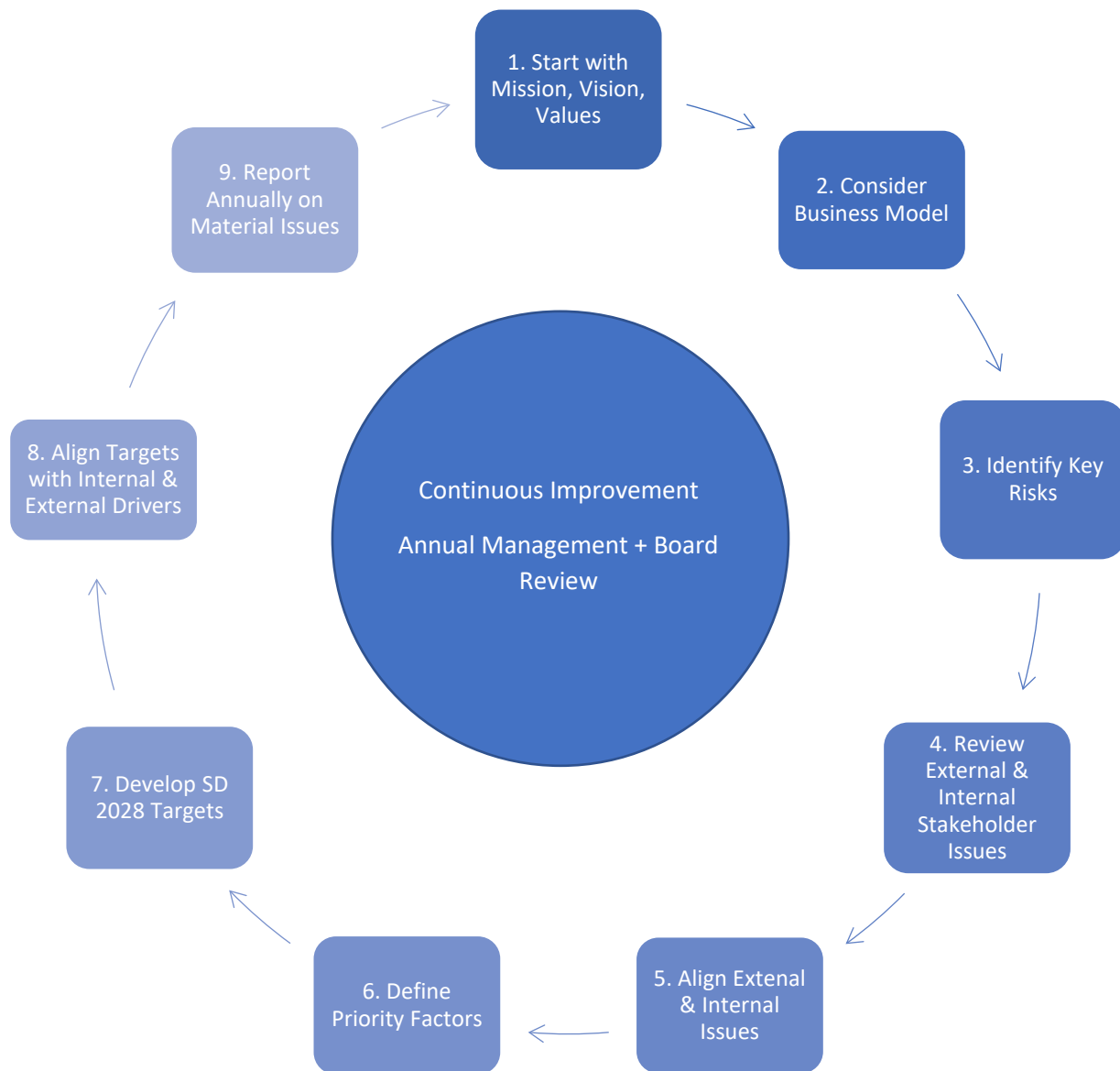


Making our world more productive



2019-2020 Sustainable Development Materiality Assessment (SDMA) and Basis for Linde's SD 2028 Targets

Linde's Sustainable Development Materiality Assessment (SDMA) Process



Linde's **Sustainable Development Materiality Assessment (SDMA)** process is the process by which we determine what issues are relevant for sustainability at Linde. It is the basis on which we set our Sustainable Development (SD) targets and manage SD performance. The SDMA follows the logic summarized in the image above. Each step is described in the pages following.

