2023 Sustainability Report

# Everyday sustainability

LyondellBasell

# About this report

This Sustainability Report is for the period from January 1 to December 31, 2023, and includes sustainability performance information related to LyondellBasell Industries N.V. (LYB). We include consolidated data from the operations over which we, or one of our subsidiaries, have operational control. The narrative may include our non-operated joint ventures and global activities that occurred during the 2023 calendar year. Financial data includes our joint ventures to the extent appropriate under Generally Accepted Accounting Principles in the U.S. (U.S. GAAP). Consolidated Financial Statements are prepared from the books and records of LYB.

The report intends to address the information needs of our stakeholders interested in our overall sustainability performance. The Health, Safety, Environmental & Sustainability Committee of our Board of Directors reviews and approves our Sustainability Report annually. We have considered in our disclosures the following regulatory sustainability reporting standards and voluntary reporting frameworks:

- Global Reporting Initiative (GRI)
- Sustainability Accounting Standards Board (SASB)
- International Sustainability Standards Board (ISSB)

# Report boundaries

The environmental, social, and governance (ESG) data in this report relate to global operations at our majority-owned or operated manufacturing sites, pipelines and large offices for 2023, unless stated otherwise. Assets that are acquired or divested will be accounted for in our base year greenhouse gas (GHG) emissions in accordance with the Greenhouse Gas Protocol. The narrative may include our non-operated joint ventures. Reporting against our recycled and renewable-based polymer goal includes: (i) joint venture production marketed by LYB plus our pro rata share of the remaining production produced and marketed by the joint venture, and (ii) production via third-party tolling arrangements.

Subsidiaries are defined as those companies over which we, either directly or indirectly, have control through a majority of the voting rights or the right to exercise control or to obtain the majority of the benefits and be exposed to the majority of the risks. Subsidiaries are consolidated from the date on which control is obtained until the date that such control ceases. All intercompany transactions and balances have been eliminated in consolidation.

**Contact information: sustainability@lyb.com**

# Forward-looking statements

The statements in this report relating to matters that are not historical facts are forward-looking statements. These forward-looking statements are based upon assumptions of management of LYB, which are believed to be reasonable at the time made and are subject to significant risks and uncertainties. When used in this report, the words “estimate,” “believe,” “continue,” “could,” “intend,” “may,” “plan,” “potential,” “predict,” “should,” “will,” “expect,” and similar expressions are intended to identify forward-looking statements, although not all forward-looking statements contain such identifying words. Actual results could differ materially based on factors including, but not limited to, market conditions, the business cyclicality of the chemical, polymers and refining industries; the availability, cost and price volatility of raw materials and utilities, particularly the cost of oil, natural gas, and associated natural gas liquids; our ability to successfully implement initiatives identified pursuant to our Value Enhancement Program and generate anticipated earnings; competitive product and pricing pressures; labor conditions; our ability to attract and retain key personnel; operating interruptions (including leaks, explosions, fires, weather-related incidents, mechanical failure, unscheduled downtime, supplier disruptions, labor shortages, strikes, work stoppages or other labor difficulties, transportation interruptions, spills and releases and other environmental risks); the supply/demand balances for our and our joint ventures’ products, and the related effects of industry production capacities and operating rates; our ability to manage costs; future financial and operating results; benefits and synergies of any proposed transactions; receipt of required regulatory approvals and the satisfaction of closing conditions for our proposed transactions; final investment decision and the construction and operation of any proposed facilities described; our ability to align our assets and expand our core; legal and environmental proceedings; tax rulings, consequences or proceedings; technological developments, and our ability to develop new products and process technologies; our ability to meet our sustainability goals, including the ability to operate safely, increase production of recycled and renewable-based polymers to meet our targets and forecasts, and reduce our emissions and achieve net zero emissions by the time set in our goals; our ability to procure energy from renewable sources; our ability to build a profitable Circular and Low Carbon Solutions business; the continued operation of and successful shut down and closure of the Houston Refinery, including within the expected time frame; potential governmental regulatory actions; political unrest and terrorist acts; risks and uncertainties posed by international operations, including foreign currency fluctuations; and our ability to comply with debt covenants and to repay our debt. Additional factors that could cause results to differ materially from those described in the forward-looking statements can be found in the Risk Factors section of our Form 10-K for the year ended December 31, 2023, which can be found at www.lyb.com on the Investor Relations page and on the Securities and Exchange Commission’s website at www.sec.gov. There is no assurance that any of the actions, events, or results of the forward-looking statements will occur, or if any of them do, what impact they will have on our results of operations or financial condition. Forward-looking statements speak only as of the date they were made and are based on the estimates and opinions of management of LYB at the time the statements are made.

LYB does not assume any obligation to update forward-looking statements should circumstances or management’s estimates or opinions change, except as required by law. This report contains time-sensitive information that is accurate only as of the date hereof. Information contained in this release is unaudited and is subject to change. We undertake no obligation to update the information presented herein, except as required by law.

Our reported emissions and expected reductions are based on a combination of measured and estimated data and are based on industry standards and best practices, including the Greenhouse Gas Protocol and guidance from the American Petroleum Institute. Emissions reported are estimates only, and data is subject to change as methods, data quality, and technology improvements occur. Our goals to reduce emissions are good-faith efforts based on current relevant data and methodology, which could be changed or refined as we evolve our approach to identifying, measuring, and addressing emissions.

## Table of Contents

# Introduction


About this report ....2
Our impact: Everyday sustainability .... 4
Sustainability highlights ....5
Our business .... 6
About LYB ....7
Financial highlights and Value Enhancement Program .... 8
Messages from our Chief Executive Officer and Chief Sustainability Officer .... 9


# Ending plastic waste


Q&A with our EVP Circular and Low Carbon Solutions .... 14
Goals and approach .... 16
*Circulen* recycled and renewable-based polymers .... 18
Integrated hub concept .... 20
Expanding mechanical recycling .... 21
Advanced recycling development .... 22
Investing upstream .... 24
Venture capital funds .... 25
Reporting pellet loss .... 26


# Taking climate action


Goals and approach .... 28
Reducing scope 1 and scope 2 GHG emissions .... 29
Procuring renewable sources of electricity .... 31
Internal carbon pricing .... 32
Reducing the carbon footprint of our plants .... 33
Reducing scope 3 GHG emissions .... 35
Product lifecycle metrics .... 36
Climate-related risks and opportunities .... 37
GHG emissions and energy performance .... 38
Environmental strategy .... 40
Environmental performance .... 42


# Supporting a thriving society


Goals and approach .... 50
GoalZERO .... 51
Safety performance .... 52
Product safety and stewardship .... 55
Operational excellence .... 58
Workforce management .... 60
Employee benefits .... 63
Q&A with our Chief DEI Officer .... 64
Diversity, Equity and Inclusion (DEI) .... 66
Sustainable procurement .... 75
Social impact .... 79
Human rights .... 81
Advancing Good in our communities .... 83


# Governance


Board and management oversight of sustainability .... 89
Ethics and integrity .... 91
Stakeholder engagement .... 93
Materiality .... 95
United Nations framework .... 96
Public policy .... 97
Tax .... 98
Cybersecurity .... 99
Customer privacy .... 100
Data and assurance .... 101
Reconciliations for non-GAAP measures .... 108


# Reporting frameworks


Global Reporting Initiative (GRI) index .... 110
Sustainability Accounting Standards Board (SASB) index .. 115
Sustainability acronyms list .... 116

# Our impact: Everyday sustainability

LYB is a leader in the global chemical industry creating solutions for everyday sustainable living. Through advanced technology and focused investments, we are enabling a circular and low carbon economy. Across all we do, we aim to unlock value for our customers, investors and society.

We have structured our sustainability approach around three global challenges: Ending plastic waste, taking climate action and supporting a thriving society. This approach shapes how we manage our business and execute strategic objectives. We use sustainability frameworks and best practice to inform our sustainability approach.

### United Nations (UN) Global Compact and Sustainable Development Goals (SDGs)

LYB joined the UN Global Compact in 2020 and we have committed to uphold its Ten Principles. This sustainability report forms the basis of our Communication on Progress. Our sustainability approach is also aligned with the UN Sustainable Development Goals (SDGs).

Information about how we support the UN SDGs is on page 96 of this report.

## Industry-leading sustainability goals

### Ending plastic waste

**2MMt+**

of recycled and renewable-based polymers will be produced and marketed annually by 2030[1]

**for every $**

we invest in venture funds that address the plastic waste challenge, we help catalyze another five dollars from co-investors

**zero**

plastic pellet loss to the environment from our facilities

### Taking climate action

**net zero**

greenhouse gas emissions from operations by 2050[2]

**42%**

absolute scope 1 and 2 greenhouse gas emissions reduction from operations by 2030[3]

**30%**

absolute scope 3 greenhouse gas emissions reduction by 2030[3]

**50%**

minimum of electricity procured from renewable sources by 2030[4]

### Supporting a thriving society

**zero**

incidents, injuries and accidents

**achieve**

gender parity in senior leadership globally by 2032

**increase**

the number of people from underrepresented groups in U.S. senior leadership roles to reflect the general population ratio by 2032

**assess**

a minimum of 70% of our key suppliers globally using sustainability criteria by 2025

1. Million metric tons. Production and marketing includes: (i) joint venture production marketed by LYB plus our pro rata share of the remaining production produced and marketed by the joint venture, and (ii) production via third-party tolling arrangements.
2. Our 2050 net zero goal includes scope 1 and 2 emissions.
3. Relative to 2020 baseline.
4. Based on 2020 procured levels.

# Our 2023 sustainability performance highlights

**60**
manufacturing sites achieved GoalZERO (zero injuries, zero incidents and zero accidents)

Strengthened our Circular and Low Carbon Solutions (CLCS) business by making significant investments to secure feedstock supply, expand our recycling footprint and develop scalable technologies to help end plastic waste

**0.139**
Total Recordable Incident Rate (TRIR), representing industry-leading performance

Announced decision to build a first of its kind commercial-scale, advanced recycling plant using our *MoReTec* technology

**+*LC***

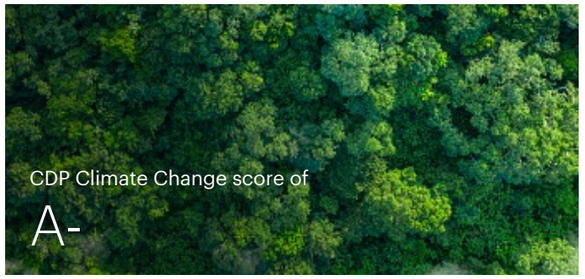
Introduced *+LC* (Low Carbon) solutions, a range of I&D chemicals sourced from recycled and renewable feedstocks

Committed to the United Nations CEO Water Mandate and progressing our water stewardship practice

Issued our inaugural
**$500 million Green Bond offering**

Reached nearly 90% of our 2030 target to secure at least half of our global electricity from renewable sources

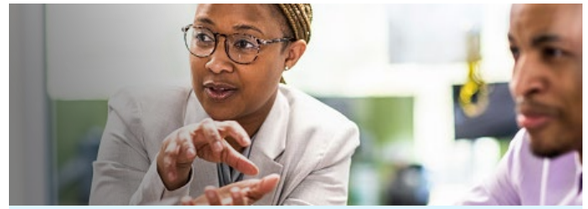
Our people around the world volunteered more than 21,000 hours to help their communities



CDP Climate Change score of
**A-**

**~ 4MM gigajoules (GJ)**
annual energy savings will be realized through energy efficiency projects

More than 1,500 of our suppliers were assessed using environmental, social and governance criteria, more than a 120% increase over 2022



Women serving in 25% of global senior leadership compared to 22% in 2022

**18%**
of employees participating in employee networks globally

**$14 million**
donated to charitable organizations, including financial and in-kind donations and the total value of employee volunteer hours

# Our business

Our purpose, commitments and values reflect the role we seek to play in the world, what we uniquely deliver to achieve that purpose, and how we behave.

## Our Strategy

Grow and upgrade the core

Build a profitable circular and low carbon solutions business

Step up performance and culture

## Our Purpose

Creating solutions for everyday sustainable living

Solutions for a better tomorrow

### Values

- We champion people
- We strive for excellence
- We shape the future

### Commitments

- Sustainability-focused innovation
- Ever-better performance
- Outside-in perspective
- Impactful collaboration

### Competencies

- Build partnerships
- Deliver results
- Drive innovation
- Grow capabilities
- Promote inclusion

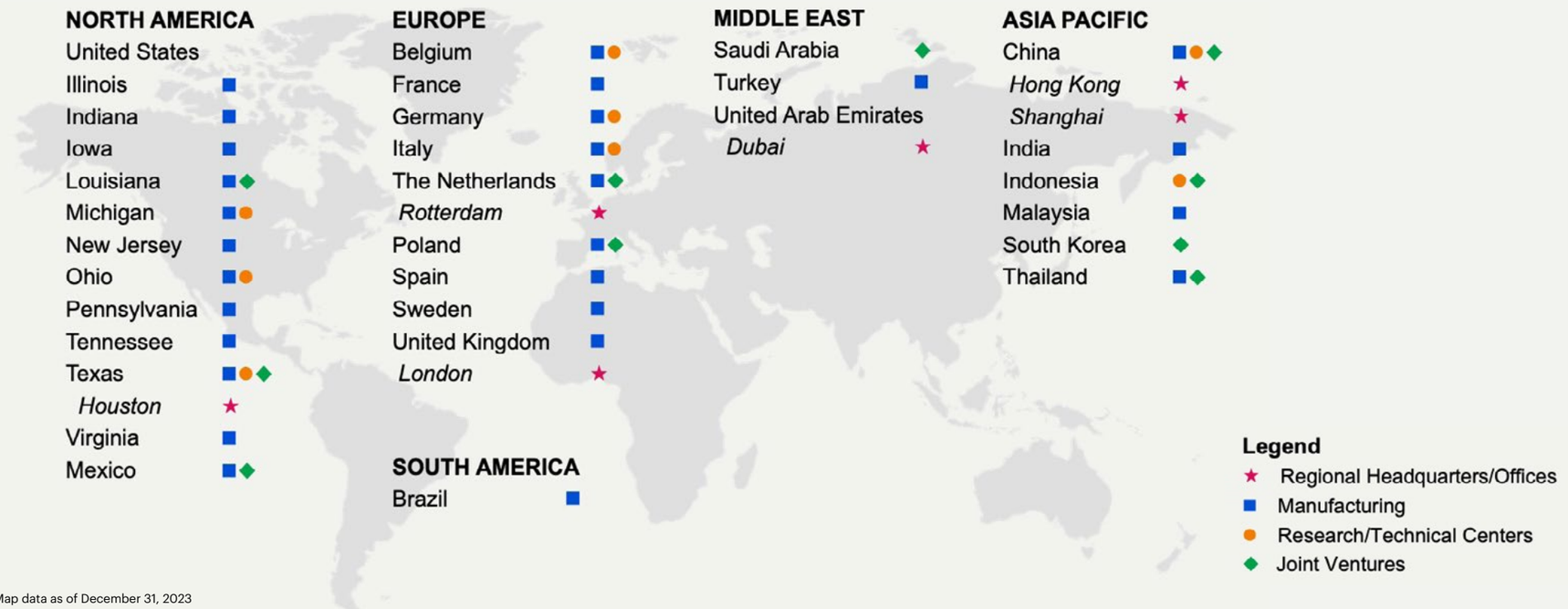
Our **GoalZERO** mindset enables our strategy

# About LYB

| | |
|---|---|
| **100+** | countries where our products are sold |
| **20** | countries with manufacturing sites and joint ventures |
| **~ 6,200** | patents and patent applications worldwide |
| **~ 20,300** | employees globally |
| **#1** | largest producer of polyethylene (PE) and polypropylene (PP) in Europe |
| **#1** | largest producer of oxyfuels worldwide |
| **#2** | largest producer of PP worldwide |
| **#2** | largest producer of propylene oxide (PO) worldwide |

As of December 31, 2023

# Global presence




Map data as of December 31, 2023

## Our operations

LYB is one of the world's largest producers of polymers and a leader in polyolefin technologies. We develop, manufacture and market high-quality and innovative products for applications ranging from sustainable transportation and food safety to clean water and quality healthcare.

We manage our operations through six operating segments. Our reportable segments are:

**Olefins and Polyolefins-Americas (O&P-Americas)**

Our O&P-Americas segment produces and markets olefins and co-products, PE, and PP.

**Olefins and Polyolefins-Europe, Asia, International (O&P-EAI)**

Our O&P-EAI segment produces and markets olefins and co-products, PE, and PP.

**Intermediates and Derivatives (I&D)**

Our I&D segment produces and markets PO and its derivatives; oxyfuels and related products; and intermediate chemicals, such as styrene monomer (SM), acetyls, ethylene oxide and ethylene glycol.

**Advanced Polymer Solutions (APS)**

Our APS segment produces and markets compounding and solutions, such as PP compounds, engineered plastics, masterbatches, engineered composites, colors and powders.

**Refining**

Our Refining segment refines heavy, high-sulfur crude oil and other crude oils of varied types and sources available on the U.S. Gulf Coast into refined products, including gasoline and distillates.

**Technology**

Our Technology segment develops and licenses chemical and polyolefin process technologies and manufactures and sells polyolefin catalysts.

Notable changes to our business in 2023: 1) Our Catalloy and polybutene-1 businesses were moved from the Advanced Polymer Solutions segment and reintegrated into the O&P-Americas and O&P-Europe, Asia, International segments; 2) in 2017, we acquired a 50% interest in Quality Circular Polymers (QCP), a mechanical recycling joint venture, and in 2023, we acquired the remaining 50% interest in QCP resulting in QCP becoming a wholly-owned subsidiary; 3) we announced the sale of our Ethylene Oxide & Derivatives business along with the production facility located in Bayport, Texas; and 4) we made the decision to delay our refining business exit from year-end 2023 to no later than the end of the first quarter 2025.

# Our 2023 financial highlights

**$2.1 B**
Net income

**$6.46**
Diluted EPS

**$4.5 B**
EBITDA

**$2.8 B**
Net income excluding identified items

**$8.65**
Diluted EPS excluding identified items

**$5.2 B**
EBITDA excluding identified items

Refer to page 104 for information about our non-GAAP financial measures and a reconciliation of net income to EBITDA, including and excluding identified items. Identified items include adjustments for impairments and refinery exit costs.

# Value Enhancement Program

Our **Value Enhancement Program (VEP)** is a company-wide program, which expands capacity through low-cost debottlenecks and improved reliability, reduces costs and emissions by saving energy and increases margins through improvements in procurement, logistics and customer service.

VEP builds empowerment and collaboration within, between, and across geographies by leveraging the power and expertise of our employees. Employees are invited to provide ideas, which are discussed, quantified and assessed. This process helps to generate an entire portfolio of strategic initiatives that can deliver value.

At the end of 2023, we estimated VEP benefits to have a year-end run rate of approximately $300 million of net income which, after adding back income taxes and depreciation and amortization of $75 million and $25 million, respectively, results in approximately $400 million of recurring annual EBITDA, which exceeded our original expectations.

Note: We estimate net income and recurring annual EBITDA benefits for the VEP based on 2017–2019 mid-cycle margins and modest inflation relative to 2021 baseline year. One-time CAPEX/OPEX costs to achieve estimated at $200 MM in 2023.

Recurring annual EBITDA for the VEP is the year-end EBITDA run rate estimated based on 2017–2019 mid-cycle margins and modest inflation relative to a 2021 baseline. For a reconciliation of net income to recurring annual EBITDA for the VEP, refer to page 8.

**Unlocked Value 2023**

**$400 MM+**
Recurring annual EBITDA as of year-end 2023

# From our Chief Executive Officer

Dear stakeholders,

At LYB, we embrace sustainability as an opportunity to create value for our stakeholders, the environment and society. Driven by this belief, we took great strides toward establishing LYB as an industry leader in sustainability this past year. We embedded sustainability into our new company strategy and progressed our sustainability ambitions, while remaining laser-focused on safety, operational excellence and value creation. I invite you to read about these accomplishments and more in the subsequent pages of this year's sustainability report.

March 2023 marked a pivotal moment for our company as we revealed our new company purpose, creating solutions for everyday sustainable living, and our new company strategy. This strategy consists of coordinated, simultaneous action across three pillars: growing and upgrading our core, building a profitable circular and low carbon solutions (CLCS) business, and stepping up performance and culture.

Our new strategy aligns our long-term plans to maximize value creation with our ambition to lead the sustainability transformation of our industry and help meet growing customer demand for low-carbon, recycled and renewable-based products.

We also established our inaugural green financing framework, which reflects the decisive steps we are taking to allocate capital toward initiatives aligned with our sustainability strategy. As part of this effort, we issued a $500 million Green Bond, whose net proceeds will go toward eligible projects.

In July 2023, our commitment to sustainability was recognized by MSCI as our environmental, social and governance (ESG) assessment rating was upgraded from A to AA. AA ratings recognize the top 10% of performers, based on a company's ability to manage exposure to industry-material ESG risks relative to peers. LYB also received a score of A- for our 2023 response to the CDP Climate Change questionnaire, which now puts us in the leadership category.

Foundational to the success of our strategy is our continued focus on three critical sustainability challenges: Ending plastic waste, taking climate action and supporting a thriving society. Here is an overview of our approach in each area and a few key highlights from 2023.

### Ending plastic waste

As a leader in the global chemical industry, we understand the critical role plastics play in society. They enhance people's lives by enabling many core applications, from healthcare and housing to food packaging and sustainable transportation. However, plastic pollution is a critical issue, and we recognize the need for our industry to move faster. This is why we are accelerating our efforts to innovate, scale and deliver solutions to turn post-use plastics into everyday products and enable a circular economy.

As we build up our CLCS business, we are making investments to secure feedstock supply, expand our recycling footprint, and develop scalable technologies to grow our *Circulen* family of polymers. These polymers are produced using raw materials derived from mechanical recycling (*Circulen*Recover), advanced recycling (*Circulen*Revive) or renewable materials (*Circulen*Renew).

Our goal is to produce and market at least 2 million metric tons of recycled and renewable-based polymers annually by 2030.[1] In pursuit of this goal, our CLCS business has invested upstream in plastic-waste sorting and recycling operations in the United States, Europe and Asia to help

1. Production and marketing includes: (i) joint venture production marketed by LYB plus our pro rata share of the remaining production produced and marketed by the joint venture, and (ii) production via third-party tolling arrangements.

build a complete offering of sustainable solutions across multiple recycling processes. Recently:

- We invested in Cyclyx International (25% equity stake), a joint venture partnership to accelerate the development of plastic waste sorting infrastructure in the U.S., and signed a final investment agreement to build the first Cyclyx Circularity Center (CCC)
- We invested in Rodepa Vastgoed B.V. (50% equity stake), the holding company of De Paauw Sustainable Resources, a Dutch plastic waste recycling company, to further develop our access to post-consumer and post-industrial plastic packaging waste in Europe

Further, we reached a final investment decision to build a first of its kind, commercial-scale advanced recycling plant, *MoReTec*–1. The plant will be located at our Wesseling, Germany site and will use our proprietary *MoReTec* technology. Once operational, this 50KTA unit will convert hard-to-recycle, post-consumer plastic waste into feedstock for new polymers, marketed under our *Circulen*Revive brand. We are considering investing in additional projects like this in the near future.

Our *MoReTec* technology is highly energy efficient thanks to its innovative process design and use of proprietary catalysts. These characteristics create favorable economics along with a low environmental footprint and high plastics-to-plastics yield.

As we neared the end of 2023, our team's commitment to sustainability-focused innovation was on display as LYB was selected to receive a €40 million grant from the EU Innovation Fund to support development of our *MoReTec*–1 unit in Germany. The EU is committing these funds as part of its efforts to support innovative clean-tech projects focused on decarbonization, and we are honored to have been one of the 41 projects selected.

## Taking climate action

Carbon plays a critical role in our industry and our lives and is an essential building block of the products we make, so we will always require carbon in our feedstocks. However, to address climate change, we need to ensure sustainable sources of carbon for our products.

