial Planning	Direct Operations/OPEX Direct Operations/CAPEX Downstream: Customers/Financial Planning	C3.4, C3.5, C3.5a C4.5, C4.5a
Value Chain Engagement & Low Carbon Initiatives	Upstream: Suppliers Direct Operations Downstream: Customers Clean Hydrogen	C4.3b C12.1, C12.1a, C12.1b C12.1d, C12.2, C12.2a
Policy Engagement	Engagement With Government Engagement With Industry, Public Sector & Civil Society	C12.3, C12.3a, C12.3b, C12.3c
Risks & Opportunities	Climate Risks & Opportunities	C2.1, C2.2 C2.3, C2.3a C2.4, C2.4a
Targets	Targets & Metrics	C4.1, C4.1a, C4.1b C4.2, C4.2b, C4.2c
Scope 1, 2 & 3 Accounting with Verification	Annual Inventory & Verification	C5.2, C6.1, C6.3, C6.5 C10.1a, C10.1b

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