1. Start with Linde's Mission, Vision and Values



We ground our assessment in the non-negotiable elements of business: our Mission, Vision and Values.

2. Consider our Business Model

INPUTS	Product Stewardship	Managing environmental and safety aspects through the product life cycle from raw materials sourcing and supplier engagement to operations, distribution and customer use.						
	Raw Materials	Air and Electricity			Natural Gas or Industry Byproducts, Water (Steam)	Industry Byproduct, Natural Wells	Byproduct from Natural Gas Processing	Metals & Metalloids
ACTIVITIES	PRODUCTS	O ₂	N ₂	Ar	H ₂	CO ₂	He	Materials
	BUSINESS OPERATIONS	ATMOSPHERIC GASES			PROCESS & SPEC GASES			OTHER
OUTPUTS	2019 END MARKETS (% revenue)	EXAMPLES OF SIGNIFICANT PRODUCT APPLICATIONS <div><div></div>Eco & Joint Eco- + Social Benefits Portfolio<div></div>Social Benefits Portfolio</div>						
	Metals (13%)	Steel making, glass, non-ferrous metal processing	Inerting, metals processing	Stainless steel production	Heat treatment of stainless steel			
	Chemicals & Energy (19%)	Refinery processing & water treatment	Inerting, blanketing, purging		Diesel & gasoline reformulation & manufacture of ammonia, methanol	Replaces acids in industrial processes & synthesis & separation	Leak detection	Coatings
	Food & Beverage (8%)	Modified Atmosphere Packaging (MAP), aquaculture	Freezing, chilling, preservation			Cryogenic freezing Beverage carbonation		
	Healthcare (18%)	Hypoxia					Medical gas, MRIs	
	Electronics (9%)		Inerting			Cleaning & inerting	Inerting	Electronics processing
	Manufacturing & Aerospace (22%)	Fuel Water treatment	Autoclave	Welding, window insulation	Fuel	Welding Water treatment	Welding	Coatings
	Other (11%)						Laboratories	
	OUTCOMES	Examples of environmental, economic and social benefits	Productivity, product quality Human health and safety Fewer emissions of NOx, SO ₂ , VOCs					
More energy-efficient industrial production			Safety	Fewer GHG emissions More energy efficiency	Fewer black carbon and GHG emissions	Cleaner manufacturing	Fewer environmental releases	Improved product durability, Essential for solar PV
Cleaner drinking water Medical O ₂			Freezing + preserving food, medical samples		Better air quality	Water treatment & desalination	MRIs, LCDs, diving gases, airbags	Chrome cadmium replacement
IMPACT								
IMPACT		DELIVERING SUSTAINABLE VALUE (see page 11)						

We describe Linde's business model in terms of the flows of natural and manufactured capital.

Inputs included our starting points of safety and environmental stewardship across the full life cycle of what we do, from sourcing to use, recycling and/or end of life. As a basic materials company, we have a relatively simple set of raw materials. To make atmospheric gases, we separate the air into Oxygen, Nitrogen and Argon using electricity for heating and water for cooling. Hydrogen is mostly made from natural gas and steam or byproduct sources; CO₂ is principally sourced as a byproduct from industrial wastes; and Helium is sourced as a byproduct from natural gas processing. Other products use metals and metalloids to produce coatings and components for the electronics industry.

Outputs are described for each gas, by end market. Oxygen, for example, is used to accelerate combustion in steelmaking, to treat water and for healthcare.

Outcomes are the environmental, economic and social benefits of these applications, also presented by gas. Oxygen improves human health and safety, allows industrial processes to emit fewer polluting air emissions, brings more efficient industrial production, and enables cleaner drinking water.

Impacts allow Linde to deliver sustainable value. These are longer-term benefits enabled by our applications. For example, Oxygen helps deliver cleaner drinking water to millions of end-users. This makes a contribution to the universal UN Sustainable Development Goal (SDG) 9: to develop quality, reliable, sustainable and resilient infrastructure to support economic development and human well-being; and SDG 9: to ensure availability and sustainable management of water and sanitation for all.