In 2023, we introduced a new product range called *+LC* (Low Carbon) solutions, which uses alternative sources of carbon from recycled and renewable, bio-based materials. Using an ISCC PLUS-certified mass balance methodology to provide transparency and traceability, alternative feedstocks are attributed to *+LC* products. What's more, these products offer our customers a lower carbon footprint compared to the fossil-based equivalent. *+LC* products include core offerings from our Intermediates and Derivatives segment, such as styrene monomer and propylene oxide (PO) with end applications including insulation materials, automotive and consumer goods.

We are committed to reducing greenhouse gas (GHG) emissions from our global operations and value chain. Within our global operations, we have set industry-leading, ambitious targets to reduce our GHG emissions and have taken concrete steps to achieve our goals. In the last two years, we accelerated our interim targets for 2030, increasing our scope 1 and 2 GHG emissions reduction target to 42% and establishing a scope 3 emissions reduction target of 30%, relative to a 2020 baseline.

Our plan to reach net zero scope 1 and scope 2 GHG emissions from global operations by 2050 is focused on four levers: Energy efficiency, renewable energy and electrification, hydrogen, and carbon capture and storage/utilization. Our strategy includes continuously investigating evolving low carbon technology solutions and takes into account plans for organic growth, divestitures and previously announced asset closures, including the cessation of our Houston refining operations by no later than the first quarter of 2025.

By December 2023, we increased our renewable electricity volumes, primarily through power purchase agreements (PPAs). These PPAs represent nearly 90% of our 2030 target to secure at least half of global electricity from renewable sources.

## Supporting a thriving society

Our industry has a critical role to play in supporting a thriving society. Safety; a diverse, inclusive and equitable workforce; partnership with our communities for positive impact; and promoting a safe and healthy environment are top priorities for us.

**Safety:** Safety is embedded within our DNA, and we are committed to the well-being of our people and the communities we serve. LYB continued to deliver industry-leading safety performance in 2023 with a total recordable incident rate (TRIR) of 0.139 and process safety incident rate (PSIR) of 0.035.

**Diversity, Equity and Inclusion (DEI):** At LYB, we are building a culture where DEI is embedded as deeply as safety. We believe DEI is critical to the success of our company strategy. In 2023, we made progress toward our industry-leading DEI goals. By the end of 2023, women served in 25% of global senior leadership roles at LYB, an increase from 22% in 2022. In the United States, 19% of senior leaders were from underrepresented populations, consistent with the prior year.

Our employee networks play a vital role in cultivating an inclusive culture. We have network members at 92% of our global sites and as of 2023, 18% of employees were participating in networks globally.

**Investing in our communities:** We are committed to giving back to the communities where we operate and partnering with organizations to create positive change through our Advancing Good program. Through this program, we invest in charitable organizations supporting our communities, our planet and tomorrow's workforce. In 2023, LYB employees volunteered more than 21,000 hours across our sites, and LYB donated more than $14 million to charitable organizations, including financial and in-kind donations and the total value of employee volunteer hours.

**Promoting a safe and healthy environment:** We recognize the importance of good environmental stewardship from managing our emissions and waste to preserving natural resources. The actions we take to promote a safe and healthy environment also have the potential to unlock opportunities. In 2023, we aligned with the UN CEO Water Mandate and adopted a water risk management strategy targeting our largest sites and those located in high water stress regions.

In closing, at LYB, sustainability lives within the core of who we are. It is a privilege to lead this team, filled with passionate people who care for the world around them and are making everyday sustainability a reality.

**Peter Vanacker**
Chief Executive Officer

# From our Chief Sustainability Officer

2023 was a pivotal year for our organization as we work toward establishing LYB as an industry leader in sustainability. To guide us in our work, we developed a strategic framework consisting of four elements: ambition, action, advocacy, and accountability.

Our ambition is to tackle three critical global challenges, namely, helping to end plastic waste, taking climate action, and supporting a thriving society. To demonstrate our commitment, we set industry-leading sustainability goals in line with our value of shaping the future. Ambition guides our sustainability approach and helps us execute our company strategy, and it empowers employees and informs stakeholders. This year, we advanced our ambition by:

- Developing and quantifying our scope 1, 2 and 3 GHG emission reduction pathways through multiple levers.
- Advancing our DEI strategy consistent with equal opportunity for all and leadership accountability.

Action is required to deliver on our ambition. Action enables us to create value, while assessing and mitigating risk. Our actions for 2023 are demonstrated in this report and showcase how we support everyday sustainability. Some notable highlights include:

- Developing our plans for integrated hubs in the Cologne and Houston areas, including investments in our innovation capabilities and the further scale up of our proprietary advanced technology, *MoReTec*.
- Undertaking life cycle assessment (LCA) studies for our *Circulen* and *+LC* product portfolio, as well as for our proprietary technologies which produce propylene oxide (PO) and tertiary butyl alcohol, and PO and styrene monomer.
- Engaging in a multidisciplinary project to review our processes through which we define our internal carbon price, with the objective of having a more uniform use across our operations and strategic decisions.
- Performing biodiversity impact assessments to understand our significant biodiversity risk locations and activities to improve biodiversity management.

The third element of our sustainability framework is to enable wider change through advocacy, helping to bring about science-based policies that unlock investment and deliver action at scale. Over the past year, we have made strides in this direction by:

- Becoming an active member of the World Business Council for Sustainable Development participating in various workstreams which enable collaboration on topics such as scope 3, plastic packaging and a climate-related corporate performance and accountability system.
- Publishing our first climate advocacy report and committing to updating the assessment at least every two years.
- Participating in The Antwerp Declaration for a European Industrial Deal, a collective call to revitalize Europe's industrial landscape, strengthening basic industry sectors and ensuring their competitiveness, sustainability and resilience amid shifting geopolitics. Our CEO, Peter Vanacker, was among 73 industry leaders from nearly 20 industrial sectors who came together in early 2024 to present the Antwerp Declaration to the Belgian Prime Minister and the European Commission President.

The last element of our framework is accountability. Through clear, consistent and reliable disclosure of risks and opportunities, action pathways and progress on our ambitions we inform our strategy, build trust among stakeholders and facilitate appropriate capital allocation. Through strong governance and transparent disclosure, we demonstrate how we are taking action to be resilient and ready for a net zero, sustainable world. In 2023, we:

- Established a Sustainability Council to advise the Executive Committee in all matters related to sustainability, including on climate-related matters.
- Initiated a cultural ambassador program to help drive our work in advancing our cultural transformation.
- Issued our inaugural Green Bond, the proceeds of which are being used to fund new or existing eligible green projects in the areas of circular economy, renewable energy, pollution prevention and control, and energy efficiency.

Our sustainability approach and framework help us navigate opportunities and challenges as they arise in both the short and medium term.

With this framework in mind and a few of our key actions spotlighted, I invite you to explore more in our 2023 Sustainability Report. Whether that is reading the top line messages, or delving into the proof points and case studies, we are keen for everyone to find out how we are supporting everyday sustainability.

**Andrea Brown**
Chief Sustainability Officer

## LYB inaugural Green Bond

We issued our inaugural $500 million Green Bond in May 2023. Proceeds are being used to fund new or existing eligible green projects in the areas of circular economy, renewable energy, pollution prevention and control, and energy efficiency. As of December 31, 2023, we have allocated approximately $195 million of proceeds toward eligible green projects.

Projects that received allocation are noted in this report. Our first annual Green Bond allocation and impact report will be published in the second quarter of 2024 on our website at www.lyb.com. Our Green Financing Framework and S&P Global's second-party opinion are also available on our website.

# Ending plastic waste

# Q&A with the Executive Vice President, Circular and Low Carbon Solutions, Yvonne van der Laan

In her role, van der Laan is responsible for building a profitable circular and low carbon solutions business, one of the three pillars of our new strategy.

**Q: What is the purpose and function of the Circular and Low Carbon Solutions (CLCS) business within LYB?**

**A:** We established the CLCS business in response to growing demand for recycled and renewable solutions. Surveys indicate that society is increasingly concerned about addressing plastic waste, and consumers are willing to pay for recycled products, resulting in brand owners increasing commitments to sustainability and circularity by 2025 and beyond. CLCS operates with a strategic and differentiated business model, focusing on advancing sustainable and low-carbon solutions. Our entrepreneurial mindset allows us to swiftly tackle challenges related to plastic waste feedstock access and develop scalable, innovative technologies. The CLCS business goal is to expand our *Circulen* portfolio of recycled and renewable solutions. By doing so, we can transform plastic waste into valuable resources, meet our customers' recycling and sustainability commitments, and help end plastic waste in the environment.

**Q: How does it support the company's purpose and strategy?**

**A:** CLCS aligns seamlessly with our purpose of creating solutions for everyday sustainable living by meeting our customers' demands and society's expectations for circular and low carbon solutions. CLCS aims to create value for our company, customers, shareholders, and society by enhancing our ability to meet the needs of a changing market, differentiating ourselves as an industry leader, and fulfilling our commitment to circularity. Building a profitable CLCS business is one of three pillars of our company strategy, and we will get there by leveraging the company's strengths of scale, market access and technology leadership to establish robust supply chains for advancing circular and renewable feedstocks to address customer needs. This enhances our sustainability performance and creates business opportunities that resonate with our customers' and stakeholders' commitments and expectations.

"CLCS aims to create value for our company, customers, shareholders, and society."

**Q: What is the business value the CLCS business brings to LYB?**

**A:** Our commitment is to deliver at least $1 billion of incremental EBITDA[1] to the company's bottom line by 2030. To achieve this goal, we are leveraging existing strengths of scale, market access and technology leadership. We are establishing a robust supply chain for advancing circular and renewable feedstocks, addressing both customer and societal needs.

**Q: Could circularity be as big as fossil fuels in the future? What will the market look like over the next decade?**

**A:** Circularity is a key concept in the transition to a more sustainable economy. It means designing products and systems that minimize waste and maximize resource efficiency by reusing, recycling, or regenerating materials at the end of their life. Circularity can reduce the dependence on fossil fuels and lower the greenhouse gas emissions associated with the production and consumption of goods. We believe circularity will play a significant role in the future of the chemical industry and the broader economy.

The market will be shaped by several trends and drivers influencing the demand and supply of recycled products. Some key factors are increasing awareness and regulation, growing consumer preferences, and the innovation of technologies and business models. We have considered only currently announced regulations in our assessment of demand outlook. Any additional measures introduced will serve as a further tailwind for recycled demand.

**Q: How does the CLCS business embody the sustainability component of the LYB business strategy?**

**A:** We are committed to advancing the principles of sustainability in everything we do, from our operations and products to our relationships and communities. The CLCS business is a clear demonstration of how we are putting our sustainability commitment into action, by developing and delivering solutions that can help address one of the most pressing environmental challenges of our time: Plastic waste. The CLCS business is also aligned with our core values of excellence, championing people and shaping the future, as we are constantly collaborating with our customers, partners, and suppliers and striving for excellence in innovation and execution.

**Q: What steps are being taken to strengthen and position CLCS for future success?**

**A:** Our focus on building capacity today is part of a long-term strategy. We are committed to understanding market dynamics, investing upstream in the recycling value chain, investing in innovation and scalable technologies, and ensuring the CLCS business is well-positioned to capture opportunities as the market for circular and low carbon solutions continues to evolve. Steps we have taken include:

- Leveraging proceeds from our inaugural $500 million Green Bond to fund new and existing projects to help grow our circular and low-carbon solutions
- Scaling *MoReTec*, the company's advanced recycling technology, to turn difficult-to-recycle post-use plastics back into valuable raw materials
- Investing in third-party pyrolysis oil producers to build capacity amid rising customer demand for advanced-recycled products
- Investing and engaging  further upstream in the value chain to develop plastic waste sorting and processing capabilities, and innovative recycling technologies
- Investing in mechanical recycling across strategic regions

1. Incremental to LyondellBasell's fossil-based O&P Americas and O&P EAI annual EBITDA. Refer to page 104 for information about our non-GAAP financial measures.

# Building a circular economy

Plastics are essential in creating solutions for everyday sustainable living. As lightweight, hygienic and durable materials, they play a vital role in products used around the globe, every day. Innovative plastic materials help to keep food fresh longer so it can be safely stored and transported long distances, reducing food waste. These materials also provide safe, high-quality solutions for healthcare. Plastics are key to the energy transition, from the latest automotive components that enable vehicle lightweighting, to integral components for wind turbines and solar panels.

We recognize the pressing need to eliminate plastic waste in the environment and the imperative of transitioning toward a circular economy for plastic. The evolving global landscape, including societal aspirations, consumer awareness and new regulations, is driving circularity commitments and spurring demand for recycled content. Circular solutions are needed to keep valuable materials circulating in the economy through recycling and reuse. Circularity is critical to helping end plastic waste, and it offers strong economic, social and climate benefits.

We launched our CLCS business to support our ambition to produce and market at least 2 million metric tons of recycled and renewable-based polymers annually by 2030.[1] Our *Circulen* portfolio of products supports the reduction of plastic waste through the use of recycled materials as a feedstock.

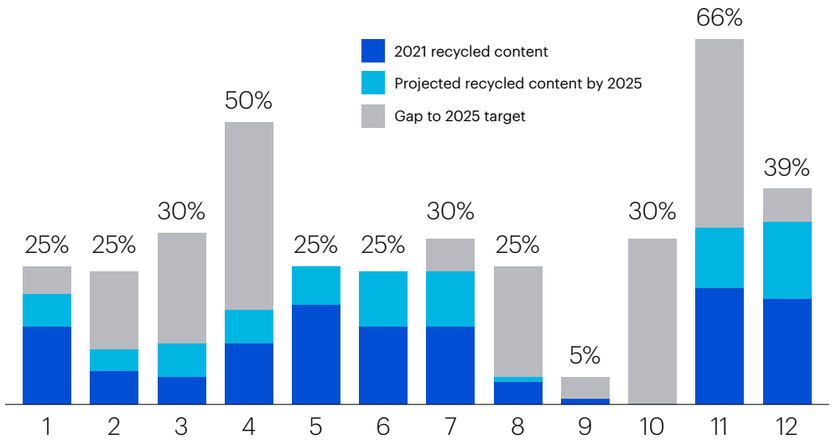
As global demand for recycled and renewable-based plastics continues to grow, in 2023, our CLCS business made significant progress investing upstream to secure plastic waste material to deliver on this ambition. The investments are focused on securing feedstock supply, expanding our recycling footprint and developing scalable technologies to grow our *Circulen* portfolio of products globally and across our business segments.

For more information on our *Circulen* portfolio of products, refer to page 18 of this report.

### Brand owner commitments

Top 12 global brand owner recycled content targets by 2025 and projected share at current pace

*% of total packaging content*




## Our goals

- Produce and market at least 2 million metric tons of recycled and renewable-based polymers annually by 2030[1]
- For every dollar we invest in venture funds that address the plastic waste challenge, we help catalyze another five dollars from co-investors
- Zero loss of plastic pellets to the environment from our operations

## Our approach

- Grow our *Circulen* portfolio of recycled and renewable-based polymers to become a global supplier of choice for circular and low carbon solutions
- Build scale and capture value through the creation of integrated hubs, leveraging capabilities at our existing Cologne and Houston-area sites
- Expand our mechanical recycling capacity globally
- Address customer demand for higher quality and drop-in solutions through our comprehensive approach to advanced recycling
- Leverage our innovation capabilities to develop and further scale up our proprietary advanced recycling technology, *MoReTec*
- Secure access to third-party pyrolysis oil to process at integrated hubs using commercial agreements
- Invest upstream to support our recycling strategy and become a preferred strategic partner to plastic waste management companies
- Offer lower carbon solutions to our customers, brand owners, and retailers through the use of renewable, bio-based feedstocks
- Catalyze the development of sustainable solutions by investing in venture funds targeting start-ups that increase the recovery and recycling of plastic waste

1. Production and marketing includes (i) joint venture production marketed by LYB plus our pro rata share of the remaining production produced and marketed by the joint venture, and (ii) production via third-party tolling arrangements.

## Our goal

# Produce and market at least 2 million metric tons of recycled and renewable-based polymers annually by 2030[1]

Achieving this ambitious goal requires a range of actions to secure access to plastic waste feedstock and build our capacity to produce more recycled and renewable-based products. Every investment we make under our CLCS business is focused on securing feedstock supply, growing our recycling footprint and developing scalable technologies to increase our *Circulen* portfolio of products. These products will enable our customers and brand owners to meet their circularity and sustainability goals and provide another use for plastic waste that could otherwise end up in landfills, incineration, or the environment.

## Customer needs for recycled and renewable-based material

LYB has a unique advantage in becoming the global supplier of choice for circular and low carbon solutions with our large customer base in PE and PP and our close customer relationships. This allows us to understand and collaborate to meet customers' needs down the value chain. We are meeting customer needs for solutions that are:

### Indistinguishable

Polymers sourced from renewables and advanced recycling are indistinguishable from fossil-based material

### Drop-in solutions

Ease of use that requires little to no investment or redocumentation

### Traceable

ISCC+ certification provides auditable mass balance attribution for recycled or renewable-based feedstocks

### At scale

Sizeable sustainability commitments require stable, established, large-scale suppliers

### Global

Suppliers with a comprehensive suite of products accessible through a robust global supply chain network

In 2023, we produced and marketed 123 kilotons (kt) of recycled and renewable-based polymers[1]

1. Production and marketing includes (i) joint venture production marketed by LYB plus our pro rata share of the remaining production produced and marketed by the joint venture, and (ii) production via third-party tolling arrangements.

# LYB offers a range of recycled and renewable-based polymers under the *Circulen* brand. These polymers are designed to meet the needs of our customers and help them achieve their sustainability goals

### *Circulen*Recover

Products made from plastic waste through a mechanical recycling process. This type of recycling upgrades plastic waste into usable materials through mechanical processes including sorting, washing, grinding, melting and forming new pellets. The resulting polymers can also be blended or compounded with traditional fossil-based products, allowing us to deliver high-quality polymers with an optimal balance of performance characteristics and mechanically recycled content. These polymers can be used in a wide variety of industrial, household and consumer product applications.

### *Circulen*Revive

Products made using an advanced (chemical) recycling process to convert plastic waste back to its molecular level, which is then used as a feedstock in our conventional production processes to produce new polymers. Advanced recycling is a complementary approach to mechanical recycling in that it can address hard-to-recycle items such as mixed materials, composites, multilayer and flexible plastics. The advanced recycled feedstock is mixed with conventional feedstocks in our process, and are attributed to *Circulen*Revive products using an ISCC PLUS-certified mass balance approach. These polymers can be used in highly regulated applications such as food contact and healthcare.

### *Circulen*Renew

Products made from renewable feedstocks derived from bio-based wastes and residual oils, such as used cooking oils. These feedstocks are used in our conventional production processes along with conventional feedstocks, and are attributed to *Circulen*Renew products using an ISCC PLUS-certified mass balance approach. The use of renewable feedstocks offers a lower carbon footprint compared to fossil-based feedstocks. These polymers can also be used in highly regulated applications such as food contact and healthcare.

# Successful collaborations support customer sustainability goals

***Circulen*Renew**

## A plant-based bag for a leading crisps brand

PepsiCo crisps brand Lay's is in the French market with its first plant-based packaging for Lay's à l'Ancienne and Lay's Paysanne Our *Circulen*Renew solutions were used to make this bag, which according to Lay's contains 50% renewable-based raw materials. The *Circulen*Renew grade is sourced from renewable raw materials such as second-generation vegetable oils, which are attributed to the product using an ISCC PLUS certified mass balance approach.

## Innovation in female healthcare

Driving change toward more sustainable solutions can be challenging in a highly regulated setting like the pharmaceutical sector. Our *Circulen*Renew polymers offer a solution. We collaborated with Wellspect HealthCare, a Swedish medical technology company, to create a female urinary catheter, called LoFric Elle using *Circulen*Renew polymers. In an industry that is heavily reliant on fossil-based raw materials for its plastic, this project is one of the first of its kind for medical devices.

## New cold cups contribute to sustainability

In another example, LYB is collaborating with value chain partners Neste, Berry Global, Pactiv Evergreen and Dart Container to produce cold beverage cups that reduce the use of fossil resources and contribute to the circular economy. These cups use our *Circulen*Renew polymers, which are sourced from renewable-based raw materials, such as used cooking oil. These polymers are equivalent to virgin resin quality while reducing fossil feedstock use and helping to reduce $CO_2$ over the product life cycle. The new cups, designed for use by fast food companies, are made of a combination of circular and bio-based materials supplied by LYB and other value chain partners. These collaborations allow us to design, build, test and scale these cups to meet the increased demand for more sustainable options.

***Circulen*Recover**

## Award-winning sustainable packaging solution

In collaboration with a global brand, our *Circulen*Recover post-consumer resin (PCR) was used in a dispenser designed for skin care, hair care and makeup. This dispenser won the AmeriStar 2023 Award in the Health & Beauty Aids category, recognizing its excellence in packaging design and innovation. The dispenser replaces traditional heavy weight glass or multi-material droppers, and offers recycled content and user-friendly features. The design also eliminates the need for different materials and reduces the number of parts needed, making it easier to recycle. The collaboration is another milestone in bringing innovative circular solutions to the cosmetics sector.

***Circulen*Revive**

## Packaging keeps snacks fresh while supporting circularity goals

Creating sustainable solutions can be challenging for applications that must meet strict requirements, such as food packaging. Our *Circulen*Revive polymers offer a circular solution for hard-to-recycle plastics and end-use applications with strict requirements. We partnered with Berry Global and a global food brand to provide a polymer sourced from advanced recycled plastic waste for use in the packaging for snack crackers. Our objective was to help the global brand find the right material for its bag-in-box liner film that would contribute to plastics circularity and their 2025 recycled plastic content commitment. After careful consideration, the project team chose our *Circulen*Revive polymers with the high quality necessary for food applications, and ideal properties for use in film extrusion, with recycled content attributed using an ISCC PLUS certified mass balance approach. This innovative packaging meets product safety and freshness requirements while offering sustainability benefits through recycled feedstocks.

# Build scale and capture value through the creation of integrated hubs, leveraging capabilities at our existing Cologne and Houston-area sites

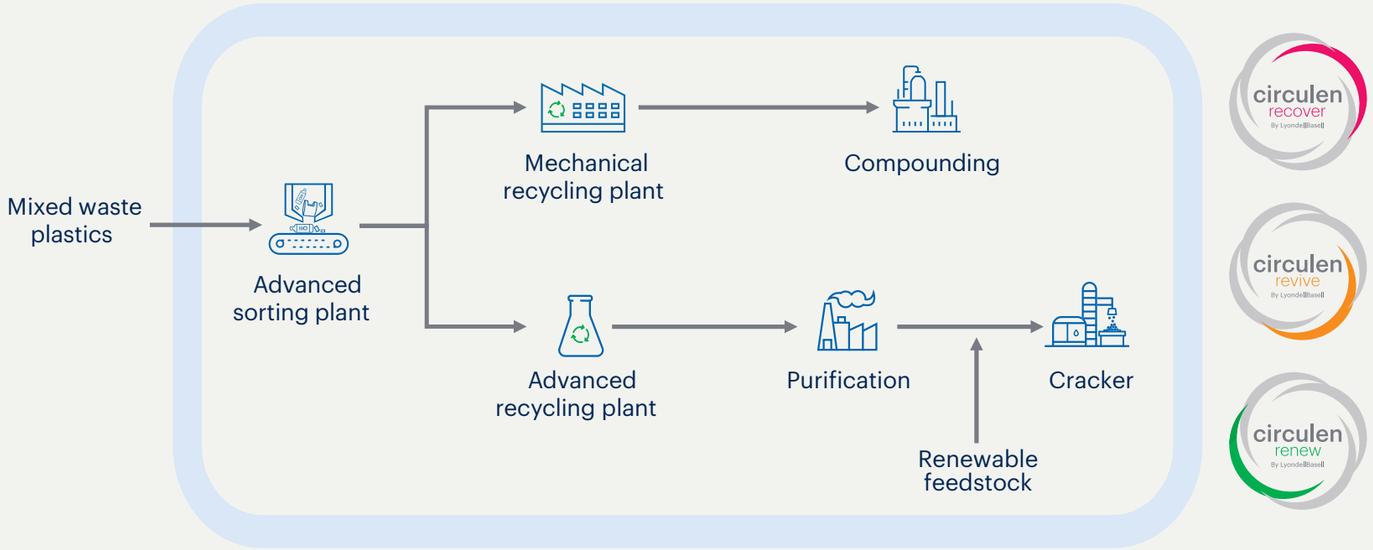
We aim to leverage existing strengths of scale, market access, and technology leadership to establish robust supply chains to increase access to circular and renewable feedstocks.