3. Identify Key Risks

In Linde's Annual Report, Form 10-K and 10-Q filings, the company describes key risks and uncertainties in Item 1A. Risk Factors, which should be reviewed carefully. Risks identified in this process were included in the list of topics that were ranked to determine Priority Factors (PFs).

4. Review External & Internal Stakeholder Issues

External Stakeholder Issues

Linde reviewed perspectives of a range of ESG and sustainability stakeholders and external stakeholders such as regulators, investors, customers, suppliers and communities.

In the ESG and sustainability area, we paid attention to the key groups that set guidelines and frameworks on behalf of the general sustainability community, our industry, and investors. These included [CDP](#), [SASB](#), [the Integrated Reporting Framework](#), [the Global Reporting Initiative \(GRI\) Sustainability Standards](#), [the Task Force on Climate-related Financial Disclosures \(TCFD\)](#), [Responsible Care®](#), and [the UN Sustainable Development Goals \(SDGs\)](#).

We also paid attention to key groups that request data on behalf of investors and of customers, such as RobecoSAM's corporate sustainability assessment (for inclusion in DJSI), CDP, Ecovadis and the Responsible Business Alliance.

We also reviewed perspectives of others at the global and local level.

Each of these external frameworks aggregates and represents their constituencies.

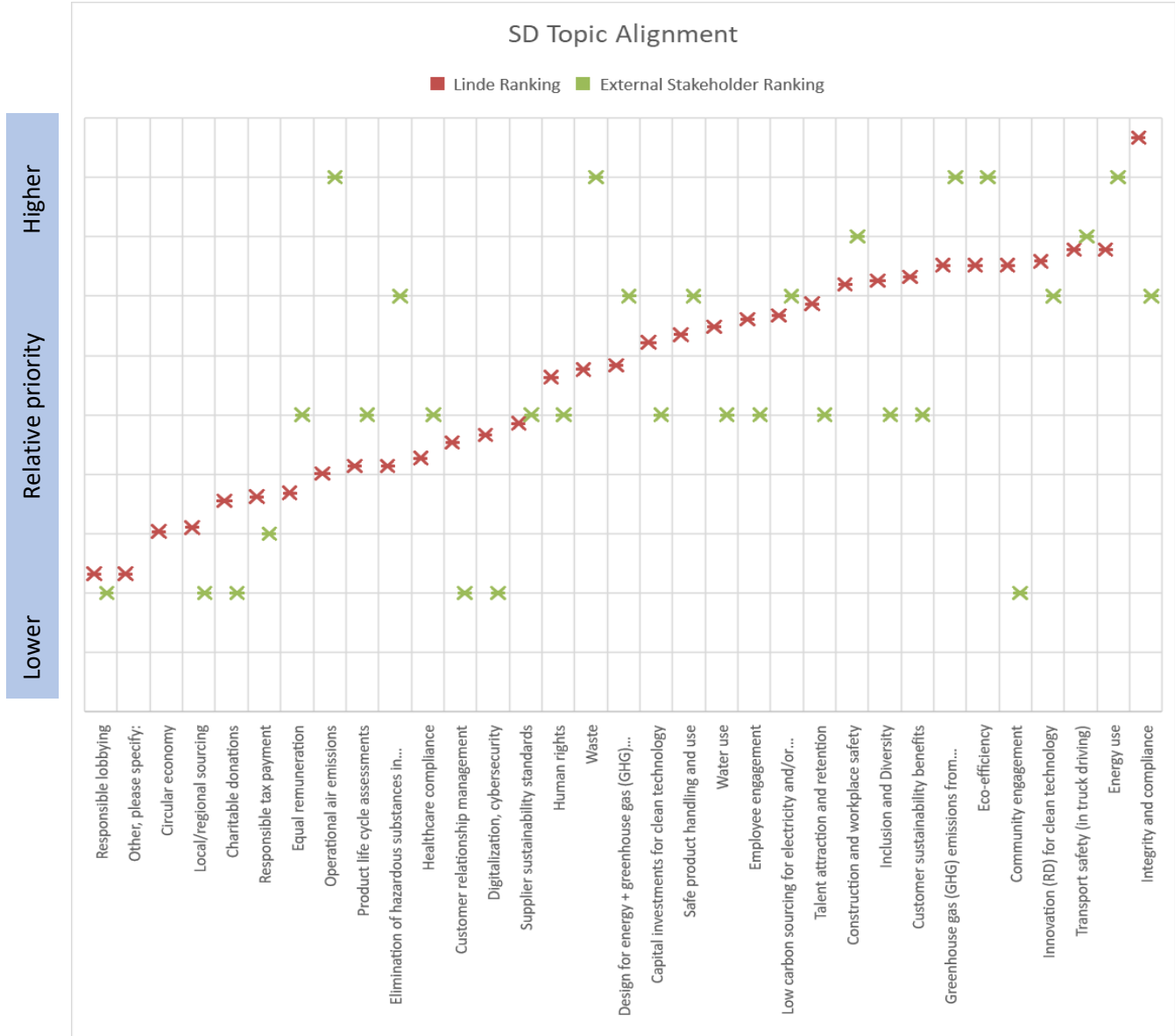
Internal Stakeholder Issues



Online survey of top managers globally (365 people, 42% response rate).

The next step was to review internal perspectives: from employees and management. The image above shows the result of our SDMA survey of top managers globally, who were presented with three dozen sustainability aspects derived from the first four steps. Respondents were asked to select their top dozen issues. The ranking showed a close alignment between management priorities and corporate priorities reflected in Linde's values, business model, key risks and opportunities.