The LYB integrated hub strategy brings together existing assets in the Cologne and Houston areas with new advanced sorting, mechanical recycling, and advanced recycling assets to create operational scale, reduce cost, and capture value from plastic waste.[1]

Complementary to our integrated hub approach, we also aim to establish smaller regional hubs across Europe and North America to gain access to and process fragmented feedstock supplies.

1. Individual projects may be subject to final investment decision or conclusion of a definitive agreement.

**Integrated Hub Concept**




circulen recover By LyondellBasell

circulen revive By LyondellBasell

circulen renew By LyondellBasell

# Expanding our mechanical recycling capacity globally

In 2023, we continued to take steps to boost our mechanical recycling footprint globally. Our approach to mechanical recycling includes joint ventures and acquisitions in Europe, Asia, and North America. This will enable us to further expand our *Circulen*Recover portfolio of mechanically recycled polymers, creating high quality solutions for our customers while diverting plastic waste from landfills, incineration or the environment. In 2023, our activities included:

- Acquiring 100% ownership of Quality Circular Polymers (QCP) BV with mechanical recycling locations in Belgium and the Netherlands. QCP is an industry-leading mechanical recycling company with a production capacity of 55,000 metric tons per year. The QCP site in Geleen, the Netherlands, produces high-quality high-density polyethylene (HDPE) and polypropylene (PP) polymers from post-consumer plastic waste.
- Investing in Stiphout Industries B.V. (Stiphout) (50% equity stake). The company is involved in the sourcing and processing of post-consumer plastic packaging waste. Stiphout operates a facility located in Montfort, the Netherlands, with an annual processing capacity of 17,000 metric tons. Stiphout has, over time, built up experience in the processing of plastic household waste into clean flakes of recycled PP and HDPE.
- Investing in Rodepa Vastgoed B.V. (50% equity stake), the holding company of De Paauw Sustainable Resources (DPSR). DPSR is a Dutch plastic waste recycling company involved in the sourcing, processing and trading of post-consumer and post-industrial plastic packaging waste. DPSR operates production facilities located in Hengelo and Enschede, the Netherlands, with an annual processing capacity of 50,000 metric tons. DPSR process plastic waste into recycled PP and low-density polyethylene (LDPE) materials.
- Agreed to form a joint venture with LMF Nord, GmbH, a leading recycler of agricultural film, to recycle post-commercial flexible secondary packaging and build a mechanical recycling plant in Northern Germany to turn Linear Low Density Polyethylene (LLDPE) and LDPE waste into quality recycled plastic materials for use in flexible packaging.
- Completed the acquisition of Mepol Group, a manufacturer of recycled, high-performing technical compounds located in Italy and Poland, which will operate under our APS business unit. By combining Mepol's deep expertise in recycled compounds with the strategy and scale of LYB, we see opportunities to accelerate the growth of our APS business.

Proceeds from our Green Bond were allocated to our investments in Stiphout Industries B.V. and LMF Nord GmbH.

# Addressing customer demand for high quality, drop-in solutions through a comprehensive approach to advanced recycling

We began focusing on advanced recycling in 2017 as a complementary solution to mechanical recycling with the ability to address multi-layer, flexible packaging and other plastics that cannot be mechanically recycled and end up in landfills, incineration or the environment.

2017

MoReTec

In 2018, we collaborated with Germany's Karlsruhe Institute of Technology (KIT) to develop our proprietary *MoReTec* technology, which uses a catalyst to improve the breakdown of plastic waste.

The start-up of our *MoReTec* pilot plant in Ferrara, Italy, in 2020 and its expansion in 2021 were important milestones as we improved the efficiency and economics of the technology.

In 2023, we made the final investment decision to build a first of its kind, commercial-scale advanced recycling plant, *MoReTec*–1, using our proprietary *MoReTec* technology at our site in Wesseling, Germany.

Construction of *MoReTec*–1 expected to be completed by the end of 2025.

2025

# *MoReTec*–1 will be a first-of-its-kind commercial-scale advanced recycling plant

In 2023, we made the final investment decision to build *MoReTec*–1, a first-of-its-kind commercial-scale advanced recycling plant that will use our proprietary *MoReTec* technology to convert post-consumer plastic waste into feedstock for the production of new polymers. The new plant will be located at our site in Wesseling, Germany, and is expected to have an annual capacity of 50,000 metric tons per year. It is designed to recycle the amount of plastic packaging waste generated by over 1.2 million German citizens per year.

Source One Plastics, a joint venture of LYB and 23 Oaks Investments formed in October 2022, will supply the majority of the processed plastic waste feedstock for *MoReTec*–1 from its new sorting and recycling facility in Eicklingen, Germany. The Source One plant, which started up in February 2024, processes difficult-to-recycle post-consumer plastic waste, such as mixed plastic packaging and flexible polyolefins materials that would otherwise be sent mostly to incineration. According to Source One Plastics, the plant uses an innovative dry processing method to reduce energy consumption by up to 30% compared to conventional technologies. The system is designed to minimize the occurrence of fine plastic dust and its release into the environment. The plant will be powered by locally generated renewable energy.

The advanced recycled feedstock produced by the *MoReTec* facility will be used for the production of polymers sold by LYB under the *Circulen*Revive brand for use in a wide range of applications, including medical and food packaging.

Construction of *MoReTec*–1 is expected to be completed by the end of 2025.

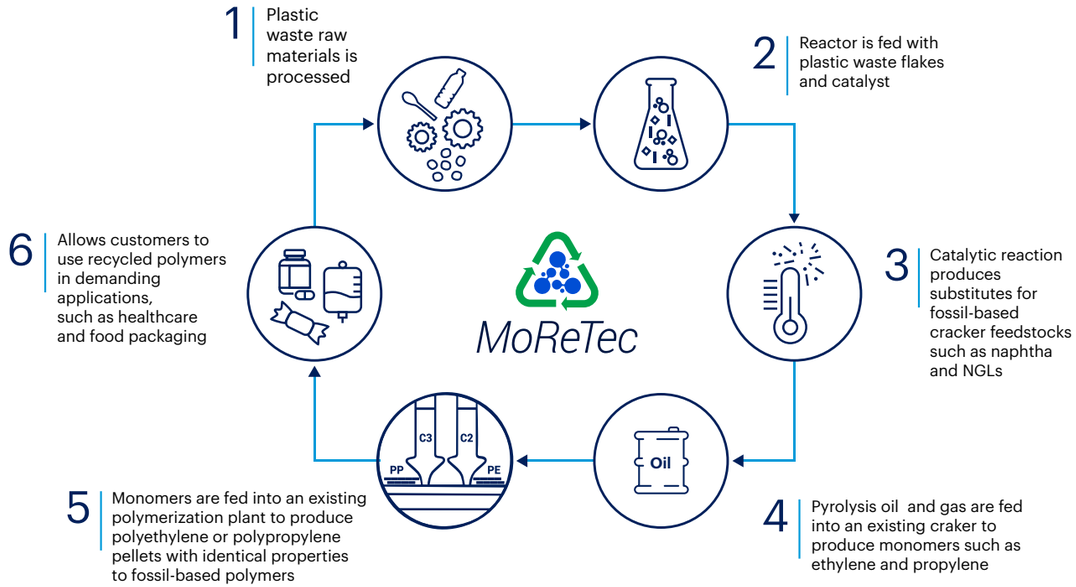
### The *MoReTec* technology difference

The *MoReTec* technology produces pyrolysis oil and pyrolysis gas. Pyrolysis oil is a substitute for fossil-based materials used in polymer production. In competing technologies, pyrolysis gas streams are typically consumed as a fuel. However, the *MoReTec* technology enables the pyrolysis gas to be recovered as well, avoiding emissions associated with using the pyrolysis gas as a fuel, while also contributing to the production of polymer and replacing fossil-based feedstocks.

In addition, the proprietary catalyst technology lowers the process temperature, reduces energy consumption and improves yield.  With lower energy consumption, the process can be powered by electricity, including electricity from renewable sources.

These differentiating advantages provide a carbon footprint advantage as well. The recovery of pyrolysis gas as feedstock, lower energy demand, electrical heating design, replacement of fossil-feedstocks, and recovery of waste plastic from incineration or landfill result in a lower carbon footprint compared with fossil-based processes.

### How *MoReTec* works




Funded by the European Union

## LYB advanced recycling project selected for EU Innovation Fund Grant[1]

LYB has been selected to receive a €40 million grant from the European Union (EU) Innovation Fund to support our *MoReTec*–1 plant in Wesseling, Germany. Our plant is one of the 41 projects selected in the EU Innovation Fund 'Third Call for Large Scale Projects.' The EU is committing EUR 3.6 billion as part of its efforts to fund innovative clean-tech projects to support decarbonization. We are honored that our advanced recycling technology has been recognized by the EU for its promise to address plastic waste and contribute to a circular economy.

1. Funded by the European Union. Views and opinions expressed are, however, those of the author(s) only and do not necessarily reflect those of the European Union. Neither the European Union nor the granting authority can be held responsible for them.

Proceeds from our Green Bond were allocated to our *MoReTec*–1 project and investments in Source One Plastics.

# Investing upstream to become a preferred strategic partner for plastic waste feedstock owners

In the U.S., we invested in Cyclyx International (25% equity stake), a joint venture of Agilyx, ExxonMobil and LYB, to accelerate innovation and development of the necessary advanced sorting infrastructure in the U.S. to enable a circular economy for plastics.

We also signed a final investment agreement with Cyclyx International to build the first Cyclyx Circularity Center (CCC) in Houston with the aim of diverting millions of pounds of plastic waste from landfills. With a designed capacity to process 150,000 metric tons of plastic material, the CCC will produce feedstock for mechanical and advanced recycling. This new facility will sort and process mixed plastic waste, including waste collected through the Houston Recycling Collaboration (HRC) plastic collection program. HRC is a collaboration between government, industry, and the community which aims to significantly increase Houston's plastics recycling rate and help establish the city as a leader for both mechanical and advanced recycling processes. Formed in 2022, the collaboration is the first of its kind in the U.S. The public-private partnership model serves as a blueprint for other cities across the nation. LYB is a founding member.

Proceeds from our Green Bond were allocated to our investment in Cyclyx.

## Our goal

# For every dollar we invest in venture funds that address the plastic waste challenge, we help catalyze another five dollars from co-investors

The magnitude of the plastic waste crisis has highlighted the urgent need for support of early-stage innovations through venture funds that can provide capital, expertise and access to new markets. That is why we are investing in venture capital funds that align with our ambition to help end plastic waste in the environment and promote a circular, low carbon economy.

In 2023, we invested in Lombard Odier Investment Managers (LOIM) Plastic Circularity Fund SCSp. The fund's investment objective is to provide solutions to reduce pollution from plastic waste and decrease GHG emissions in the plastic value chain. The fund is targeting to raise up to $500 million. We also invested in a new Carbon Neutrality Fund led by Chrysalix Venture Capital. The fund will support emerging companies developing and deploying new low-carbon technologies, focusing on hard-to-abate sectors, such as the chemicals industry.

In addition to our investments in Chrysalix and LOIM, LYB previously invested in Closed Loop Circular Plastics Fund, Infinity Recycling's Circular Plastics Fund.

These venture capital funds are focused on accelerating the development of infrastructure and recycling technologies needed to address plastic waste challenges and low carbon technologies in North America, Europe, and Asia.

Proceeds from our Green Bond were allocated to our investments in the LOIM Plastic Circularity Fund, Carbon Neutrality Fund, and Closed Loop Circular Plastics Fund, Infinity Recycling's Circular Plastics Fund.

## Our goal

# Zero loss of plastic pellets to the environment from our operations

We sell polymer products in the form of pellets, flakes and powders, which are handled at multiple points from creation to customer delivery. As of December 31, 2023, we had 77 polymer manufacturing, research and technical sites that produce or handle polymers. We are committed to zero pellet loss to the environment and being transparent about our performance.

LYB is a member of Operation Clean Sweep® (OCS), the plastics industry's global initiative to promote collaboration, training, and education in controlling and reducing the loss of pellets, flakes and powders. We also committed to OCS Blue, an elevated level of commitment that enhances the management, measurement and reporting requirements for pellet loss into the environment.

We monitor and report pellet loss in accordance with American Chemistry Council (ACC) guidance. For purposes of our reporting, loss is defined as an unplanned release of polymeric solids from a site boundary in a quantity greater than 0.5 kilograms (equivalent to 1.1 pounds) in a single incident. In 2023, approximately 10 kilograms of polymeric solids was lost offsite. We clean spills, conduct investigations, and implement corrective actions to prevent similar incidents in the future.

We conduct annual assessments of our operations to evaluate and improve pellet loss efforts, including monitoring, handling, recycling, safe disposal, cleaning and containment. We also have tools to identify opportunities to prevent pellet loss and emphasize educating and empowering our employees in their continuing support of this effort.

In 2023, our facilities began participating in external OCS audits to increase transparency and strengthen our program. These audits were developed through regional trade associations with the strong support of LYB. In each external assessment, independent auditors verify that we meet specific requirements to prevent pellet loss in our facilities and along the plastics value chain. In 2023, our Tarragona site in Spain was the first facility in the world to be certified under this new external OCS audit program.

| | 2020 | 2021 | 2022 | 2023 |
|---|---|---|---|---|
| **Pellet loss from our operations** | | | | |
| **Number of polymer sites** | 79 | 76 | 75 | 77 |
| **Loss incidents** | 3 | 4 | 4 | 1 |
| **Loss (kilograms)** | 12 | 43 | 11 | 10 |

# Taking climate action

# Our climate ambition

As a leader in our industry, we have an important role in driving change. We support the objectives of the Paris Agreement to limit global temperature rise to well below 2°C above preindustrial levels and to pursue efforts to limit the temperature increase even further to 1.5°C.

We are committed to reducing GHG emissions from our global operations and value chain, and to delivering solutions which advance our customers' climate ambitions and support society's transition to a low carbon world. As companies within our value chains increasingly set their own scope 3 goals, we believe our ambitious climate goals will be an advantage. We aim to deliver low carbon footprint materials that will meet increasing demand across our value chains.[1]

We believe a commitment to net zero scope 1 and scope 2 GHG emissions by 2050 and a credible pathway to 2030 for scopes 1, 2, and 3 are critical to the long-term success of LYB. Our goal is to reduce our scope 1 and 2 emissions by 42% and scope 3 emissions by 30% by 2030, relative to a 2020 baseline. As part of our scope 1 and 2 commitment, we aim to procure a minimum of 50% of our procured electricity from renewable sources by 2030, based on 2020 levels.

We recognize that offsets may play a future role in meeting our long-term climate goals, as there will be emission sources where it will be either technically or economically infeasible to realize operational reductions.

Limits on the use of offsets within target-setting standards may evolve in the future. As we progress our climate approach, we are working to define our offset strategy including scope of use in our overall transition plan to net zero.

In 2022, we committed to having our 2030 targets validated as science-based through a letter of commitment submitted to the Science Based Target initiative (SBTi). Our 2030 targets were developed to align with SBTi target requirements, including ambition levels and scope of coverage. The SBTi is continuously working to update its existing methodologies and develop new sector methodologies, including for the chemical industry. While our initial commitment was accepted by the SBTi, the validation of our targets was subsequently paused due to a global pause on companies with oil-and gas-related activities. We remain committed to aligning our climate targets with the latest climate science and will continue to work with SBTi on a path toward validation. In addition, we are supporting the development of the SBTi chemical sector target-setting standard, which is expected to be finalized and published in 2024.

For information on sustainability and climate governance, refer to pages 89-90 in this report.

1. Lower carbon when compared with fossil-based alternatives.

## Our goals

- Achieve net zero GHG emissions from our global operations by 2050[1]
- Reduce absolute scope 1 and 2 GHG emissions 42% by 2030[2]
- Reduce absolute scope 3 GHG emissions 30% by 2030[2]
- Procure a minimum of 50% of electricity from renewable sources by 2030[3]

## Our approach

- Align our ambition and associated targets with the latest climate science and the objectives of the 2015 Paris Climate Agreement
- Develop a low carbon and circular product portfolio and collaborate with our customers to help them achieve their climate ambitions
- Develop and quantify transition pathways to attain our scope 1 and 2 targets through the use of multiple levers, including energy efficiency, hydrogen, electrification coupled with renewables, and carbon capture, storage, and utilization
- Develop and quantify pathways to attain our scope 3 targets through our planned exit of the refining business, our increased use of renewable-based and circular feedstocks, and supplier engagement with our feedstock, raw materials, and logistic suppliers
- Assign a monetary value on carbon differentiated by region to align our capital expenditure and energy-related decisions with our overall climate ambitions
- Align our governance model for sustainability and climate with the recommendations established by leading frameworks
- Continue to integrate climate impacts into our business processes and strategy, including through our analysis of climate-related risks and opportunities
- Engage with governments and industry peers, including through our trade associations, to support effective policies to achieve the goals of the Paris Agreement and our global climate ambitions

1. Our 2050 net zero GHG emissions goal includes scope 1 and 2 emissions.
2. Relative to a 2020 baseline.
3. Based on 2020 procured levels.

# Reduce absolute scope 1 and 2 GHG emissions 42% by 2030[1]

## Our 2030 scope 1 and 2 target supports our long term 2050 net zero ambition.

Globally, our scope 1 and 2 emission footprint is approximately 23 million metric tons, with approximately 75% of these emissions from North American operations and 25% from Europe. Scope 1 and 2 emissions from other regions of the world represent less than 1% of our total.

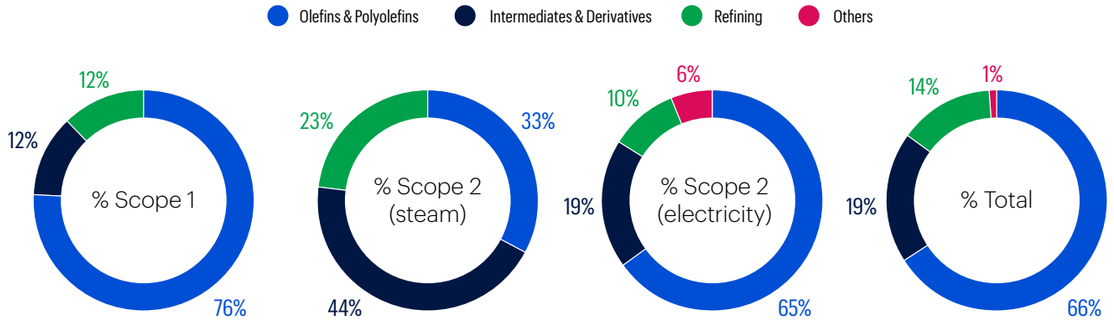
Our pathway to reach net zero scope 1 and 2 GHG emissions in our global operations is based on four reduction levers that support our plans to reduce emissions from our portfolio:

- **Energy efficiency:** Optimizing our use of energy in all of our manufacturing processes to lower our energy footprint, reduce GHG emissions, and reduce operational costs.
- **Renewable electricity and electrification:** Sourcing electricity from renewable electricity projects primarily through power purchase agreements, and electrifying processes to reduce our reliance on fossil fuels.
- **Hydrogen:** Increasing the use of hydrogen in our fuel mix used on-site for energy to replace other more carbon intensive fuels.
- **Carbon capture and storage/utilization (CCS/CCU):** Reducing direct emissions by enabling the capture and storage or reuse of $CO_2$ from our operations.

We continuously investigate novel low carbon or carbon-free production processes, especially for potential application in our core olefin and propylene oxide businesses.

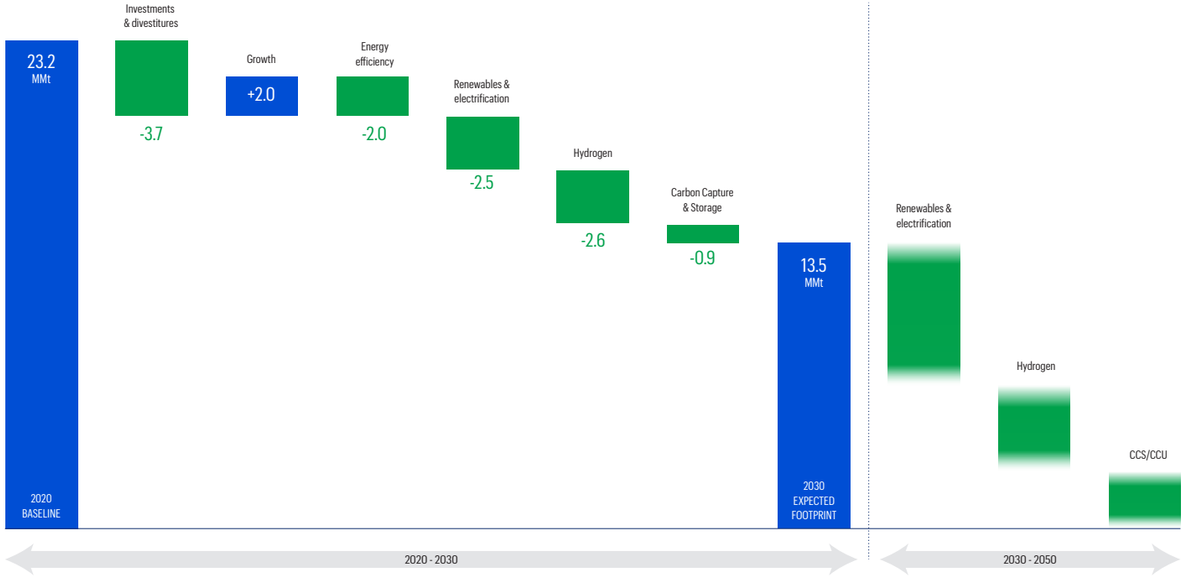
1. Relative to a 2020 baseline.

### 2020 baseline scope 1 and 2 GHG emissions by segment




Our olefin plants are the largest GHG emissions contributor of our manufacturing base, representing approximately 60% of our combined scope 1 and 2 GHG footprint. Second are our PO plants within our I&D business. The following sections will provide further insights into our approach to decarbonize our operations. Procured electricity represents approximately 15% of our total scope 1 and 2 footprint.

### Pathway to net zero from global operations



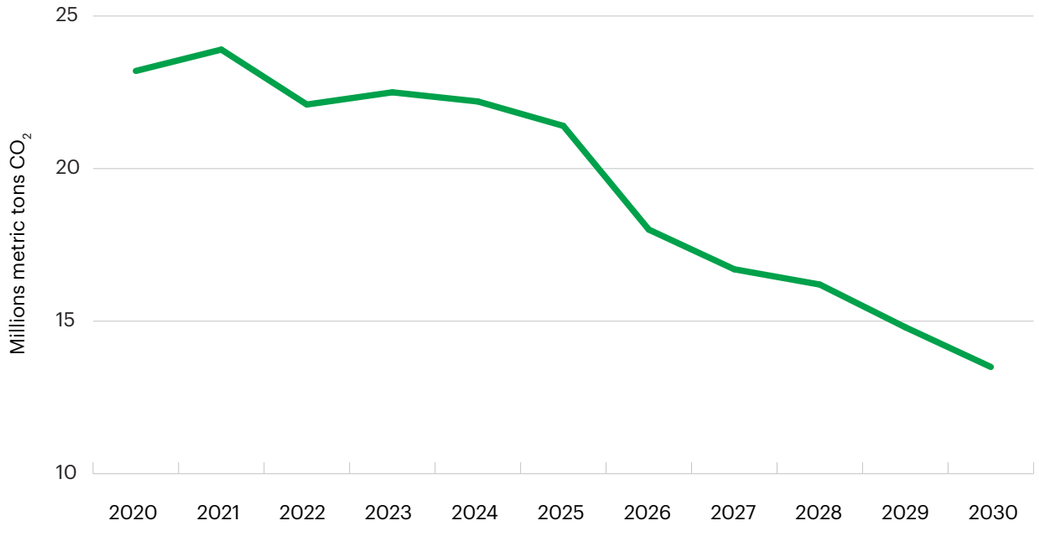

This graph represents the expected quantified contribution of our four reduction levers to meet our 2030 scope 1 and 2 target and a qualitative estimate for us to reach net zero in our global operations by 2050. Beyond 2030, scaling new technologies may also be part of the solution.

The graph below represents our expected progress toward our 2030 scope 1 and 2 GHG target. Early actions across the four reduction levers of energy efficiency, renewable electricity and electrification, use of hydrogen and the potential deployment of CCS/CCU are on track for us to meet our 2030 target. The commissioning of our new PO/TBA plant at our Channelview manufacturing site in Texas contributed to the slight year-on-year increase in our overall emissions in 2023.

The emission reduction projects included in our plan are in different stages of development. We continue to evaluate each business case and prioritize reduction opportunities based on each project's rate of return. Estimates of the associated expenditures are built into the company's long-range plan, and we estimate capital spending to support our sustainability goals, including climate and circularity ambitions, will represent approximately 20% of our total capital expenditures over the next two years, with approximately $400 million estimated to be spent in 2024. We also anticipate incurring costs for environmental compliance, including compliance with potential legislation and potential regulation related to climate change in subsequent periods.

Several of these projects involve collaboration with external stakeholders, and are dependent on a number of enablers including the construction of relevant infrastructure. In this regard, we have been working in close collaboration with different project participants, for example, with grid operators and our utility providers, for the successful execution of these projects.

## Expected progression toward scope 1 and scope 2 GHG emissions 2030 target




# VEP initiatives help drive GHG emissions reductions

VEP is a company-wide program, which expands capacity through low-cost debottlenecks and improved reliability, reduces costs and emissions by saving energy and increases margins through improvements in procurement, logistics and customer service. In 2023, we implemented VEP projects which translated into annual GHG emissions savings of nearly 240,000 tons of carbon dioxide equivalent ($CO_2e$) and annual energy savings of nearly four million GJ for a total investment of $7 million in operating expenses and capital expenditures. More information about our VEP program can be found on page 8 of this report.

| Type of initiative | Estimated annual GHG savings (kilotons $CO_2e$) | Estimated annual energy savings (million GJ) | Investment required ($ millions) |
|---|---|---|---|
| **Energy efficiency** | 200 | 3.2 | 4.8 |
| **Process optimization** | 30 | 0.5 | 0.3 |
| **Maintenance, unplanned downtime, quality** | 2 | < 0.1 | 0 |
| **Flared material reduction** | 6 | 0.1 | 2.2 |
| **Total** | **238** | **3.9** | **7.3** |

## Our goal

# Procure a minimum of 50% of electricity from renewable sources by 2030[1]

Procured electricity represents approximately 15% of our total scope 1 and 2 footprint, and shows the importance of our efforts in meeting our renewable electricity procurement target.

Our non-olefin and non-PO assets represent less than 10% of our total scope 1 and 2 footprint, and their the GHG emissions of those assets are primarily derived from consumption of fossil fuel generated electricity and steam, which we often source from third-party suppliers.

Our goal to secure at least 50% of our procured electricity volumes from renewable sources by 2030 is a key lever to reduce the carbon footprint of our procured electricity, and our preferred approach is the use of long-term power purchase agreements (PPAs)[2] to invest in new renewable energy projects that create additionality. Energy Attribute Certificates (EACs) procured through our PPAs will be allocated to manufacturing sites in line with available subject matter guidance and taking into account electricity market boundaries and the carbon intensity of each site's procured electricity.

As of December 2023, we have secured renewable electricity volumes through PPAs achieving almost 90% of our 2030 target, bringing our total procured renewable electricity to 1,385 megawatts. These agreements will generate an estimated 3.7 million megawatt hours of renewable electricity annually and reduce our scope 2 GHG emissions by more than 1.3 million metric tons once projects are operational. Four projects from our North America portfolio of PPAs became operational in 2023 resulting in 422 gigawatt hours of renewable electricity delivered to LYB. These projects allowed us to reduce GHG emissions from our operations by approximately 150,000 metric tons in 2023.

PPAs for renewable energy projects, through the EACs that accompany them, will continue to be our main source of renewable electricity. However, unbundled EACs may be used to decarbonize our electricity supply if our electricity demand exceeds our forecasts.

In addition to procuring EACs through renewable electricity PPAs, we are working to identify other opportunities to reduce the carbon intensity of the electricity we procure and we are evaluating strategic options within the regions. An example of low carbon electricity supply beyond renewable electricity is carbon capture and sequestration on cogeneration facilities that are associated with our assets. This strategy reduces the carbon intensity of the electricity and steam supplied to the site.

| Region | Technology | Estimated start up | Power generation capacity (megawatts) |
|---|---|---|---|
| USA | Wind | Active | 100 |
| USA | Solar | Active | 280 |
| USA | Wind | 2025-2026 | 173 |
| USA | Solar | 2025-2026 | 325 |
| Europe | Solar | Active | 5 |
| Europe | Wind | 2025-2026 | 252 |
| Europe | Solar | 2025-2026 | 250 |
| | | **Total** | **1,385** |

Projects listed are as of December 31, 2023, and represent the LYB portion of the project as determined by the developer.

Proceeds from our Green Bond were allocated to four wind and solar projects in North America.

1. Based on 2020 procured levels.

2. In this report, the reference to PPAs includes virtual power purchase agreements (VPPAs).

# The role of internal carbon pricing

Integrating climate into our business planning is a crucial step in our journey to drive cost-effective climate action and achieve our ambitions. We use an internal price on carbon as part of our capital allocation processes, maintaining a regional differentiated approach, with price levels defined in line with the Emissions Trading System (ETS) carbon market in the EU and through benchmarking of the industry in the U.S. and for the rest of our global operations.

The use of an internal carbon price (ICP) is a key enabler for us to progress toward our 2030 and 2050 scope 1 and scope 2 targets, allowing us to assign a monetary value to our GHG emissions and integrate this value into our business planning. As the energy transition progresses, we anticipate an increased value for carbon, driven by expected increases in global carbon regulations and growing customer willingness to pay a premium for low carbon products.

In 2023, we followed a multidisciplinary approach to review our processes through which we define our internal carbon price, with the objective of having a more uniform use across our operations and strategic decisions. Implementation of our revised ICP will place greater emphasis on low carbon alternatives in growth projects and influence considerations around new projects.

# Reducing the carbon footprint of olefins

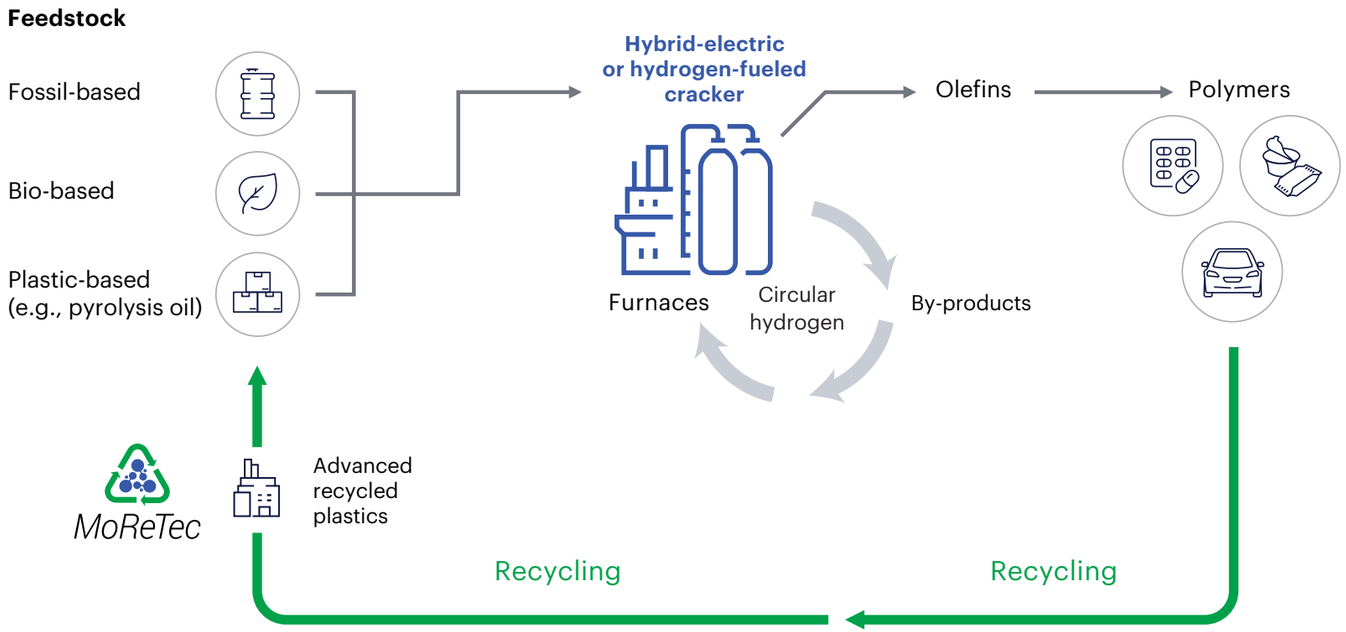
Our olefin plants are the largest GHG emissions contributor of our manufacturing base, representing approximately 60% of our combined scope 1 and 2 GHG footprint. This is primarily due to the high heat requirements of thermal cracking, with temperatures reaching up to 900°C to process our feedstocks, such as ethane or naphtha, into higher value chemicals such as ethylene and propylene. Olefins are the basic building blocks for many of our products, including polymers and propylene oxide. Reducing the carbon intensity of these building blocks will have a significant impact on the carbon footprint of the petrochemical product chain.

The high heat requirement for thermal cracking is currently achieved primarily through the combustion of fossil fuels, which contribute to most of the scope 1 and 2 footprint of the olefin plants. In addition to purchased feedstocks, these fossil fuels include gas stream, composed mostly of methane and hydrogen, which are unavoidable by-products from the thermal cracking process. As part of our Value Enhancement Program, we constantly aim to reduce energy consumption and fuel use in our olefin process, which has a direct impact on our GHG emissions. In addition, we are pursuing a multi-faceted approach to deliver net zero scope 1 emissions for our olefin plants through two main reduction levers: Displacing fossil fuels with low carbon hydrogen and delivering heat by using renewable or low carbon electricity. Capturing hard-to-abate emissions will also form part of this approach with the aim being to store or valorize the captured $CO_2$ into higher value products.

We are developing ways to substitute hydrogen for fossil fuels for our olefin plants. Hydrogen is a natural by-product from the thermal cracking process with significant volumes produced in ethane-fed cracking operations. Where those volumes were previously directed to other uses, such as to support desulfurization operations in our refinery in Houston, we are working toward maximizing the volume of hydrogen that is reused for energy in our own operations.

Longer term, beyond 2030, scaling new technologies may also be part of the solution. We are active in this space through our R&D and collaborations.

## Tomorrow's net zero/circular cracker




Graphic depicts the most material sources of GHG emissions; remaining sources to be addressed through other site reduction measures to reach net zero scope 1 and 2.

# U.S. Gulf Coast hydrogen project evaluation underway

Collaboration between companies, governments, and civil society organizations and across the entire hydrogen value chain is critical to enabling the energy transition in hard-to-abate sectors.

Recognizing this critical element, we are collaborating with Air Liquide and Chevron to evaluate and potentially advance the development of a hydrogen and ammonia production facility along the U.S. Gulf Coast.

This project is a part of the HyVelocity hub, which was selected by the U.S. Department of Energy (DOE) Office of Clean Energy Demonstrations to begin award negotiations for the development of the HyVelocity Gulf Coast Hydrogen Hub.

The consortium aims to assess the potential for producing hydrogen using a combination of low carbon electricity and methane sources. This includes by-product methane produced in our olefin processes, along with carbon capture and storage, to supply end-use markets, including the ammonia, petrochemicals, power, and mobility markets.

The project would support our target to reach net zero scope 1 and scope 2 GHG emissions by 2050 and reduce our scope 1 and 2 GHG emissions by 42% by 2030, relative to a 2020 baseline.

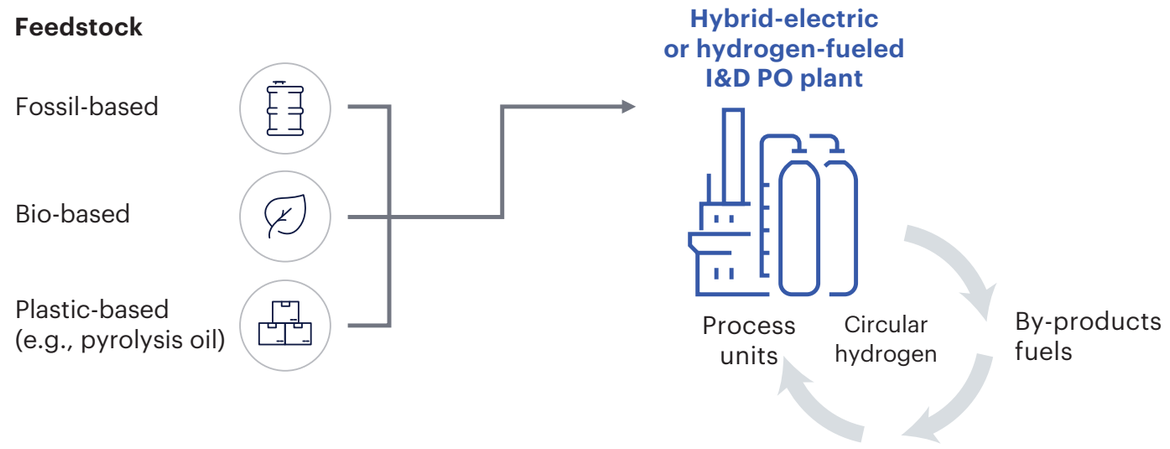
# Reducing the carbon footprint of our PO plants

Our PO plants are the second-largest GHG emissions contributor of our manufacturing base, representing approximately 19% of our combined scope 1 and 2 GHG footprint. We produce PO through two distinct proprietary technologies, one of which yields styrene monomer as a co-product, and the other of which yields tertiary butyl alcohol (TBA) as a co-product, used primarily as a precursor to oxyfuels that improve the fuel efficiency and reduce the GHG footprint of gasoline vehicles.

Our PO plants have a high steam and power demand and are supplied either through onsite generation or through third-party supply. In addition, both PO processes produce liquid by-product streams that are currently reused in the process for energy. Reducing the footprint of our steam and power supply and securing an alternative outlet for these liquid by-product streams are key elements in our approach to develop a net zero pathway for our PO plants.

We are working toward reducing the footprint of our onsite power and steam production assets with projects underway to meet our 2030 targets. As with our olefin plants, carbon capture and storage and/or reuse will also play a key role in reducing GHG emissions, including to reduce emissions linked to the management of liquid by-product streams produced as part of our PO processes.

## Tomorrow's net zero/circular PO plant




Graphic depicts the most material sources of GHG emissions; remaining sources to be addressed through other site reduction measures to reach net zero scope 1 and 2.

# Steam network in Rotterdam-Botlek saves 50 million cubic meters of natural gas

LYB is engaged in a multi-stakeholder initiative in the Rotterdam-Botlek industrial area to decrease natural gas consumption, which will reduce GHG and nitrogen emissions. With this far-reaching collaboration, manufacturers, grid operators, the municipality and the province are joining forces to make the industry in the Rotterdam-Botlek area more sustainable.

By expanding the Botlek steam network, this initiative will replace steam that is currently produced with natural gas, with residual steam produced as a by-product of industrial processes from AVR, a residual waste processor, and Cabot Corporation, a chemical company. This will result in a minimum decrease of natural gas consumption of 50 million cubic meters, a GHG emissions reduction of approximately 100,000 metric tons per year, and a reduction of 40,000 kilograms of nitrogen emissions per year. The Botlek Steam Network will have the potential capacity to further reduce gas consumption up to 200 million cubic meters, a potential GHG emissions reduction of 400,000 metric tons, and 160,000 kilograms of nitrogen emissions per year. LYB will be the largest consumer of this steam, which will contribute to reducing scope 2 emissions at our Botlek site, and reduce the scope 2 footprint of our PO, co-products and derivatives produced onsite.

Proceeds from our Green Bond were allocated to the steam network in Rotterdam-Botlek

## Our goal

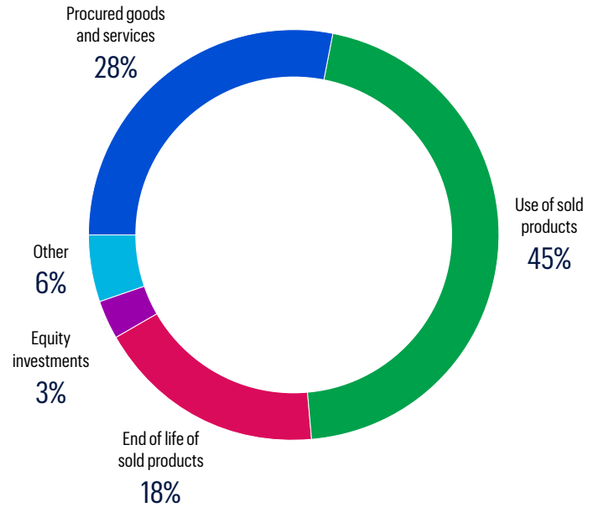
# Reduce absolute scope 3 GHG emissions 30% by 2030[1]

Global scope 3 emissions for LYB in 2020, our baseline year for our target, are estimated to be 100 million metric tons. In line with target setting requirements set forth by the SBTi, our target coverage corresponds to more than two thirds of estimated global scope 3 emissions, or 75 million metric tons and includes emissions from our most material sources, including our feedstocks, our products, and our equity investments.

Our approach to reducing scope 3 emissions is tied to the reduction levers listed below:

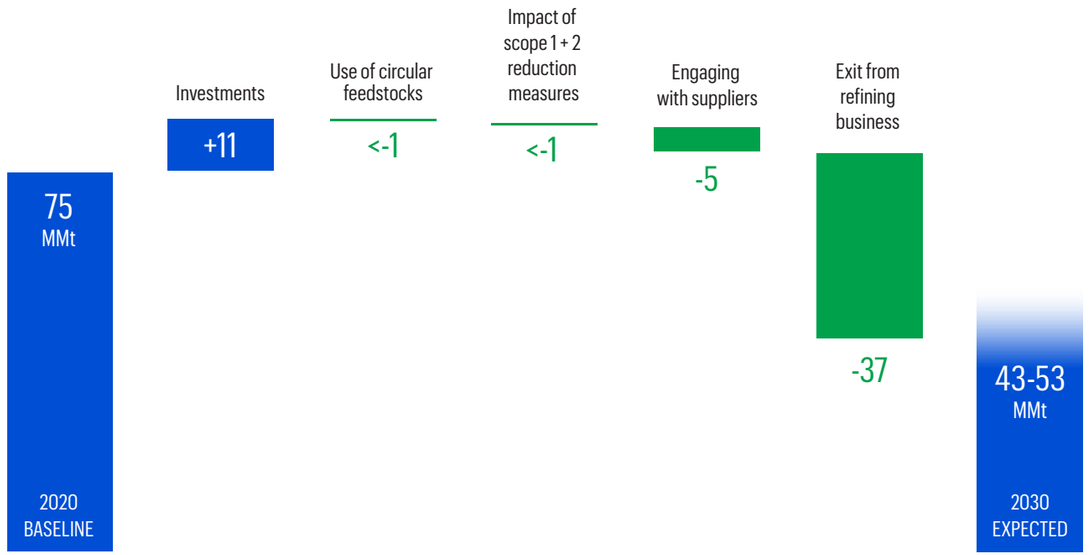
- **Exit from our refining business:** We estimate our exit from the sale of refined products, including gasoline, diesel and jet fuel, will represent a total reduction of approximately 40 million metric tons of scope 3 emissions annually.
- **Use of circular feedstocks:** We are increasing our use of renewable bio-based and recycled feedstocks, in line with our commitment to produce and market at least 2 million metric tons of recycled and renewable-based polymers annually by 2030.[2]
- **Engaging with suppliers:** By engaging with suppliers, including those that supply our feedstocks and raw materials, we can better understand the product carbon footprint of the materials we procure from them and explore the potential for collaboration on emissions reduction opportunities. We utilize the product carbon footprint guidance from Together for Sustainability (TfS) to enable harmonization on scope 3 accounting approaches across the value chain. We also will stop procuring various raw materials, including crude oil, due to our exit from our refining business.
- **Shifting to less carbon intensive fuels:** Switching to the use of lower carbon intensive fuels in our operations may offer the potential to lower our scope 3 emissions, in addition to reducing our scope 1 and scope 2 emissions.
- **Engaging with logistics providers:** We are engaging with our logistics suppliers to better understand emissions linked to the transportation of our products to our customers and reviewing opportunities to optimize our distribution routes to reduce GHG emissions. We participated in the development of the Global Logistics Emissions Council (GLEC) guidance for the European Chemical Industry as part of the Smart Freight Centre and are working with logistics suppliers to improve the accuracy of emissions reporting to guide optimization efforts.

### Breakdown of scope 3 emissions by emission source




Data based on 2020 levels.

### Primary reduction levers to achieve scope 3 GHG emissions reduction target[3]




1. Relative to 2020 baseline.
2. Production and marketing includes: (i) joint venture production marketed by LYB plus our pro rata share of the remaining production produced and marketed by the joint venture, and (ii) production via third-party tolling arrangements.
3. In line with SBTi target setting requirements, our scope 3 target includes emissions from at least two-thirds of our global scope 3 emissions. Emissions from our feedstocks and raw materials (category 1), our energy-related activities (category 3), our upstream transportation (category 4), use of our products (category 11), and our equity investments (category 15) are included in our target boundaries.

# Product lifecycle metrics

We are undertaking life cycle assessment (LCA) studies for our *Circulen* and *+LC* product portfolio, including technologies like our proprietary technologies such as PO with co-product TBA, and PO with co-product SM. We are also assessing our *MoReTec* technology and expanding our activities toward our olefins, polymer and compounded products.

Our LCAs are conducted according to ISO 14040/44 (including 14067 for product carbon footprints). They undergo a critical review with an independent expert reviewer or a panel of experts (ISO/TS 14071), using recognized tools and databases, aligning with Together for Sustainability (TfS).

The LCAs will be used to support customer information needs on the sustainability attributes of our products and technologies. We aim to generate full LCAs and inherent product carbon footprint calculations for our entire product portfolio by 2026.

Additionally, we are collaborating to support the harmonization of product life cycle metrics and their application (e.g., ISO 14040/44, Product Environmental Footprint, GHG Protocol Product Standard) and share best practices within the chemical industry. Examples are our participation in TfS and the World Business Council for Sustainable Development (WBCSD) Partnership for Carbon Transparency (PACT) pathfinder framework project, where members design and publish standards and tools for data exchange on Product Carbon Footprint (PCF) information.

Fact-based evidence is critical when claiming sustainability advantages of our products and technologies, and we are growing our internal capability to calculate life cycle metrics such as LCAs and PCFs. We use these tools to support our evaluation of new technologies via our R&D team and Net Zero Transition team, collaborate with customers on their scope 3 emission targets, and evaluate our supply chain.

We will continue to expand our capability to deliver life cycle metrics information in 2024 to support our customer information needs and sustainability ambitions, and further enhance the value proposition of sustainable solutions offerings.