5. Align External & Internal Priorities

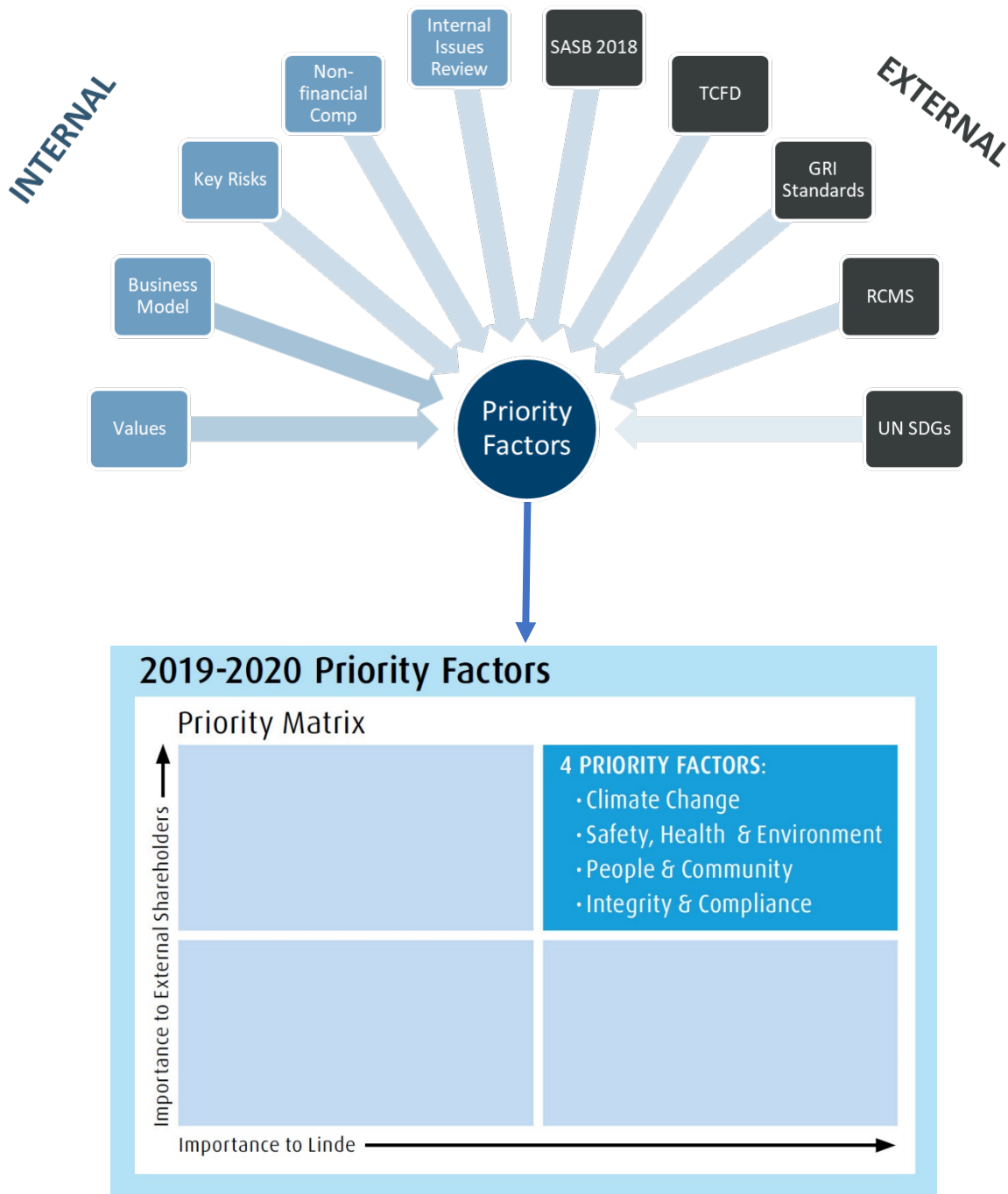


Linde mapped the results of its management survey against the weightings attributed to specific indicators in some of its key sustainability guidelines and frameworks for the chemical sector. Linde's survey results are in the red line, arranged in order of priority. The external priorities map to the top Linde priorities in the top right quadrant, (i.e. the red and green "X's" are close together).

Where the green and red "X's" are not close together, it indicates that Linde's priorities differ from those of external frameworks for the chemical