# Climate-related risks and opportunities

LYB assesses climate-related risks and opportunities as part of our Enterprise Risk Management (ERM) program. We have a dedicated climate change risk management process derived from the overall ERM program, and we align with the Taskforce on Climate-related Financial Disclosures (TCFD) framework to guide our approach. This process is used to address climate-related risks through a structured and formal approach. The risks are evaluated with input and alignment from the Executive Committee.

The climate change risk management process utilizes the six-step ERM risk management process for both risks and opportunities based on the International Standard ISO 31000:

- Understanding objectives
- Identification
- Assessment
- Evaluation
- Response
- Monitoring and reviewing

Climate-related risks and opportunities are evaluated across multiple levels in our organization including the Executive Committee, departmental, and program/project levels when applicable. Our approach involves analyzing the nature of these climate-related factors and determining the level of risk exposure, which considers both the likelihood of occurrence and potential impact across different time frames (short, medium, and long term). This comprehensive analysis helps us effectively identify, understand, and manage climate-related risks and opportunities within our operations.

The risk assessments entail a careful consideration of likelihood and impact ratings. The likelihood assessment incorporates a multifaceted approach, encompassing an analysis of past occurrences, both within and beyond the organizational sphere, and an evaluation of current risk trends and available data sources. Furthermore, this assessment takes into account the evolving landscape of climate-related risks, considering future scenarios and how these risks may manifest in light of the organization's control measures. The goal is to comprehensively understand the probability of a risk materializing, incorporating a forward-looking perspective based on the current state of the risk and the effectiveness of the company's existing control measures.

The impact assessment analyzes the repercussions of a risk event, encompassing various facets, such as financial implications, non-financial considerations including regulatory compliance, safety protocols, reputation management, and the welfare of the workforce. This approach considers both immediate consequences and downstream effects, offering a comprehensive view of the risk's impact, and hence materiality of a risk is based on how critical it could be for our business model.

Together, the likelihood and impact assessments contribute to a risk rating, which is essential for informed decision-making and mitigating climate change-related risks effectively.

Each identified risk undergoes an evaluation process guided by established ERM criteria to assess whether it falls within an acceptable level of risk exposure considering strategies for risk reduction. Potential risk responses are assessed to gauge their feasibility and potential benefits, using a cost-benefit analysis as a guiding framework. Our risk management strategy focuses on continuous risk monitoring and control. To achieve this, we develop key risk indicators that can be tracked over time for each specific risk. These indicators act as our compass, helping us stay informed about how risks are evolving and changing. If a risk requires attention, these signs prompt timely responses.

Moreover, we place strong emphasis on accountability. Each identified risk is entrusted to a risk owner, a designated individual responsible for overseeing and actively managing the risk. This approach creates a seamless system that bolsters our risk management framework and allows us to proactively address climate change-related risks.

We have developed climate-related scenarios to assess both physical and transitional risks. These scenarios align with the Intergovernmental Panel on Climate Change (IPCC) representative concentration pathways (RCP): RCP 2.6, 4.5, and 8.5. These pathways represent varying expectations of global temperature rise in the medium (2030) and long term (2050).

| Risk & Opportunity type | | Description |
|---|---|---|
| Risk[1] | **Regulatory** | As an energy intensive business, LYB is impacted by existing and emerging energy and climate legislation. For example, the European Union Emissions Trading System (ETS) has a direct impact on our operational costs, and we incorporate the costs associated with ETS in our long-range financial planning. We expect our 1.5°C aligned scope 1 and 2 emissions reduction targets to partially mitigate the risk associated with new or modified climate regulation. |
| | **Technology** | Risks related to developments in GHG emission reduction technologies may have a direct impact on our ability to meet reduction targets, for example, through changes in our production processes and our ability to provide products meeting our customers' climate goals. |
| | **Legal** | LYB considers the potential for litigation and other legal risks in its climate-related risk assessments. For example, we monitor the development of climate-related litigation in the jurisdictions that are relevant to the company and apply insights from those developments to our risk assessments. Should LYB become subject to a similar court ruling in this type of litigation, it could increase the cost of meeting our climate goals due to an accelerated pace and may also lead to reputational risk or loss of stakeholder confidence. |
| | **Market** | There is an increasing awareness in downstream markets of the overall GHG footprint of products. Changing customer demand related to climate change may also create threats based on our speed and ability to respond adequately. For example, should LYB be considered as insufficient in addressing climate challenges to the expectations of our stakeholders and customers, this could result in adverse financial effects, such as loss of market share from customer deselection, departure of employees, or loss of shareholder support. |
| | **Reputation** | A potential reputational risk arises from our approach to addressing climate change, which has the capacity to influence the perception of LYB by our stakeholders, including the communities we engage with, our valued customers, and our shareholders. The concern here lies in the event that we are perceived as falling short of the expectations set by our stakeholders and customers in the realm of climate action. Such an assessment could trigger adverse repercussions in the form of reputational damage. This could manifest in the loss of market share due to customer disengagement, attrition of employees, or a decline in shareholder support. |
| | **Acute physical** | Severe weather events and climatic factors pose an acute physical risk to our operations, especially in vulnerable regions like the U.S. Gulf Coast. Climate change intensifies this risk, increasing the frequency and severity of events like hurricanes, flooding, and drought. While we maintain preparedness and business continuity plans aimed at minimizing potential disruptions and enhancing safety, these events still have the potential to interrupt our supply chain and operations. Our facilities on the U.S. Gulf Coast, a region that has previously encountered hurricanes, have experienced such interruptions in the past, necessitating temporary shutdowns. |
| | **Chronic physical** | Long-term climate changes bring about chronic physical risks to our operations, notably global sea level rise and persistent drought conditions. For instance, we have witnessed feedstock shipping restrictions caused by unseasonal weather variations in Germany, affecting the Rhine River's water levels. |
| Opportunity | **Technology** | We strongly believe in the role emerging technologies will have to play to reduce GHG emissions in the chemical sector. Cross functional teams assess new technology developments and their suitability in our operations and to meet our reduction targets; for example, in the areas of olefin production technology, carbon emission capture, storage and reuse, hydrogen, and process electrification including steam crackers. |
| | **Market** | In 2022, we worked alongside several top businesses to introduce solutions from our *Circulen* portfolio of polymers derived from mechanical recycling (*Circulen*Recover), renewable-based feedstocks (*Circulen*Renew) and advanced recycling (*Circulen*Revive). As we continue to focus on the future beyond, we took action to establish our CLCS business to deliver on our ambition to produce and market at least 2 million metric tons of recycled and renewable-based polymers annually by 2030.[2] |

1. A substantive financial or strategic impact on our business at the corporate level is defined as a risk with an EBITDA loss of more than $100MM. Beyond financial impacts, we also consider environmental, legislative, reputational, and people related risks as part of our assessment. We classify risks irrespective of the defined occurrence based on financial and/or strategic impacts starting from insignificant, minor, moderate, major, and substantial.

2. Production and marketing includes: (i) joint venture production marketed by LYB plus our pro rata share of the remaining production produced and marketed by the joint venture, and (ii) production via third-party tolling arrangements.

# GHG emissions and energy

We follow an operational control accounting approach in line with the GHG Protocol developed by the World Resources Institute (WRI) and the World Business Council for Sustainable Development (WBCSD) for our emissions reporting and account for 100% of GHG emissions from assets under our operational control. Emissions from our non-operated assets are accounted for in our scope 3 (category 15).

We recalculate our baseline emissions in the event of divestments and acquisitions. In 2023, we engaged an external auditing firm, PricewaterhouseCoopers LLP (PwC) to perform a limited assurance engagement over our scope 1 and 2 emissions data and our total energy consumption data.

We are also working toward enhancing our data collection systems and data control processes for other climate and sustainability-related data to obtain assurance in future years.

In 2023, we advanced a scope 3 data automation project to connect our scope 3 calculation model to our internal management systems and obtain activity data, for example procurement or production volumes on a real time basis. This allows us to improve both the accuracy of our scope 3 calculations by having a consistent methodology through which we obtain scope 3 data as well as the granularity of the data we obtain to support our strategy work, in particular where it comes to our engagement with suppliers.

## Aggregated overview of GHG emissions

| (Million metric tons of $CO_2e$) | 2020 | 2021 | 2022 | 2023 |
|---|---|---|---|---|
| **Scope 1 emissions** | 15.6 | 16.3 | 14.7 | 15.4 |
| **Scope 2 emissions (market-based)** | 7.6 | 7.6 | 7.4 | 7.0 |
| **Scope 2 emissions (location-based)** | 7.1 | 7.1 | 7.0 | 7.1 |
| **Total scope 1+2 GHG emissions (market-based)** | 23.2 | 23.9 | 22.1 | 22.3 |
| **Scope 3 emissions (target boundaries)** | 75.4 | 81.7 | 80.5 | 82.6 |
| **Upstream scope 3 emissions** | 31.6 | 35.0 | 33.1 | 34.3 |
| **Downstream scope 3 emissions** | 63.3 | 66.9 | 65.5 | 65.0 |

In line with SBTi target setting requirements, our scope 3 target includes emissions from at least two-thirds of our global scope 3 emissions. Emissions from our feedstocks and raw materials (category 1), our energy-related activities (category 3), our upstream transportation (category 4), use of our products (category 11), and our equity investments (category 15) are included in our target boundaries.

| GHG Intensity | 2020 | 2021 | 2022 | 2023 |
|---|---|---|---|---|
| **Metric tons of $CO_2e$ per ton of product** | 0.6 | 0.6 | 0.6 | 0.5 |

## Energy

| (Million gigajoules) | 2020 | 2021 | 2022 | 2023 |
|---|---|---|---|---|
| **Total energy consumption** | 383 | 415 | 382 | 380 |
| **Total electricity procured volumes** | 30 | 32 | 31 | 32 |
| **Total energy consumption from renewable sources** | 0.3 | 0.3 | 0.1 | 1.5 |
| **% of renewable electricity over total electricity procured** | 1.04% | 0.99% | 0.40% | 4.81% |

| Energy intensity | 2020 | 2021 | 2022 | 2023 |
|---|---|---|---|---|
| **Gigajoule per ton of product** | 9.9 | 10 | 9.5 | 9 |

Our energy data encompasses manufacturing sites, pipelines and large regional offices. Energy intensity for 2020 and 2021 was adjusted due to updated information from our suppliers.

## Breakdown of scope 3 emissions

| (Million metric tons of $CO_2e$) | 2020 | 2021 | 2022 | 2023 |
|---|---|---|---|---|
| **Category 1: Procured goods and services** | 27.0 | 30.0 | 27.9 | 29.7 |
| **Category 2: Capital goods** | 1.4 | 1.4 | 1.3 | 1.1 |
| **Category 3: Fuel and other energy related activities** | 2.0 | 2.3 | 2.6 | 2.4 |
| **Category 4: Upstream transportation** | 1.0 | 1.0 | 1.0 | 1.1 |
| **Category 5: Waste in operations** | 0.3 | 0.3 | 0.2 | 0.1 |
| **Category 6: Business travel** | 0 | 0 | 0 | 0 |
| **Category 7: Employee commuting** | 0 | 0 | 0 | 0 |
| **Category 9: Downstream transportation** | 0.6 | 0.5 | 0.6 | 0.6 |
| **Category 11: Use of sold products** | 43.0 | 45.6 | 46.7 | 47.4 |
| **Category 12: End of life of sold products** | 17.2 | 18.1 | 16.0 | 14.9 |
| **Category 15: Equity investments** | 2.5 | 2.7 | 2.2 | 2.1 |

We follow the recommendations set forth by the Taskforce for Climate-related Financial Disclosure (TCFD) and the GHG Protocol our climate-related disclosures.

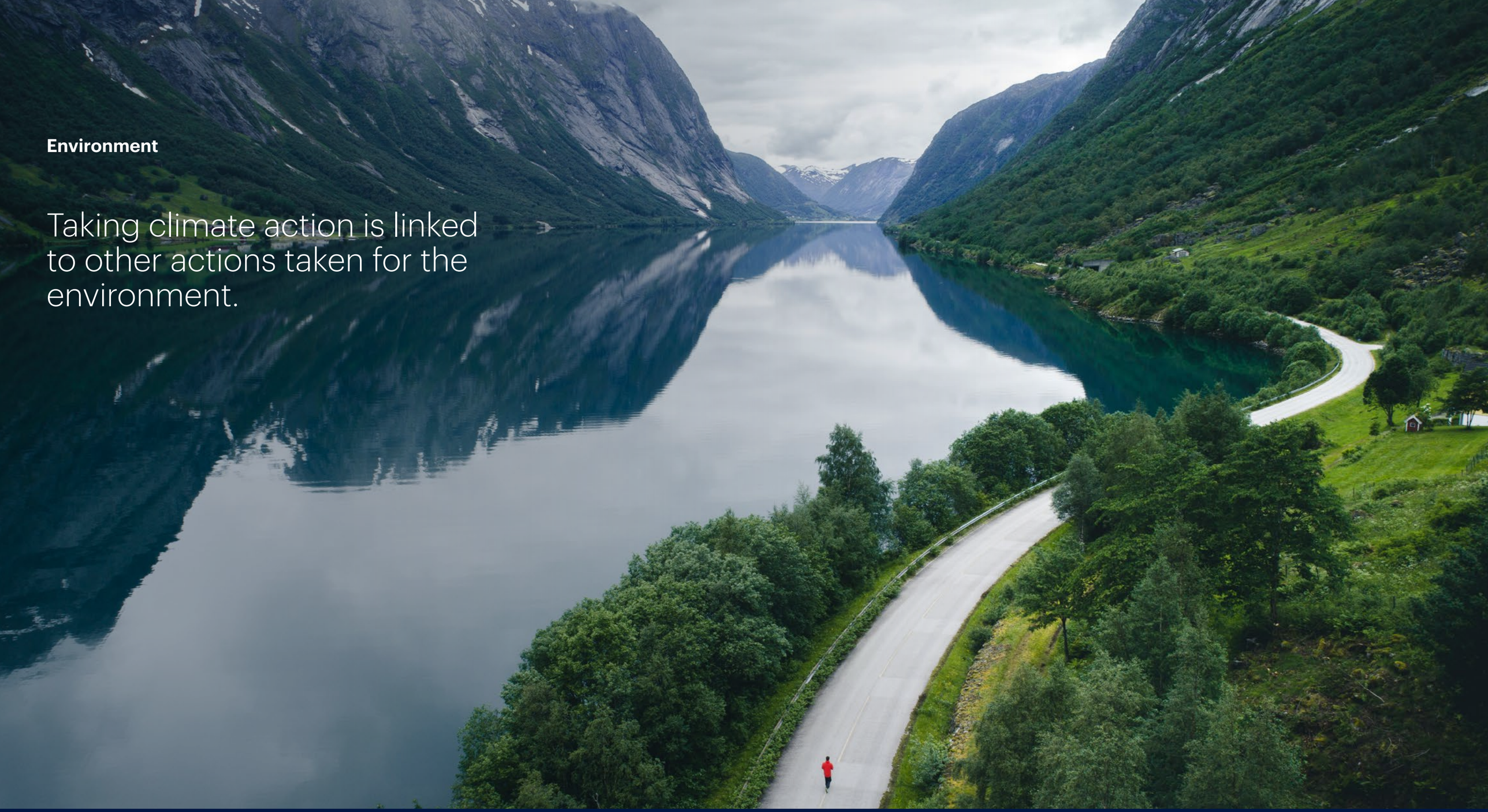
Scope 1: Direct emissions from sites operated by LYB
Scope 2: Indirect emissions from external electricity and steam suppliers
Scope 3: Other indirect emissions that occur in the value chain

Our 2020 to 2022 scope 3 data were adjusted following the implementation of a scope 3 data automation project, which resulted in adjustments in the activity data obtained from our internal management systems.

The company is committed to continuous improvement in reporting and strives to utilize applicable calculation methodologies and emissions factors that represent evolving expert analysis, information and assessment.

**Environment**

# Taking climate action is linked to other actions taken for the environment.



# Environment

We recognize our operations impact the environment and we play an important role when we act as good stewards and responsibly manage our environmental footprint. Taking climate action is linked to other actions taken for the environment.

We are focused on operating safely and responsibly while improving resource efficiency and reducing the environmental footprint of our operations and products.

## Our approach

We advanced our environmental strategy in 2023 by aligning with the UN CEO Water Mandate, adopting a water risk management approach, targeting our largest sites and those in high water stress regions, and initiating biodiversity impact assessments to understand our biodiversity risks and activities to improve biodiversity management. Our approach to the environment encompasses four key areas: Air and water quality, water use and availability, material reuse and waste, and biodiversity and ecosystem services.

### Focus areas

**Air and water quality**

Clean air and uncontaminated water are critical resources for people and support functioning ecosystems. We are committed to promoting pollution prevention and reducing emissions, including emissions of greenhouse gases, and emissions to air, water and soil.

**Water use and availability**

We recognize water is a shared resource and water availability is a critical issue. Water is an essential resource for our operations and we are committed to responsibly managing sourcing, consumption, and dependency on water.

**Biodiversity and ecosystem services**

Biodiversity is the variety of all living things and thriving biodiversity is essential to support healthy ecosystems. Healthy ecosystems are necessary to provide essentials such as the food, water, and medicines we rely on, and to support a healthy climate. We are working to improve our understanding and management of impacts to biodiversity and ecosystem services.

**Material reuse and waste**

Managing waste requires safe, responsible, and effective handling, transportation, and disposal. This includes reducing waste generation by identifying opportunities to repurpose waste into a resource, recycle, and avoid and manage spills or releases of hazardous substances to the environment.

## We use a variety of standards and frameworks to inform our approach

**GoalZERO**

Our commitment to operating safely includes a target of zero environmental incidents. Our GoalZERO environmental approach helps ensure compliance with applicable environmental laws, and requires reporting and investigating incidents to prevent recurrence. Our program also includes a target of zero loss of polymeric solids from our operations. refer to GoalZERO on pages 51-52.

**Operational Excellence**

Operational Excellence includes our environmental management system. This management system sets out clear requirements for how we work, and applies to our employees and contractors. Refer to Operational Excellence on page 58.

**ISO 14001**

Most of our sites in Europe, Asia and Latin America are ISO 14001:2015 certified. Most other sites that are not ISO 14001:2015 certified adhere to Responsible Care® requirements. For a comprehensive list of certifications, refer to Quality Systems on our website at www.lyb.com.

**Responsible Care®**

We are committed to the global chemical industry's voluntary initiative to drive continuous improvement including for environmental performance. Refer to Responsible Care on page 58.

**United Nations Global Compact (UNGC)**

As a member of UNGC we aim to incorporate the Ten Principles into our strategies, policies and procedures. This includes taking a precautionary approach to environmental challenges, and undertaking initiatives to promote greater environmental responsibility and encouraging the development and diffusion of environmentally friendly technologies (Principles 7, 8 and 9).

**United Nations CEO Water Mandate**

In 2023, we committed to the UN CEO Water Mandate which drives continual progress for our water stewardship practice across the areas of direct operations, supply chain and watershed management, collective action, community engagement, policy and strategy, and transparency.

# Air and water quality

We install, monitor, and maintain pollution controls, as part of our obligations to manage our air emissions and wastewater discharges.

We incorporate applicable product safety data to inform our management of materials in ways that limit air emissions and wastewater discharges. Our sites must comply with local regulatory requirements regarding emissions and discharges, and apply the level of monitoring and treatment necessary to reliably meet those requirements. Air treatment includes filtering, destruction, phase separation, and other techniques. Our wastewaters are treated by one or more biological, physical, or chemical treatment methods (tertiary, secondary, or primary) before being discharged. Alternatively, wastewater discharges are sent directly to a treatment works facility for treatment. Potential pollutants are identified and evaluated at the site level.

Our air emissions data is shown in the chart that follows, including total emissions and emissions per metric tons of product.

We measure and monitor withdrawn water quality as required by local regulations for potable and hygiene-related water supply. We confirm water supplies delivered from municipalities or other third-party suppliers are monitored for quality before distribution to our sites. We require sites to confirm annually that appropriate monitoring is being conducted in order to ensure these water supplies are acceptable for use.

At the enterprise level we track which sites monitor for the following discharge wastewater quality parameters: Flow, temperature, pH, total suspended solids, biological oxygen demand, chemical oxygen demand, nitrates, and phosphates. We also require that sites report whether they monitor for other common parameters such as metals.

We monitor specific water quality targets for cooling water and steam generation, and track and report at the enterprise level on these parameters using our Global Water Quality Dashboard (GWQD). While this tool was developed for reliability and efficiency purposes, it also enables us to track quality parameters for appropriate water use in these systems. In 2023 we achieved the related target for water use efficiency when the relevant sites maintained an overall rate of 90% in-specification for tested water quality.

We also set sanitation-based water quality standards for Legionella in our potable water systems and open evaporative cooling towers for relevant sites globally. Exceptions are reported in our incident reporting system, and require corrective actions.

# Air emissions

We achieved a 12% reduction in SOx emissions due to successful improvement projects at our Münchsmünster site in Germany, which began using low sulfur naphthalene in mid-2023.

**Nitrogen oxides (NOx)**
NOx are by-products of combustion generated while using fuels to produce heat, steam or electricity. Boilers and furnaces in our chemical and refining operations are the source of most of our NOx emissions.

**Sulfur oxides (SOx)**
In our operations, SOx emissions come from the use of fuel containing small amounts of sulfur, and from the process of removing sulfur from fuel products at our Houston, Texas, refinery.

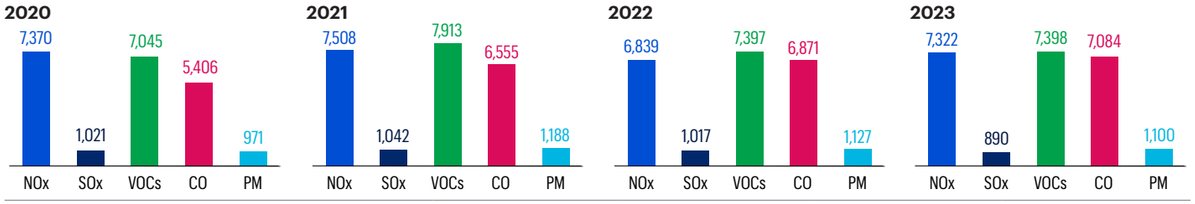
**Volatile organic compounds (VOCs)**
VOCs are associated with the chemicals and fuels we handle and produce and are released into the atmosphere during chemical and fuel handling, storage, and production. VOCs can be released from point sources or through fugitive emissions from pump seals, valves and other equipment. We have extensive programs in place to identify and repair leaks, including using infrared camera technology.

**Carbon monoxide (CO)**
CO is produced when fuels are used to produce heat, steam or electricity. The majority of our CO emissions come from the use of natural gas at our chemical and refining operations.

**Particulate matter (PM)**
PM refers to small airborne particulates emitted during operations, primarily from cooling towers and the use of fuel.

**Ozone-depleting substances (ODS)**
We measure and report ODS as kg of CFC-11 equivalent and use emission factors as stipulated in the Montreal Protocol. Sources for LYB typically are maintenance refills and replacements of substances authorized for use in heating ventilating and air conditioning (HVAC) units.

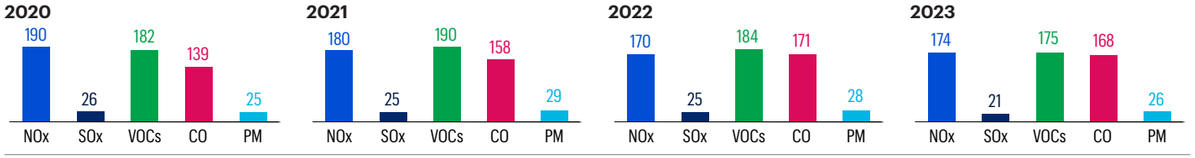
**Air emissions**
(metric tons)




In 2023, some adjustments to past reportable values have been made based on internal data validation processes progressed in this reporting period.

Smaller variances in our 2023 emissions data are largely due to overall production, typically due to planned turnarounds at large sites during 2022 and 2023.

**Air emissions intensity**
(metric tons per million metric tons of product)




Air emissions intensity for 2020 and 2021 was adjusted due to updated information from our suppliers. In 2023, some adjustments to past reportable values have been made based on internal data validation processes progressed in this reporting period.

Smaller variances in our 2023 emissions data are largely due to overall production, typically due to planned turnarounds at large sites during 2022 and 2023.

# Water use and availability

Water is an essential resource for our sites. We use water in operations (primarily cooling towers and steam production) and water for drinking and sanitary use at our sites and offices.

We committed to completing water risk management plans at our large sites and facilities in high water risk areas no later than 2030. We will prioritize completing the site-specific plans for high water risk sites and preparing the plans in a sequenced way to allow learnings to be applied for subsequent plans. We also will evolve our water-related risk management processes in the next two years for use in the creation of the prioritized and sequenced site-specific plans. Additionally, we signed the UN CEO Water Mandate, which commits us to continuous improvement in water stewardship.

We collect data and track trends for water withdrawal, water discharge by destination and primary water uses. We also track recycled or reused water.

Water reuse is integral to operations in most of our manufacturing sites. We recycle our supply of water, when possible, to limit the amount we draw from regional supplies. Approximately half of the water we withdraw comes from surface water. Some of our sites use sea water for cooling. We use a small amount of potable water and source a small amount of recycled water from some industrial providers located close to our manufacturing sites. We track the number of cooling water cycles, representing the number of times water is reused in these systems, at our large sites.

We refreshed our baseline water risk assessments in 2023, using the World Resources Institute Aqueduct™ Tool (Aqueduct™), version 3.0. Aqueduct™ which rates geographic locations worldwide on a scale from low to extremely high overall water risk based on watershed data related to water quantity stress, quality and regional factors. The map that follows shows our sites located in areas listed as high or extremely high water risk from Aqueduct™. Our sites located in extremely high or high water risk areas of the world comprised less than 0.06% of our estimated total water consumption.

We track site-level instances of reductions in water use at the enterprise level, including at our sites in extremely high water risk regions, as a component of water stewardship. For example, at our Vadodara India site, a resource conservation team meets regularly to identify resource savings opportunities. In 2023, the team implemented a project to combine the facility's water into a single system, which is expected to reduce water consumption and associated chemical treatment quantities. In 2023, we achieved our water use efficiency target at the relevant sites where we track cooling tower system cycles. This target is set for reliability and cost efficiency; however, it does impact the efficient use of water.

Our overall water withdrawals, use, and discharge remained similar to past years. The variation between years can be attributed to normal fluctuations in global production. The start-up of our Channelview site's PO/TBA unit increased demand for water at that site, as expected, offset partially by other site water withdrawal reductions.

Outside our operations, water is important for producing our purchased products. Much of the water use is from extraction or processing of raw materials and further processing of materials into final products. We included as part of a new questionnaire to key feedstock suppliers questions to assess their water and biodiversity management ambitions and commitments. We will use their answers along with their EcoVadis water and biodiversity-related responses to assess their progress and further engage to encourage and influence continuous improvement.

At times, we undertake large asset replacements which involve water-related spending. For example, we refurbished two large cooling towers at our Channelview Complex, which increased water use efficiency. We also engage our suppliers to promote and help execute water reliability improvements, as part of our service agreements. Due to this direct engagement, one of our suppliers recently installed a control system resulting in greater water efficiency.

We participated in the CDP Water Security questionnaire for the second time in 2023 and received a score of B-. The full report can be found on our website at www.lyb.com. As part of this effort, we completed a third party limited assurance audit of the following global water data: Our total amount withdrawn, discharged, and consumed.

In the future, water use can be expected to become more important for regions in which LYB operates that are high water risk or considered vulnerable to water use restrictions. We aim to assess these risks further within the next two years.

## Tarragona, Spain

LYB is a member of an industry consortium to process wastewater to meet strict wastewater emission standards. The project was conceived in 2017 and started up in 2022. The project has allowed the consortium sites to achieve the required higher water quality of the combined discharge with better efficiencies and reliability. The consortium is now considering modifications that would recycle the treated water for use by the industry members in their operations.

| Water (million m³) | 2020 | 2021 | 2022 | 2023 |
|---|---|---|---|---|
| **Withdrawals** | | | | |
| Fresh surface water | 129.4 | 144.9 | 138.5 | 148.2 |
| Groundwater | 23.3 | 24.3 | 23.2 | 22.8 |
| Third-party water | 29.4 | 58.8 | 65.3 | 63.8 |
| Seawater / brackish water | 40.4 | 41.5 | 44.4 | 43.1 |
| Other water | 27.0 | 1.2 | 1.1 | 1.1 |
| Total | **249.5** | **270.7** | **272.5** | **279.0** |

In 2021, adjustments to reportable water withdrawal quantities were made to align with GRI 303 Water and Effluents 2018. In 2023, some adjustments to past reportable values have been made based on internal data validation processes progressed in this reporting period.

| Water (million m³) | 2020 | 2021 | 2022 | 2023 |
|---|---|---|---|---|
| **Discharge** | | | | |
| Fresh surface water | 40.0 | 38.7 | 38.0 | 37.8 |
| Groundwater | 0.0 | 0.1 | 0.1 | 0.1 |
| Third-party water | 18.8 | 19.5 | 19.9 | 22.3 |
| Seawater / brackish water | 44.4 | 52.5 | 54.3 | 52.8 |
| Other water | 51.0 | 54.2 | 48.9 | 50.6 |
| Total | **154.2** | **165.0** | **161.2** | **163.6** |

In 2021, adjustments to reportable water discharge quantities were made to align with GRI 303 Water and Effluents 2018. In 2023, some adjustments to past reportable values have been made based on internal data validation processes progressed in this reporting period.

| | | | | |
|---|---|---|---|---|
| **Consumption** | | | | |
| **Total** | 95.2 | 105.7 | 111.4 | 115.5 |
| **Of which are evaporated losses** | 75.1 | 80.5 | 86.1 | 91.2 |

In 2021, adjustments to reportable water consumption quantities were made to align with GRI 303 Water and Effluents 2018.

# Biodiversity and ecosystem services

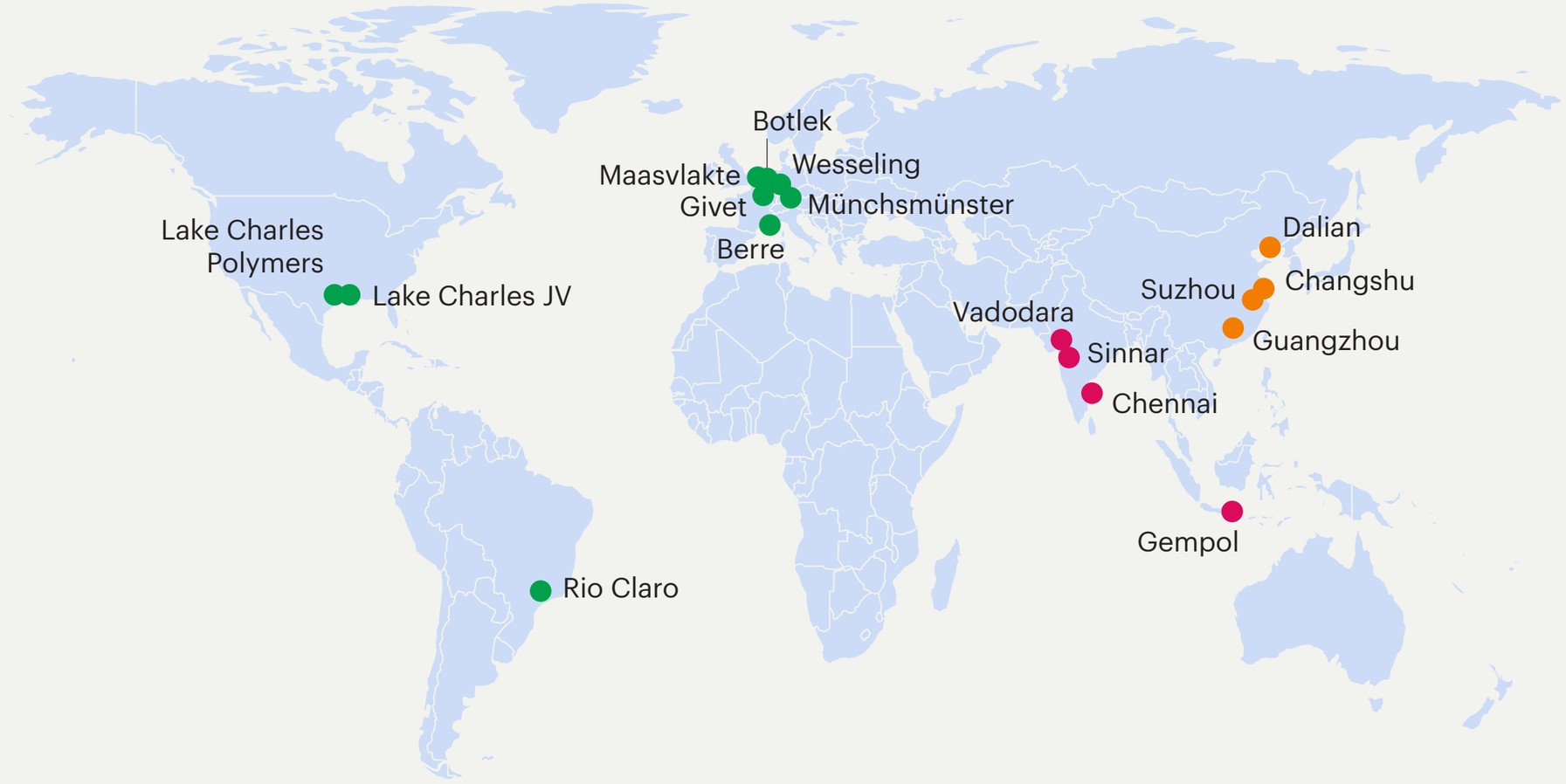
We have progressed in the development of our biodiversity ambition, commitments, and strategy. In 2022, we completed an assessment of our major manufacturing operations, large offices and significant upstream and downstream value chain activities from a biodiversity perspective. As a result of this assessment, we identified the direct operations sites shown in the map that follows, our fossil fuel based feedstocks, and our propylene products as our areas of focus. Our priority operational sites were selected based on proximity to protected areas or key biodiversity areas.

In 2023, we selected two of our priority sites to complete a baseline biodiversity assessment. The baseline assessment is complete, and will be supplemented by a follow-up in 2024. We plan to expand the program, based on learnings, at other priority sites.

For our value chain, we seek to understand key biodiversity risk locations and activities, including locations at or near key biodiversity areas, and any forest-related risk commodities, such as palm oil, soy, and tallow. We sent a questionnaire to key feedstock suppliers including questions to assess biodiversity management ambitions and commitments.

In 2023, we completed our first CDP Forest questionnaire and believe we have limited use of forest risk commodities. We expect to reach out to suppliers to better understand their products that could contain forest risk commodities. Although we estimate consumption of these products relative to our overall procurement to be low, we are working to complete a comprehensive data assessment.

# Water risk and key biodiversity areas




Extremely high water risk · High overall water risk · Biodiversity priority sites

The map shows extremely high and high water risk sites identified in a baseline water risk assessment of our manufacturing sites conducted in 2023, using the World Resources Institute Aqueduct™ Tool version 3.0. The tool rates geographic locations on a scale from low to extremely high overall water risk based on watershed data related to water quantity stress, quality and regional factors. Also shown, priority sites based on the outcome of an initial biodiversity assessment completed in 2022, identifying sites near protected areas or key biodiversity areas.

# Material reuse and waste

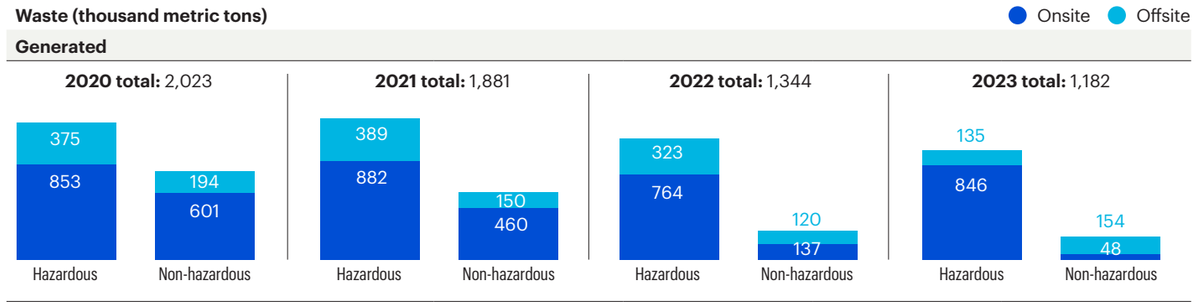
We pursue opportunities to avoid generating waste, and to reuse material in our operations. Most of the waste we produce is dilute liquid aqueous waste from chemical plant operations. Our operations also produce non-hazardous solid waste including general plant trash and construction and demolition debris. Waste is managed in accordance with applicable regulations. Our Health, Safety, Environment and Security (HSE&S) Policy includes our commitment to promote a comprehensive approach to chemical management and sustainability in all aspects of our products' life cycles, including design, manufacturing, distribution, use, recycle and disposal activities, and to reduce waste generation from our operations.

Our responsibilities for waste management include assuring proper containerizing, labeling, tracking, and documentation. We work with transportation companies that meet strict contracting requirements for safe, effective, and documented delivery of waste to the approved destination. We have a process in place to evaluate and approve waste management facilities. Our Operational Excellence program specifies that sites are required to send hazardous waste to these pre-approved facilities.

At the enterprise level we track the waste and recycling data provided in the tables that follow. Our overall waste generation continues to decrease, with a 12% overall reduction since 2022, primarily due to the Circular Steam Project at our Maasvlakte site in the Netherlands and the shutdown of operations in Tuscola, Illinois. With the Circular Steam Project, the site and joint venture partner Covestro incorporated an innovative technology into the existing production plant to convert its water-based waste into energy. The new installation takes the site's existing production process to a higher level of efficiency and sustainability. In 2023, the site was able to reduce caustic waste by 120,000 metric tons, and other waste fuels by 48,000 metric tons. The successful operation of this technology has reduced our overall hazardous waste generation by 10%.

Material diverted from disposal increased by 47% from 2022. This increase means less waste being directed to disposal. In several instances, our sites pursued additional recycling, reuse, or recovery options for material that would otherwise be disposed as non-hazardous waste.

**Waste (thousand metric tons)**




In 2023, some adjustments to past reported values have been made based on internal data validation processes progressed in this reporting period.

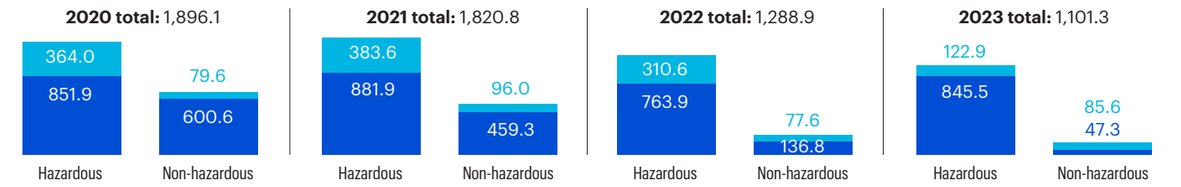
## Kerpen, Germany

At our Kerpen facility, we launched a project with the aim of eliminating a waste stream of approximately 500 tons per year by repurposing the material to commercial products. The waste was generated during production line cleaning and was difficult to recycle or reuse due to the variety of products including some with glass fiber content, produced at the facility. The project involved additional steps to segregate, store, and package the material into viable product groupings. In 2023, the project successfully concluded with the separated streams now approved for use as raw material in re-granulated commercial products.

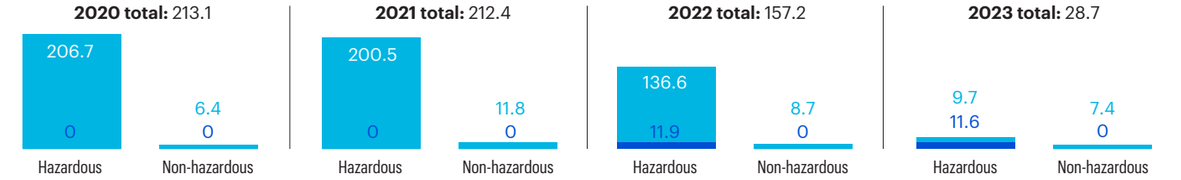
Proceeds from our Green Bond were allocated to the Circular Steam Project

**Waste (thousand metric tons)** — Onsite / Offsite

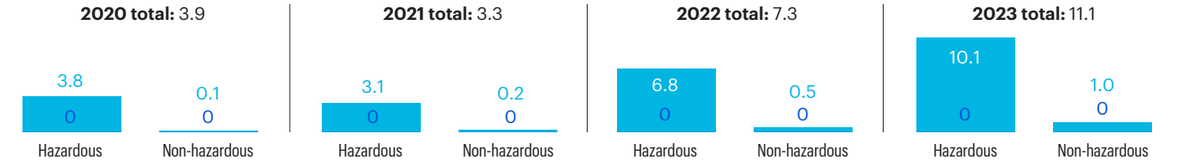
### Directed to disposal



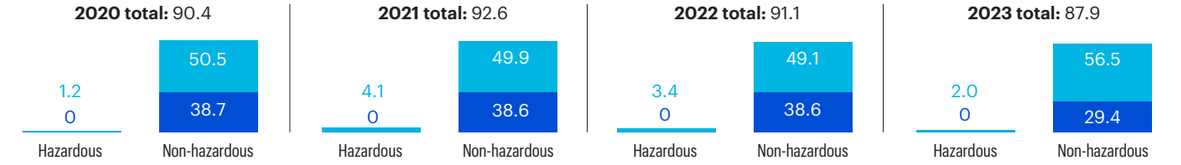

### Incineration (with energy recovery)



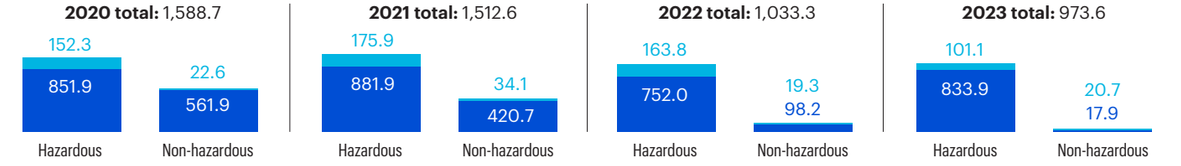

### Incineration (without energy recovery)




### Landfilling



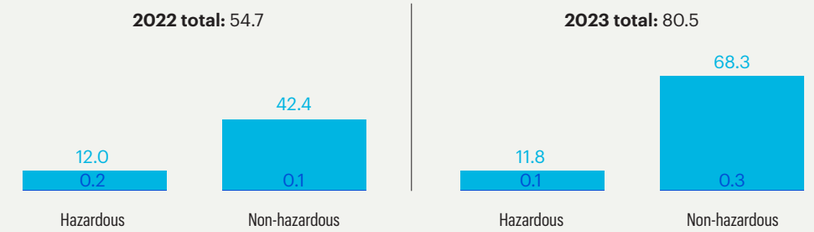

### Other



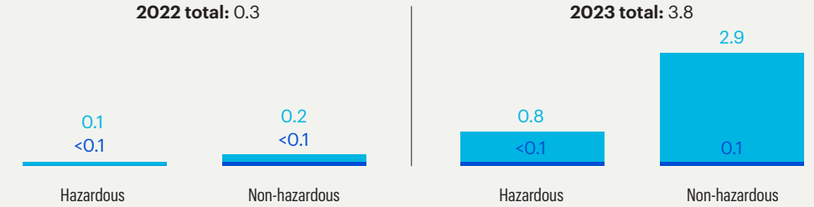

In 2022, to align with GRI 306 Waste 2000, certain waste streams originally reported as "land disposal" are now reported in the "other" category and have been restated for prior years. Some adjustments to past reported values have been made based on internal data validation processes progressed in this reporting period.

**Waste (thousand metric tons)** — Onsite / Offsite

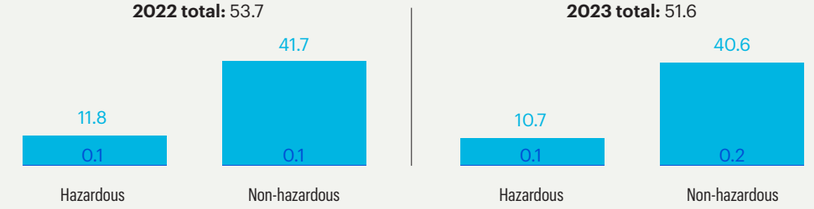
### Diverted from disposal



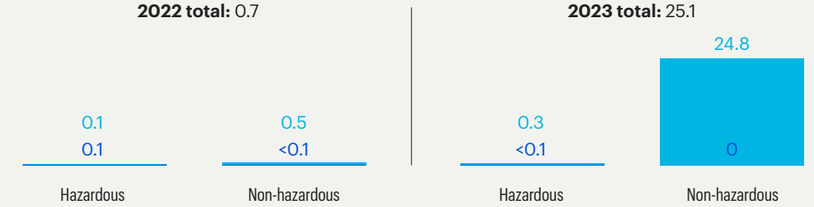

### Preparation for reuse




### Recycling




### Other recovery operations



# Environmental compliance and performance

We classify environmental incidents on a scale from 0 to 5, with Level 5 having the highest impact. We report Level 2+ environmental incidents, indicating a failure to meet a policy, standard, or applicable law due to an unplanned release or discharge into the environment. Any releases that cannot be immediately mitigated are managed with support from HSE professionals who direct the mitigation efforts, monitor conditions, and interact with appropriate local authorities. We also develop action plans and share learnings throughout the organization to prevent future incidents.

Although we work hard to ensure compliance, sometimes incidents can occur. Most of our Level 2+ environmental incidents in 2023 were in the Houston region, with over 30 occurring during new unit startup at our PO/TBA site. Our emphasis on reliability and process safety improvements will positively impact our environmental compliance performance as will our commitment to environmental performance improvement. Environmental-related penalties are provided in the table below:

| | 2020 | 2021 | 2022 | 2023 |
|---|---|---|---|---|
| **L2+ incidents** | | | | |
| **Number of L2+ incidents** | 76 | 73 | 93 | 134 |
| **Fines and penalties paid ($)** | 280,615 | 404,594 | 3,990,868 | 3,808,132 |

Environmental Incident is defined as an incident resulting in a release or discharge, from a permitted or authorized emission or discharge point, in excess of a permitted or otherwise authorized level that is typically required to be reported to a regulatory or governing body. Data presented reflects the most current data available. Data entered for prior years may be updated in subsequent reports if additional information becomes available. Most of our environmental incidents in 2023 were associated with regulatory jurisdictions in the Houston region, with over 30 occurring during new unit startup at our PO/TBA site.

# Supporting a thriving society

# Supporting a thriving society

We actively contribute to a thriving society through community engagement and our relentless pursuit of safety, operational excellence, and a diverse, inclusive and equitable workforce. We partner with the communities where we operate to make positive impacts, and are committed to giving back by partnering with local organizations on initiatives to address critical needs.

## Our goals

- Operate safely every day and with zero incidents, zero injuries and zero accidents
- Achieve gender parity in senior leadership globally by 2032
- Achieve general population ratio of people from underrepresented groups in U.S. senior leadership by 2032
- Assess a minimum of 70% of our key suppliers globally using sustainability criteria by 2025

## Our approach

- Keep our employees, contractors, customers and neighbors safe
- Advance our diversity, equity and inclusion (DEI) strategy consistent with equal opportunity for all and seek to embed DEI in our process, systems and culture
- Invest in programs and support policies that strengthen our communities, our planet and tomorrow's workforce
- Collaborate for meaningful impact and accelerate our progress and learning from others

## Our goal

# Operate safely every day and with zero incidents, zero injuries and zero accidents

The health and safety of our people and the communities where we operate are our top priorities. We champion people and our health, safety and environmental standards apply to everyone involved in our business, including employees, contractors and suppliers performing work at our sites.