sector. Differences reflect Linde's business model as an industrial gas and engineering company. For example:

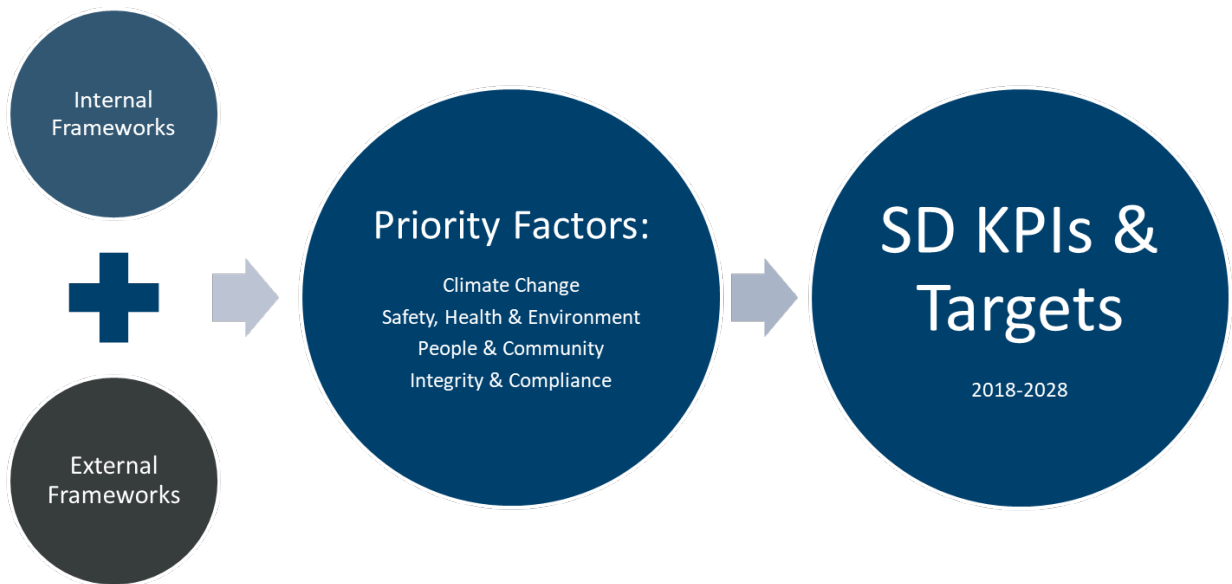
- Operational air emissions, like NOX, SOX and VOCs, are a concern for regular chemicals companies, and are a measure in the SASB metrics for the chemical sector. However industrial gases are not major emitters of these air emissions and so the issue is of less relevance. This is also the case with hazardous chemicals.
- Community engagement emerged as a Linde priority and less so for external priorities. Community is a Linde corporate value, and senior management confirmed this in their survey.