LYB facilities are among the safest in our industry, with consistent top decile safety performance compared with other large and medium-sized companies belonging to the American Chemistry Council.

We closely monitor safety risks, thoroughly investigate HSE incidents and near misses, and take corrective action to prevent recurrence. We prioritize recognizing and mitigating potential hazards in the workplace to prevent incidents and injuries before they happen. We conduct risk assessments for potentially hazardous work. These assessments range from safety checklists to formal job hazard analyses, as appropriate.

## GoalZERO

GoalZERO is our commitment to operating safely with zero injuries and zero process safety, product safety and environmental incidents. Our GoalZERO environmental approach has both mandatory and voluntary components. We cultivate a GoalZERO mindset with clear standards, regular communication, training, targeted campaigns and events, including our annual Global Safety Day where all employees devote one day to enhance their learning about HSE at work and at home.

HSE indicators are monitored continuously using a performance dashboard. Every manufacturing site sets goals to improve process safety and occupational safety and reduce environmental incidents.

Our commitment to GoalZERO is championed at every level of the company and is overseen by the Health, Safety, Environmental and Sustainability Committee of our Board. Excellent safety culture starts at the top with senior leaders, including the CEO. Managers at each manufacturing site meet regularly to review safety performance and discuss issues relevant to their plant. HSE awareness teams evaluate incidents and find ways to prevent them in the future. Group meetings at offices and sites typically start with a safety message.

We are extremely proud of our safety performance in 2023. Our Total Recordable Incident Rate (TRIR) was 0.139. A total of 60 manufacturing sites achieved GoalZERO, and 67 manufacturing sites were injury-free. Additionally, 21 manufacturing sites achieved more than one million safe work hours.

A total of 97 locations reached at least one year without a recordable injury. Noteworthy examples in the U.S. include our Texas sites in Channelview (over six million hours) and La Porte (five million hours), along with our Houston Refinery (four million hours). In the Netherlands, the Botlek and Maasvlakte sites each reached four million hours without an incident. Our Louisiana Integrated PolyEthylene Joint Venture has gone five million hours without a recordable injury, and our Global Projects team which develops and executes major capital projects at our manufacturing sites achieved six million safe work hours.

## Occupational health services

Medical surveillance, an analysis of workforce health information, is designed to detect potential workplace hazards before health effects can occur. We provide targeted comprehensive medical monitoring services to assess employees potentially exposed to occupational hazards. Employees have access to medical surveillance monitoring and other occupational health services at on-site clinics during paid worktime at 16 of our large sites, such as in Wesseling, Germany; Berre, France; Ferrara, Italy; and Channelview, Texas. In 2023, in order to provide improved and more comprehensive non-occupational medical services, most of the contracted medical personnel in the United States were hired as LYB employees. Information on occupational health services is provided globally through the new hire onboarding process and offered in various languages dependent on the site location.

## Worker participation, consultation and communication on occupational health and safety

Many of our offices and sites have health and safety committees that help drive our GoalZERO culture. They provide a representative forum to communicate, encourage and increase employee involvement in identifying and resolving health, safety and environmental concerns. Committees typically meet on a monthly or bimonthly basis and rotate members for continuous improvement and continuity. Members participate in identification of hazards, assessment of risks, investigation of incidents, implementation of corrective measures and audits.

## Worker training on occupational health and safety

LYB provides health and safety training to workers. Training differs between locations according to the role and tasks of each worker. Best practices and targeted discussions of opportunities to demonstrate safe behaviors are typically shared before each meeting to reinforce the value of safety. All employees have access to SOURCES, a centralized health and safety resource on our intranet site. SOURCES offers training presentations, best practices, reference materials and a variety of other tools to educate employees about health and safety at work.

## Promotion of worker health

Employees receive a wide variety of health benefits based on geographic location, applicable local and national law, and labor or works council agreements. Full-time employees at our major offices and manufacturing sites receive competitive benefits which may include, depending on location, basic health and welfare benefits such as medical coverage, life and accident insurance, business travel accident insurance, and disability protection. To further promote total worker well-being, many of our large U.S. sites provide additional non-occupational care to address worker mental health and chronic disease management. Counseling for personal and work-related concerns is available in many regions.

## Foundation of GoalZERO

**People**
We put people at the heart of everything we do. Ensuring that people make it back home to the people that matter to them is a priority

**Excellence**
GoalZERO success requires commitment and engagement from each of us

We work safely and do our best because it is the right thing to do

**Future**
We are future-focused by making responsible, safe decisions

| Worker safety | | 2020 | 2021 | 2022 | 2023 |
|---|---|---|---|---|---|
| **Employees** | | | | | |
| **Fatalities as a result of work-related injuries** | number | 0 | 0 | 0 | 0 |
| | rate | 0 | 0 | 0 | 0 |
| **High-consequence work-related injuries** | number | 0 | 2 | 1 | 1 |
| | rate | 0 | 0.010 | 0.005 | 0.005 |
| **Recordable work-related injuries** | number | 33 | 34 | 32 | 27 |
| | rate | 0.179 | 0.174 | 0.163 | 0.139 |
| **Number of hours worked** | | 36,920,000 | 39,276,500 | 39,128,500 | 38,956,092 |
| | | | | | |
| **Contractors** | | | | | |
| **Fatalities as a result of work-related injuries** | number | 0 | 2 | 0 | 0 |
| | rate | 0 | 0.01 | 0 | 0 |
| **High-consequence work-related injuries** | number | 0 | 3 | 2 | 0 |
| | rate | 0 | 0.016 | 0.011 | 0 |
| **Recordable work-related injuries** | number | 31 | 46 | 14 | 21 |
| | rate | 0.216 | 0.252 | 0.077 | 0.140 |
| **Number of hours worked** | | 28,710,000 | 36,601,000 | 36,362,000 | 30,010,833 |
| | | | | | |
| **Combined workforce** | | | | | |
| **Total recordable injury rate** | | 0.195 | 0.211 | 0.122 | 0.139 |
| **American Chemistry Council industry average** | | 0.65 | 0.69 | 0.74 | -- |

Rates are calculated on the basis of 200,000 hours worked. High consequence injuries are LyondellBasell's Level 3 injuries (hospitalization required) and do not include fatalities. Recordable Injury counts and Recordable Injury rate include all injuries and fatalities. American Chemistry Council data can be found at www.americanchemistry.com.

## Process safety

Our process safety program establishes how we design, operate and maintain our manufacturing processes to prevent or mitigate the unplanned or uncontrolled release of process material.

This program aims to prevent serious incidents and protect our workforce, local communities, and the environment. We have clear standards for identifying and managing process safety risks within our Operational Excellence system. Regular turnarounds — during which we shut down plants and carry out essential maintenance, upgrades and safety checks — are a key part of our safety program.

In 2023, we continued to enhance our incident investigation processes to better identify and correct systemic drivers for incidents where human error was involved. We prioritized investing in our people and talent along with continuing to train our operations and maintenance employees on fundamental process safety principles. The training reinforced expectations for frequent tasks such as returning equipment to service, opening process equipment, energy isolation and loading and unloading materials from containers. We completed Human Reliability Task Analyses on certain tasks where human error could result in significant consequences. The analyses identified steps where employee error mitigation techniques could be used to minimize the potential for human error.

| Process safety | 2020 | 2021 | 2022 | 2023 |
|---|---|---|---|---|
| **Process safety incidents count (PSIC)** | 10 | 10 | 10 | 12 |
| **Process safety total incident rate (PSTIR)** | 0.030 | 0.026 | 0.026 | 0.035 |
| **Process safety incident severity rate (PSISR)** | 0.082 | 0.211 | 0.055 | 0.046 |

The table represents the number of Tier 1 process safety incidents per 200,000 hours worked. Tier 1 process safety events are classified as Level 3+ events by LYB. Level 3+ events include loss of primary containment (LOPC) resulting in either (1) an employee or contractor "days away from work" injury and/or fatality; (2) a hospital admission and/or fatality of a third party; (3) an officially declared community evacuation or community shelter-in-place, including precautionary community evacuation or community shelter-in-place; (4) a fire or explosion damage with a direct cost greater than or equal to $100,000; (5) an engineered pressure relief device discharge to atmosphere whether directly or via a downstream destructive device greater than or equal to a Level 3 threshold, within any 60 minute time period, with negative effects; (6) an upset emission from a permitted or regulated source greater than or equal to a Level 3 threshold, within any 60 minute time period, with negative effects; or (7) an unignited release of material greater than or equal to a Level 3 threshold, within any 60 minute time period. Definition and weighting of Tier 1 PSI per ANSI/API RP 754 3rd Edition were applied beginning in 2021. The 3rd edition update includes the reclassification of materials, clarification of definitions, expansion of data collection capabilities and other key changes. Rates for 2020 were calculated using the 2nd edition of ANSI/API RP 754.

# Emergency preparation and response

We prepare and drill routinely to be ready to take immediate action in the unfortunate event of an incident, continuously evaluating risks and maintaining detailed emergency response plans. LYB manufacturing sites maintain their own emergency response teams, including groups trained to respond swiftly to medical incidents, fires, or releases of hazardous materials. Team members are trained on the proper procedures to follow in the event of an emergency. These procedures are tested at regular drills. We also coordinate preparation and planning with local government agencies and emergency responders, and we are affiliated with mutual support organizations whereby we assist other industrial facilities.

LYB maintains severe weather preparedness and response plans for all of our locations. We utilize the platform StormGeo to ensure we have insight into any weather event that may impact our people. For example, our teams at manufacturing sites located in the U.S. Gulf Coast are well-trained for hurricane season and routinely drill for what to expect and how to prepare. Our detailed storm preparedness procedures include:

- Testing power generators, communication systems and other equipment which would be used during the storm
- Moving and/or anchoring potential projectile objects
- Placing sandbags to help protect low-lying and critical areas, such as control rooms and substations
- Removing debris from ditches and tank berms
- Maintaining contact with local emergency response and mutual aid agencies

In the event a facility shutdown is required, we conduct a thorough assessment and inspection, including a systematic review of all structures, equipment and operating systems. We also communicate this information to our local officials and community neighbors.

## Channelview reaches 6.96 million safe working hours

One of our values at LYB is championing people. Ensuring that our people remain safe and return home the way they came to work is our top priority. Our Channelview site in Texas reached 6.96 million safe working hours in 2023. Channelview prioritized increase in procedure audits and behavior-based observations at the site. Focusing on Human and Organizational Performance principles enabled the site to identify improvements and adjustments to prevent incidents in the future. A milestone like this does not happen without meticulous preparation and a dedication from all employees and contractors.

## Contractor CEO Safety Conference focuses on effective communications

LYB supports the safety and well-being of our colleagues and communities by maintaining leading safety performance. That is why we are committed to collaborating with our contractors including at our annual Contractor CEO Safety Conference hosted in Houston, Texas. The theme for 2023 was "Communication is Key." This event shared best practices in the industry and took a deep dive into the variations of communication practices amongst the different generations in our workforce. A highlight of this event was the Bright Star awards presentation, where contractor companies with zero recordable injuries in 2022 were recognized and celebrated.

## LYB executive featured at global process safety conference

Chris Tagoe, Senior Vice President, Health, Safety & Environment was invited by the American Institute of Chemical Engineers, to present the keynote address at the American Institution of Chemical Engineers 19th Global Congress on Process Safety Conference in Houston, Texas. The event was attended by more than 2,200 chemical and process safety engineers from over 600 petrochemical companies from around the world. Tagoe discussed the importance of having basic and complex safety process management tools, the criticality of knowledge and experience transfer given the generational shift occurring in our industry, and the importance of capitalizing on diversity and inclusion to engage the best new talent.

## Emergency Response Team takes action

It is important to take the necessary steps to be prepared in case of an emergency. At LYB, we ensure that employees and contractors have access to CPR, Heimlich and AED training. In 2023, we recognized a group of LYB employees for their bravery and commitment to people. Four employees at our Morris site helped save the life of a colleague who suffered a personal medical emergency. The Emergency Response Team (ERT) quickly responded and provided medical aid to their colleague. LYB employees are making a life-saving difference while at work. The ERT team credited their comprehensive training for being able to make a lifesaving difference.

# Product safety and stewardship

We are committed to promoting a comprehensive approach to chemicals management and sustainability in all aspects of our products' life cycles, including design, manufacturing, distribution, use, recycling and disposal activities.

This commitment is implemented globally as a key pillar of our HSE&S Policy through our well-established Product Stewardship Standard. This standard requires risk identification, assessment and mitigation across the product life cycle, including raw material sourcing, product development, manufacture, distribution, use, recycling and disposal of all products we produce.

Our product stewardship risk management process begins with a cross-functional team evaluating and classifying each product or product group according to the level of risk to human health and the environment. For each risk category, specific product risks across life cycle and associated mitigation measures are identified and reviewed on an annual basis. Mitigating actions and any safety gaps are shared on a global level to facilitate learning and exchange best practices. This program is rigorously applied worldwide for all LYB products.

As part of the risk management process, we also regularly monitor product end-use applications to anticipate any potential health and safety risks. We review the human health and environmental risks associated with existing and emerging applications in our polymer and chemicals business and seek opportunities for continuous improvement.

To ensure continuous improvement, several internal training and engagement sessions are conducted on a regular basis (six to seven times per year) involving cross-functional teams. These trainings cover a broad range of topics such as emerging issues, product stewardship processes and internal policies. This is to ensure knowledge- and experience-sharing globally which contributes to the successful implementation of the product stewardship standard.

We issue declarations for customers on regulatory clearances for our products and their end uses. Products may be sold into restricted applications only to approved customers upon fulfilling certain conditions as set forth in our prohibited and restricted applications policy. Relevant information is readily available on our website at www.lyb.com.

We also participate in the worldwide Global Product Strategy program, a voluntary initiative championed by the International Council of Chemical Associations which aims to improve the safety of chemical products during their use and handling. As part of our commitment to the Responsible Care® program, we worked closely with other American Chemistry Council members to develop a new Responsible Care Product Safety Code. This new code is incorporated into our Operational Excellence Product Stewardship Standard, applied globally.

## Safe use communication

We provide information about our products and their risks to our customers, suppliers, distributors and other stakeholders. Our Product Stewardship page offers a one-stop shop for safety data sheets, safety summaries, product stewardship bulletins and safe handling guides. These documents are actively maintained to align with industry best practices and often go beyond regulatory compliance.

LYB provides Safety Data Sheets for all products, irrespective of whether it is legally required, in multiple languages, which include information on product hazards and precautions to ensure safe use.

## LYB products manufactured or sold in areas without chemical legislation controls are risk assessed according to EU REACH principles.

For sales outside of the EU, we voluntarily follow the European Regulation on Registration, Evaluation, Authorisation and Restriction of Chemicals (REACH) Annex XVII restriction conditions through our Product Stewardship program even if there are no similar restrictions under applicable local law. In 2023, less than 2% of our revenue was generated from products containing substances in the scope of REACH Annex XVII restriction conditions. Similarly in 2023, less than 0.1% of our total number of products and representing less than 3% of revenue, contained substances in the candidate list of SVHC for authorization above 0.1wt%. Further, we note that these products were placed on the market almost exclusively (>99.9 by revenue) for monomer or intermediate uses. In such industrial use settings, involving suitably qualified and trained individuals, exposure risk and use is rigorously controlled, for example via technical means and appropriate personal protective equipment as part of the operator's health and safety compliance obligations.

Safety Data Sheets are available, regardless of the product safety profile, for all LYB products, in line with the requirements of specific countries or where no such requirements exist, according to the applicable GHS revisions. Generally, the Safety Data Sheets are available on our website in the local languages of production and ship-to countries for customers, logistics service providers and all other stakeholders. In 2023, we published approximately 130,000 Safety Data Sheets.

Most customer product stewardship requests are answered with a standardized Product Stewardship Bulletin which summarizes the global regulatory status of a product. The bulletin covers the most asked questions pertaining to the customer end use regulations such as food contact compliance, heavy metals in packaging, allergens, and some common substances of concern. Responses provide each customer with consistent information in a timely fashion, as the bulletin can be accessed instantly from the website at any time. In 2023, more than 40,000 Product Stewardship Bulletins were downloaded from our website. We also regularly respond to inquiries from our customers, distributors and stakeholders. In 2023 we responded with dedicated responses to 30,000 product related customer inquiries.

## Incidents of non-compliance concerning the health and safety impacts of products and services

In 2023, we had no product recalls and no incidents of non-compliance with regulations and/or voluntary codes concerning the health and safety impacts of our products that resulted in a fine, penalty or warning.

## Finding safer alternatives and minimizing risk

Following the risk management process described above, based on product risk assessments carried out, or equally as part of an innovation process, we may replace raw materials used in production processes with safer alternatives or discontinue their usage altogether.

In addition to alternative formulas, we may also consider placing conditions on the sale of products into certain end-use applications. One example is for the use of post-consumer recycled materials in highly regulated applications, where, in addition to regulatory requirements we review quality of feedstock and quality assurance systems along the value chain and other existing recycling technologies that impact quality.

In 2023, we continued the implementation of sustainability and safety criteria as part of our product innovation process. Introduced in 2022, these criteria aim to bring chemicals, materials, products and technologies to the market that are safer, are accelerating the transition to a circular and low carbon economy and prevent harm to human health and the environment. We also continued the use of non-animal tests for toxicity screening  at the early stage of new substance development.

Product safety review is integral to all our innovation processes. This review includes an assessment of potential raw materials, impurities and possible by-products to ensure compliance of our products with global chemical control regulations, such as the Toxic Substances Control Act (TSCA) in the U.S., EU REACH, and the Globally Harmonized System of Classification and Labeling of Chemicals (GHS). The presence of hazardous components is assessed at both the design and innovation stages of our products with the objective of eliminating or substituting for safer alternatives. Hazardous monomers and chemical intermediates are only used in industrial settings and are rigorously contained by technical means to ensure that exposure to humans and environment is reduced to acceptable levels.[1]

1. Carcinogenic; mutagenic; toxic to reproduction; persistent, bioaccumulative and toxic; very persistent and very bioaccumulative; and endocrine disruptors.

# LYB alternatives for Polyfluoroalkyl Substances (PFAS)

While the majority of our product formulas do not contain PFAS, in the limited occasions where they do, we are voluntarily phasing them out and proactively identifying viable alternatives. We will continue to develop alternatives with the goal that in advance of 2025, all products intended for consumer uses do not contain any intentionally-added PFAS.

However, it is important to recognize the term PFAS represents a very broad group of substances, which depending on the definition used, can capture  thousands of different chemicals, all with very different properties and risk profiles. As such, any responsible substitution or phase out of a particular PFAS for a specific use can require detailed case-by-case review of viable alternatives. One such example is the fluoropolymer polytetrafluoroethylene (PTFE), which is essential to attain a fire performance classification under a widely used industry standard (UL94) relating to the flammability of plastic materials. PTFE has a critical role in the plastic products used for the manufacture of safety-related component parts used in vehicles and in electrical applications due to its flame retardant properties. To date, no alternative to the use of PTFE has been found that would result in the same fire performance properties being possible and, therefore, to achieve the necessary classification as V0 under the UL94 standard.

Across the industry, there will be significant time and investment needed to identify, test and approve alternatives like in the case of PTFE. We highlighted this point in our contribution to the European Chemicals Agency's public consultation in the context of the proposed EU REACH universal restriction of PFAS.

# Product stewardship in the value chain

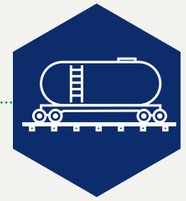
### Raw material sourcing

Raw materials used in our production processes are evaluated and approved using a globally aligned protocol. As a single raw material and its equivalents could be used in many different products, which in turn may have different end uses in different countries, our assessment process is comprehensive covering both applicable jurisdictions and end-use applications. Suppliers are required to provide applicable declarations of conformity evidencing compliance with the diverse set of legislation and standards relating to global chemical control (e.g., REACH, TSCA) and product specific end-uses e.g., those covering food contact materials or those used in automotive and electronics.

Raw materials based on post-consumer recycled waste follow a thorough screening process, which is used to either permit or restrict their use in certain end-use applications. Where information is not supporting the use of these PCRs, they are prohibited or restricted. The restriction is cleared only after a thorough risk assessment process which includes testing and validation for hazardous substances (such as SVHC above 0.1 wt%).

### Manufacturing

Our operational excellence management system and process safety program are key to minimizing risk across our sites. Across our global portfolio, LYB products containing hazardous components are manufactured in accordance with our process safety program to prevent or mitigate risks to human health and the environment.



### Distribution and customer use

To help our suppliers, carriers, distributors and customers to maintain high safety and environmental standards, we provide technical assistance, training and logistics support as well as support related to health, safety and environmental issues. As an example, since 2012, we have actively worked with our customers to implement dry-disconnect couplings for handling of 1,3-butadiene, allyl alcohol, tertiary-butyl hydroperoxide, propylene oxide, and ethylene oxide.

To help ensure LYB customers can safely receive, store and handle certain high risk products, storage and handling assessments are conducted at all customer sites for such products prior to the first delivery and on a recurring basis thereafter. The LYB customer assessment program helps ensure customers have a thorough understanding of product hazards and risks associated with storage and handling. It also helps to identify opportunities for improvement as well as best practices that can be shared with others. The current customer assessment program was formally established in 2012. Since the inception, LYB assessment teams have conducted over 400 customer site assessments in all regions.

## Implementation of voluntary codes

Being a producer of 1,4-butanediol (BDO) and gamma butyrolactone (GBL) (not placed on the market), which could be misused for production of illicit drugs, we are signatories of ICCA's BDO and GBL Voluntary Product Stewardship Code and are committed to put this into practice. This includes rigorous implementation of eight voluntary product stewardship practices: (1) policies and procedures are documented and available; (2) customers are assessed for legitimacy; (3) all customers provide end-use declarations; (4) the manufacturing company requires distributors to implement equivalent policies and procedures; (5) authorities are notified of suspicious orders; (6) steps are taken to prevent tampering with containers; (7) requests for samples receive due diligence; (8) policies and procedures are monitored and reviewed.

# Operational excellence

Operational Excellence is the management system we use to deliver safety, environmental responsibility and reliability in everything we do. It sets out clear requirements for how we work, includes explicit requirements for people, process and product safety, and applies to our employees and contractors. The Operational Excellence system contains nine key elements to help identify and manage risks and ensure our employees and contractors understand their roles and responsibilities.

We undertake internal audits to verify that sites comply with Operational Excellence systems and procedures. Additionally, we share lessons learned and best practices across the business. Onsite contractors, including logistics companies that handle and transport our products, are expected to comply with our HSE&S Policy and support GoalZERO. In 2023, we completed 24 audits in ten countries.

LYB is committed to Responsible Care®, the global chemical industry's voluntary initiative to drive continuous improvement in safe chemicals management and achieve excellence in environmental, health, safety and security performance. As a signatory to the Responsible Care Global Charter, we are committed to creating a corporate leadership culture that proactively supports safe chemicals management; safeguarding people and the environment; strengthening our chemical management systems and influencing business partners to do the same in their own operations; engaging stakeholders to understand and respond to their concerns; and contributing to sustainability through improved performance, expanded economic opportunities and the development of innovative technologies and other solutions to societal challenges.