6. Define Priority Factors



Our final PFs were developed in a thorough review of internal priorities and external frameworks. The four PFs here in the top right quadrant are of equivalent weight. They are listed in the order in which we present our final SD 2028 targets.









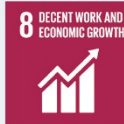

7. Develop SD 2028 Targets



Linde defined four PFs, provided in the image above. From there we developed Key Performance Indicators (KPIs) and Targets.

Accountability for achieving the targets rests with its respective business of function. The target-setting process involved several iterative rounds of discussion with these internal stakeholders to ensure alignment.

Sustainable Development Targets 2018-2028*

Climate Change 	Safety, Health & Environment 	People & Community 	Integrity & Compliance 
Invest & Innovate in Decarbonization <ul style="list-style-type: none"> • >\$1 billion in decarbonization initiatives • >1/3 annual R&D budget to decarbonization 	Occupational and Distribution Safety <ul style="list-style-type: none"> • Achieve annual operational safety better than industry levels (LWCR, TRCR) • Achieve annual Commercial Vehicle Incident Rate (CVIR) of <2.5 / million km 	Diversity & Inclusion <ul style="list-style-type: none"> • Achieve 30% representation of women globally by 2030 	Integrity & Compliance <ul style="list-style-type: none"> • Confirm 100% annual Certification to Linde's Code of Business Integrity
Achieve 35% intensity reduction in GHG vs. EBITDA <ul style="list-style-type: none"> • >2x low-carbon power sourcing, primarily from active renewable electricity • Improve energy & GHG intensity <ul style="list-style-type: none"> • 4% for HyCO GHG • 7% for ASU energy • 10% for distribution fleet GHG • 10% absolute reduction in GHG emissions from Other GHG 	Health/Product Stewardship <ul style="list-style-type: none"> • Zero global sales of coating slurries that contain hexavalent chrome by 2029 (Surface Coatings) 	Employee Community Engagement <ul style="list-style-type: none"> • Contribute 550 CE projects by 2028 • Integrate Community Needs Assessments into Engineering project design phase (U.S. only) 	
Deliver Innovative & Sustainable Solutions <ul style="list-style-type: none"> • Contribute >50% annual sales from Sustainability Portfolio • Enable >2x annual carbon productivity 	Environment <ul style="list-style-type: none"> • Achieve \$1.3 billion Sustainable Productivity • Implement Water Management Plans at 100% relevant sites • Achieve Zero Waste at 450 sites 	Global Giving <ul style="list-style-type: none"> • Increase environmental / climate-related philanthropic spend by 50% 	
 	 		

* All targets run 2018-2028 except when otherwise noted.

Linde's Sustainable Development 2028 (SD 2028) targets are all managed targets. They represent Linde's commitment in its first decade.

8. Align Targets with External and Internal Drivers

Targets Aligned with Internal Priorities

Mission & Values	Risk	Non-financial Comp.	Priority Factor	Target (examples)
Safety	Operational Risks	Best-in-class safety rates	Safety	Continuously reduce operational safety incident rates (LWCR, TRCR)
Integrity	Governmental Regulations	Compliance Culture	Governance	Certify 100% salaried employees to CBI
Technology and solutions to help sustain and protect our planet	Technological Advances	Continuous Env'l Innovation	Innovation & Decarbonization	>50% Revenue from Sustainability Portfolio
	Cost & Avail. of Energy	Superior SD Performance	Climate Change & Environment	Double our purchase of Low Carbon Energy (aspire to 32TWh)
	Cost & Avail. of Raw Materials & Energy	Productivity		Save \$1.3Billion from Sustainable Productivity (cumulative)
Inclusion	Retaining Qualified Personnel	Attraction, Retention & Engagement	People Development	30% Gender Diversity by 2030

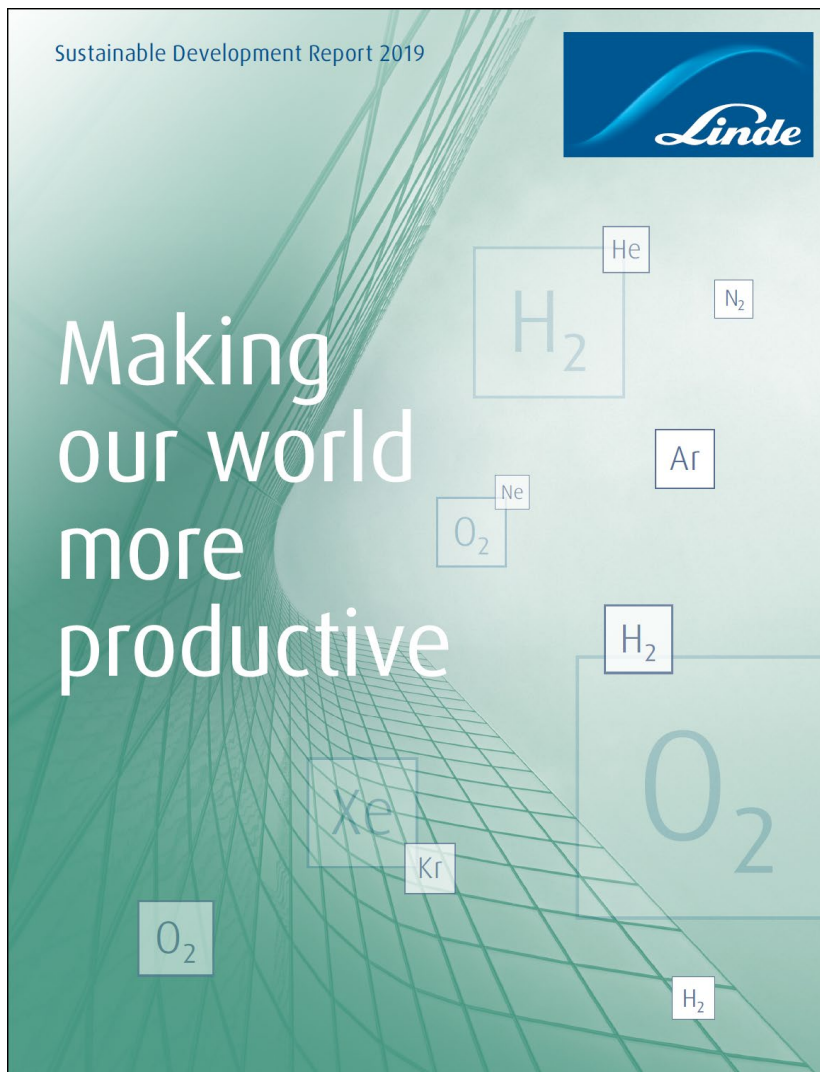
Targets Aligned with External Frameworks

SASB	RCMS	UN SDG	Priority Factor	Target
RT-CH-320a.1	7. OSHA Recordables	8.8 Promote safe working environments	Safety	Continuously reduce operational safety incident rates (LWCR, TRCR)
RT-CH-530a.1	n/a	16.6 Develop accountable & transparent institutions	Governance	Certify 100% salaried employees to CBI
RT-CH-110a.2	Increasingly benefit society & environment	9.4 Adopt clean technologies & increase resource efficiency	Innovation & Decarbonization	>50% Revenue from Sustainability Portfolio
RT0101-05	4. GHG intensity	7.2 Increase the share of RE in global energy mix	Climate Change & Environment	Double our purchase of Low Carbon Energy (aspire to 32TWh)
RT-CH-multiple	Promote P2 & conserve resources	12 Ensure sustainable production patterns		Save \$1.3 Billion from Sustainable Productivity (cumulative)
n/a	n/a	10.2 Promote the social & political inclusion of all	People Development	30% Gender diversity by 2030

Our SD 2028 Targets are:

- Supportive of Linde corporate Values
- Aligned with Linde's business model and key risks and opportunities.
- Responsive to key internal and external frameworks and stakeholder groups
- Rewarded in variable compensation
- Representative of the view of senior management
- Supported by leadership and the Board
- Continuously reviewed and improved

9. Annually Report Performance Towards Targets and other Relevant Topics



The SDMA culminates in the development of an annual Sustainable Development Report and reporting of performance towards Linde's SD 2028 targets. In addition, Linde reports performance in relation to relevant external frameworks.

- For all stakeholders
 - Community Engagement brochure
 - GRI Standards – within the Sustainable Development report
- For the ESG Community
 - CDP responses to the climate change and water questionnaires
 - SASB index
 - TCFD index

These documents are provided in [Linde's Sustainable Development Reporting Center](#).