## LYB operational excellence system framework

| | |
|---|---|
| **Leadership and personal accountability** | We are committed to achieving excellence in every aspect of our performance. We set high expectations and hold each other accountable. We operate our business with the highest principles of integrity, ethics, and corporate responsibility. |
| **Organizational competency** | We acquire and maintain the highest possible levels of competency. We empower people to deliver superior performance. We create a culture where employees have the freedom to act with agility and urgency while balancing the need for appropriate process and governance. We embrace diversity and inclusion, and promote learning and development. |
| **Compliance** | We manage our businesses with the highest standard of corporate ethics and with strict corporate governance systems that support compliance with all laws, regulations and internal requirements. |
| **Technology and knowledge management** | We document our operating practices and continually keep them updated. Knowledge management allows for safe, reliable operations through the sharing of combined efforts of people, process and technology. |
| **Risk management** | We identify, prioritize, mitigate and manage risks to provide for the safety and health of employees, contractors, customers, and the public for the protection from the environment. |
| **Operations** | We strive for flawless execution in our operations. |
| **Product Stewardship** | We operate a worldwide product stewardship program to make health, safety and environmental protection an integral part of the development, manufacture, distribution, use, recycle and disposal of our products. |
| **Community and stakeholder relations** | We maintain strong relationships with our communities, employees, customers, suppliers, shareholders and other key stakeholders. |
| **Assessment and improvement** | We regularly review and take action regarding our systems, processes, metrics and stakeholder feedback to assure continuous improvement in our performance. |

**People and culture**

# Our culture reflects the role we seek to play in the world, what we uniquely deliver, and how we behave day to day.

# Workforce management

Our success as a company is tied to the passion, knowledge and talent of our global team. To achieve our purpose of creating solutions for everyday sustainable living, we must attract top performers and equip them with the tools needed to continuously grow and leverage their potential.

Our culture reflects the role we seek to play in the world, what we uniquely deliver, and how we behave day to day. In 2023, LYB introduced a new long-term strategy and began the transformation of our company culture. Along with our new strategy, we identified three core values: We Champion People, We Strive for Excellence, and We Shape the Future. As part of our work last year, we established a cultural steering team and initiated a cultural ambassador program to help drive our work in advancing the transformation.

To reflect our new strategy and values, we refreshed our "LYB competencies," which provide a framework for how we behave day to day to help us achieve our strategic goals. They inform the way we hire, reward, develop, and retain our employees. Our LYB competencies focus on five key areas: Building Partnerships, Delivering Results, Driving Innovation, Growing Capabilities, and Promoting Inclusion. We introduced the new competencies to the organization in 2023 and will be further integrating them into our programs in 2024.

## LYB competencies

### Build partnerships

Developing and leveraging relationships with colleagues, customers, suppliers, and stakeholders to achieve results

- Builds relationships
- Fosters trust
- Works collaboratively

### Deliver results

Executing plans and work to ensure that strategic priorities yield measurable results and safe outcomes for the organization, employees, and customers

- Sets standards
- Drives high quality
- Takes ownership and accountability
- Acts with integrity

### Drive innovation

Generating novel solutions and impactful improvements that create sustainability and measurable value for existing and potential customers

- Challenges current thinking
- Generates ideas
- Experiments to learn
- Advances ideas into action

### Grow capabilities

Creating a work environment where all employees can develop and realize their full potential, allowing the organization to meet current and future business challenges

- Owns personal development
- Applies knowledge to skill
- Takes risks in learning
- Guides development

### Promote inclusion

Taking action to ensure that the capabilities and insights of all individuals are valued and included in ways that lead to organizational success, equitable outcomes, and a sense of belonging

- Creates psychological safety
- Conveys respect
- Integrates differences
- Acts as an ally

## Our approach

LYB provides all workers with fair wages and upholds all applicable fair wage laws, wherever we work. We pay wages that meet or exceed the legally required wage or local industry standard.

We reward performance based on personal, team and company results. We engage in open and ongoing dialogue with employees and their representatives to ensure a proper balance between the best interests of the company and its employees. In several of our locations, we collaborate with employee representatives on initiatives such as health and safety.

Employees play an active role in their own development. They are encouraged and empowered to create plans for their development and to discuss those plans and goals with their managers on a regular basis. Having these conversations helps managers ensure that employees have opportunities to receive developmental experiences on the job, including learning from others. We also offer more formal and structured development opportunities for our employees via in-class and online learning.

Training needs are determined as part of individual employee assignment and development, on an equal employment opportunity basis.

We use the services of contractors, primarily to assist with non-core business functions, and we require that all contractors adhere to our Operational Excellence standards and GoalZERO, a comprehensive program to protect the health and safety of our employees and contractors.

As of December 31, 2023, approximately 9% of our employees in the U.S. were subject to collective bargaining agreements. Most of our employees in Europe and Latin America/Mexico, and some of our employees in Asia Pacific are subject to collective bargaining agreements.

## Our employees

| 2023 | Men | Women | Undisclosed | Total |
|---|---|---|---|---|
| **All employees** | 16,148 | 4,143 | 8 | 20,299 |
| **Full-time** | 15,990 | 3,919 | 8 | 19,917 |
| **Part-time** | 158 | 224 | 0 | 382 |
| **Permanent** | 15,887 | 4,075 | 8 | 19,970 |
| **Temporary** | 261 | 68 | 0 | 329 |

| | U.S./Canada | Europe | Latin America (including Mexico) | Asia Pacific | Middle East & Africa |
|---|---|---|---|---|---|
| **All employees** | 8,662 | 8,783 | 991 | 1,832 | 31 |
| **Full-time** | 8,643 | 8,422 | 990 | 1,831 | 31 |
| **Part-time** | 19 | 361 | 1 | 1 | 0 |
| **Permanent** | 8,639 | 8,494 | 976 | 1,830 | 31 |
| **Temporary** | 23 | 289 | 15 | 2 | 0 |

Unless otherwise stated, employee data in this report is based on full-time and part-time employees as of December 31, 2023. Part time is based on employment percentage (capacity utilization level). Anything less than 100% is reflected as part time. Our EEO-1 data is reported annually on our website at www.lyb.com.

| Average training hours per person | 30* |
|---|---|
| **Exec** | 11 |
| **M level** | 16 |
| **E level** | 19 |
| **Administrative** | 27 |

Average hours of training per person includes all employees, not just the categories reported.

## Global talent development

LYB is committed to creating continuous learning environments, providing ongoing development, growing capabilities, and unlocking potential for all employees to perform at their best. Our value, We Champion People, is underscored by our focus on growth and development in an inclusive environment.

We develop our employees through a balance of experience on the job, learning from others, and formal learning.

In 2023, we expanded our LYBUniversity to include additional formal learning and development resources to empower our employees to grow their capabilities. To build skills and capabilities necessary for leaders to guide their teams through our culture transformation, we offered multiple learning opportunities. Through different learning workshops focusing on culture and change, we engaged with more than 2,000 leaders and provided resources to support the conversations and transformation with their teams. Our e-learning platform empowers employees to drive their own development through on-demand learning. More than 35% of our workforce is enrolled in the platform, and participants have completed more than 200,000 training hours building and enhancing business, technology and personal development skills. We also have a leadership development framework that offers programs with structured learning paths tailored to equip leaders at different stages with the necessary skills to excel in their current role and prepare them for future challenges.

On-the-job development is key to building the knowledge and skills to deliver our strategy. Through internal job postings, we provide transparency and opportunity for our employees to drive their development and career growth. Additionally, we hold quarterly talent reviews across businesses and regions to not only identify our potential future leaders but also to identify development opportunities. As a result of this focused approach, about 70% of our openings in senior leader roles were filled by internal talent, underscoring our commitment to growing talent from within the company.

LYB is committed to advancing our people by helping them develop achievable goals that promote personal and professional growth. We provide on-going and effective feedback to create a culture of ownership for our work and success, and by supporting a culture of recognition and accountability. Our performance management process also includes and a formal year-end performance assessment. This year, we introduced an Equity Champion role into the year-end performance management process to listen for equitable discussions on performance. We also implemented tools and steps for reviewing equity throughout the year-end performance management process. We are committed to auditing these key programs annually to ensure that they are operating as intended.

A total of 10,440 performance reviews were conducted in 2023, which represents 52% of employees participating in the program.

## Education benefits

To encourage employee self-development, we offer a Global Educational Assistance Program that provides financial aid to those pursuing an associate, bachelor's or graduate degree. Any regular full-time, active employee with a minimum of one year of service and a current rating of "successful performance" or greater is eligible for educational assistance unless otherwise stipulated under a labor or works council agreement.

The Global Accelerated and Executive Graduate Degree Program offers additional financial assistance and modification in work schedule for those employees participating in an executive master's degree program, which typically requires an intense period of study over a shortened duration of time and carries substantially higher costs.

**New employee hires and turnover**

| New employee hires | 2023 |
|---|---|
| Global (#) | 2,862 |
| Rate | 14% |
| U.S./Canada | 1,393 |
| Rate | 16% |
| Europe (#) | 1,125 |
| Rate | 13% |
| Latin America (#) | 166 |
| Rate | 17% |
| Asia Pacific (#) | 175 |
| Rate | 10% |
| Middle East & Africa (#) | 3 |
| Rate | 10% |
| **Age group** | |
| <30 (#) | 1,222 |
| Rate | 45% |
| 30–50 (#) | 1,349 |
| Rate | 12% |
| >50 (#) | 291 |
| Rate | 4% |
| **Gender** | |
| Men (#) | 2,075 |
| Rate | 13% |
| Women (#) | 782 |
| Rate | 19% |
| Undisclosed | 5 |
| Rate | 63% |

| Turnover | 2023 |
|---|---|
| Global (#) | 1,901 |
| Rate | 9% |
| U.S./Canada | 1,000 |
| Rate | 12% |
| Europe (#) | 630 |
| Rate | 7% |
| Latin America (#) | 156 |
| Rate | 16% |
| Asia Pacific (#) | 112 |
| Rate | 6% |
| Middle East & Africa (#) | 3 |
| Rate | 10% |
| **Age group** | |
| <30 (#) | 593 |
| Rate | 22% |
| 30–50 (#) | 748 |
| Rate | 7% |
| >50 (#) | 560 |
| Rate | 9% |
| **Gender** | |
| Men (#) | 1,506 |
| Rate | 9% |
| Women (#) | 394 |
| Rate | 10% |

| Turnover – Voluntary | 2023 |
|---|---|
| Global (#) | 1,495 |
| Rate | 7% |
| **Age group** | |
| <30 (#) | 521 |
| Rate | 19% |
| 30–50 (#) | 529 |
| Rate | 5% |
| >50 (#) | 445 |
| Rate | 7% |
| **Gender** | |
| Men (#) | 1,161 |
| Rate | 7% |
| Women (#) | 333 |
| Rate | 8% |

Unless otherwise stated, employee data in this report is based on full-time and part-time employees as of December 31, 2023. Part time is based on employment percentage (capacity utilization level). Anything less than 100% is reflected as part time. More data on our employees can be found in the Diversity, Equity and Inclusion section of this report and in the GRI Index.

# Employee benefits

Our commitment to fostering an inclusive and diverse workforce is at the core of our organizational values. One way we champion people is by designing benefit programs that support our employees and their families.

Full-time and part-time employees receive a wide variety of benefits based on geographic location, applicable local and national law, and labor or works council agreements.

Employees at our major offices and manufacturing sites receive competitive benefits depending on location and employment status, which may include the following:

- Basic health and welfare benefits, including medical coverage
- Life and accident insurance
- Business travel accident insurance
- Disability protection
- Share programs
- Paid vacation, holidays and personal leave
- Retirement, savings and pension plans

In the U.S., employees can purchase additional health benefits and insurance coverage at lower group rates. They also can contribute to a tax-free Health Savings Account or Health Care Spending Account for reimbursement of certain medical expenses as well as a Dependent Day Care Flexible Spending Account for childcare costs.

The Employee Assistance Program is available to all employees globally. The program helps employees be more successful meeting their responsibilities at home and at work. It offers tools and resources on a variety of topics, including resiliency, emotional wellness, workplace success, work-life balance, personal and family goals and good health. The Employee Assistance Program also helps with referrals to financial or legal resources. Services are available at no cost to employees 24 hours a day, 7 days a week.

In 2023, we enhanced our global workplace flexibility initiative by offering up to three remote days per work week. We recognize this enhanced flexibility facilitates our efforts to build a diverse workforce by attracting and retaining key talent. We will continue to study the effectiveness of this policy and will make changes, where necessary, to support business needs.

We also harmonized benefits across several countries outside the U.S. in 2023. These harmonization efforts focused on streamlining benefit offerings across various locations and aligning retirement benefits with prevalent market practices.

Additionally, we engaged an external consultant in 2023 to provide a holistic review of our U.S. benefits programs through a DEI lens. This provided an in-depth look at our U.S. healthcare, retirement, risk protection, time off, financial resilience, well-being perquisites, worksite resources and policies. We assessed benefit participation and affordability based on cohorts of interest (age, gender, race, location) and identified vulnerable populations to inform benefits review and opportunity prioritization. Following this review, we made a significant number of enhancements to our U.S. benefits offerings for 2024, and we are exploring options to conduct similar in-depth benefit reviews in other countries where we operate.

## Defined benefit plan obligations and other retirement plans

Approximately 80% of employees are covered under some form of a defined benefit pension plan and approximately 70% of employees are covered under a defined contribution plan. We also sponsor post-retirement benefit plans other than pensions that provide medical benefits to certain of our U.S., Canadian and French employees. In addition, we provide other post-employment benefits such as early retirement and deferred compensation severance benefits to employees of certain non-U.S. countries.

## Reward and recognition

Exceptional performance, dedication to safety, attendance and years of service are recognized in many ways, including annual bonuses and special cash awards as well as share points that may be redeemed for merchandise.

In support of our ongoing commitment to foster a culture of inclusion and diversity, a new recognition program, Bravo!, was implemented in 2023. Bravo! expanded access to monetary points and eCard recognition awards from 14 countries to all 33 countries in which we operate, enabling our leaders to acknowledge employees globally, promote peer-to-peer recognition of teammates and collaborators and provide the opportunity to thank contractors for their efforts and contributions. Our diversity goals are supported with offerings that are meaningful and culturally relevant, including eCards that celebrate holidays around the world.

## Family-friendly programs

Our global family-friendly programs include paid parental leave, an adoption reimbursement, and providing all employees globally with a minimum of ten paid vacation or personal leave days. In the U.S., employees and spouses enrolled in a company medical plan have access to fertility benefits. They may also take advantage of the Caregiver Support Program which includes backup child and elder care.

## Parental leave

Employees across the world who bring a child into their family by birth, adoption or foster care are eligible for parental leave, as allowed by applicable local and national law. We have a parental leave policy that offers paid leave for the birth of an employee's child, the placement for adoption of a child in an employee's home, and foster care or adoption of a child. Our global parental leave policy was expanded in January 2023 to provide seven weeks of paid parental leave per 12-month period to all eligible employees who become parents. The benefit is paid at 100% of the employee's regular base pay (less withholdings and excluding overtime, shift differential, premiums, bonuses, commissions or other allowances) on the date leave begins.

## Transition assistance program

Employees in the U.S. whose positions are eliminated from the company receive transition assistance provided by a leading outplacement services company. The program includes career assessments, resume writing, LinkedIn profile updates, skills training, personal coaching and access to online research tools, job search platforms and networking events. A variety of assistance programs are provided outside of the U.S. based on local requirements.

# Q&A with Chief DEI Officer Kyle Pierce

Pierce was appointed Chief DEI Officer in 2023, after having served on various LYB business teams and as Director of DEI. He is working to reinforce DEI as critical to business outcomes while developing and implementing programs that promote equity and inclusion.

**Q. What is your approach to DEI?**

**A.** One of our company values is championing people. This means we put people at the heart of everything we do. Our commitment to the safety of our people is the best example of how we live this value every day. In the same way that safety enables our operations, DEI enables us to champion our people.

At LYB, we know DEI is a strength and that our commitment to DEI helps us achieve our company strategy and ensures our future success.

I approach DEI with the same rigor as any business imperative and believe in applying an outside-in perspective as a means to incorporate best practices and accelerate our progress. Since we activated our new DEI strategy in 2021, we have developed and implemented robust inclusive processes, and conducted extensive education and outreach. We will continue to provide the training and tools needed to transform our culture so everyone understands our approach and aspirations.

**Q. What key steps have been taken to embed DEI in the LYB culture?**

**A.** Our initial steps focused on developing a comprehensive DEI strategy and ensuring all stakeholders were fully engaged and aligned. With the support of the LYB Board of Directors and leadership of the Executive Committee, we executed this strategy, developed industry leading goals, and incorporated DEI as key corporate value and performance competency.

Building on this strong foundation, we continue to focus on the tactical work of transforming our culture by ensuring equity in all people processes and systems. We implemented changes in our hiring, work place flexibility, pay and performance, talent policies and systems. Improvements in hiring include broader recruiting efforts, diverse interview panels and candidate slates, standardized interview questions and additional hiring-manager training. Additionally, we will be conducting regular audits of key programs to ensure fairness. We have audited pay equity the past three years.

Finally, we have established strong and growing global employee networks to enable connection, support and allyship of employees who did not feel fully included in the past. The networks are showing higher engagement, and excitement, and are at the forefront of our inclusion efforts.

**Q. What is your biggest challenge?**

**A.** There are many misconceptions on what DEI is (and is not) and this is exacerbated by the external environment and different ways other companies operate their DEI programs. As a result, there is confusion, resistance and varying levels of support. I am thrilled that our Executive Committee is deeply committed to DEI and highly engaged in our practices. This commitment has enabled us to appropriately resource DEI so we can effectively execute our strategy. Every Committee member takes a hands-on approach through sponsorship of and participation in the employee networks. They also approve the selection of the Global DEI Leadership Council. This high level of engagement and direct communication demonstrates inclusive leadership, promotes leader accountability, and helps employees understand our aspirations and the importance of DEI.

Another challenge is the scale and size of our company. We have manufacturing operations and joint ventures in 20 countries and our products are sold in over 100 countries. Appreciating cultural and regional nuances adds to the complexity of DEI. My past roles with LYB gave me the opportunity to work all over the world so I have an understanding of how we can better embrace these differences and apply them to our DEI approach. Through the Global DEI Leadership Council and the addition of dedicated DEI support in other regions, we will be able to build programs that are locally relevant.

**Q. What are you most proud of about the DEI journey at LYB?**

**A.** When we activated our new DEI strategy in 2021, we had already completed a significant amount of foundational work. Our approach was methodical. We did our research, listened to our employees, and earned the full support of our executive leadership. This enabled us to resource a comprehensive program and incorporate best practices from the very beginning. DEI is now embedded as a corporate value, a key performance and learning competency, and we have set industry leading goals. I take great pride in these accomplishments.

I am also very proud of the work we have done in promoting a psychologically safe environments because it is an important indicator of how our culture is changing. We are creating an atmosphere where employees feel safe to voice opinions and ideas, take risks, and learn from each other. In doing so, we improve collaboration, achieve ever-better performance and drive results.

On a personal note, being appointed the LYB Chief DEI Officer is one of the greatest personal and professional achievements of my life. It is an honor to help lead this effort and to witness the transformation of our work culture, which, in turn, helps transform our people, communities and our world.

# Diversity, Equity and Inclusion (DEI)

## DEI is a key business imperative and we continue to accelerate our work in this area.

Our vision for the future is that LYB is a place where there is genuine equal opportunity for all and DEI is embedded within our culture as deeply as safety. Our efforts reflect a holistic, multi-year strategy to improve representation, ensure fairness, increase visibility and drive equity in all of our processes and systems.

We are actively building an inclusive workplace where diversity is celebrated, leaders champion belonging, and everyone feels empowered to contribute fully. Our goal is to create a space where fairness, equity, and a sense of belonging are experienced by all, propelling individual and collective success. Our DEI progress enables us to retain and attract top talent and meet the needs of our customers, communities, investors, and other stakeholders.

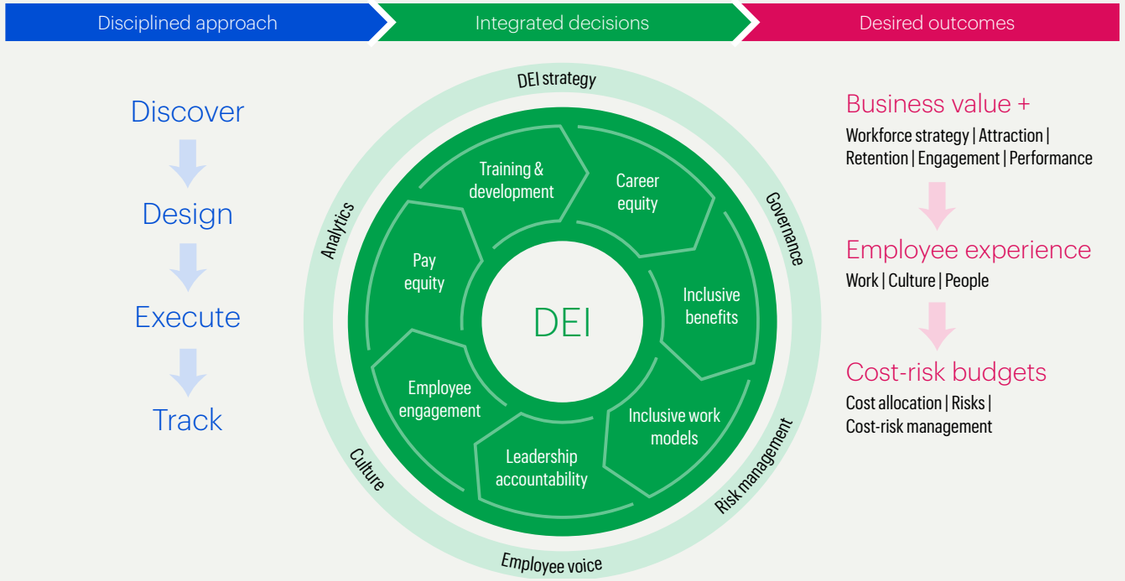
In 2023, we made excellent progress in advancing and embedding DEI practices within our company. Notable highlights include:

- LYB introduced a new strategy along with newly defined values, commitments and competencies, which form the framework for how we behave day to day. DEI is now a fundamental part of our values and we believe it is necessary to deliver on our company strategy. DEI behaviors are embedded within our competency descriptions, and we have a competency dedicated to promoting inclusion.
- We created a standalone role for the Chief Diversity, Equity and Inclusion Officer with direct reporting to the Executive Vice President of People and Culture. As part of this change, LYB devoted more resources to the DEI team and increased organizational commitments to DEI-related initiatives.
- LYB continued to observe favorable progress on DEI goals and related initiatives. We continued to make gains in increasing representation of senior leaders and received additional positive engagement and inclusion data.
- We received external recognition for our work. LYB won two awards in China for our efforts in incorporating and developing best practices with DEI. Our Chief DEI Officer was also recognized by Houston Business Journal as an outstanding head of Diversity.

## Our approach and governance

We believe DEI is best accomplished by understanding that it is not a standalone initiative; rather it spans the entire enterprise in its scope and reach. From hiring and onboarding, to the daily employee experience, DEI should be interwoven into the fabric of a company. This view informs how we develop our plans, balance various considerations, and measure our progress. When making decisions on how we advance within this area, we use data to help guide our methods and are careful to make sure we seek alignment from our key stakeholders.

People and Culture is tasked with leading our DEI efforts; we believe this is the most effective way to integrate and leverage our activities. While the Chief DEI Officer is responsible for spearheading our efforts, the support and alignment within People and Culture as well as with all business and functional leaders are imperative for success. We continue to leverage a Global DEI Council comprised of leaders who help champion and lead DEI in their respective businesses and functions.



# DEI strategic pillars

As part of our comprehensive and integrated DEI approach, we developed aspirational goals for each of our strategic pillars.

In 2021, we established initial DEI goals to help drive our strategy and guide our activities. Our diversity representation goal is only one element of our comprehensive and integrated DEI approach. To that end, we developed goals for each strategic pillar associated with DEI. These interrelated goals complement each other and cannot be viewed independently. We understand equity and inclusion are important when building a positive employee culture and most of our work centers on advancing this aspect. Success in these areas will help grow representation.

For each goal, we identified key supporting practices that are important in prioritizing our work and achieving success.

To ensure transparency, we publish annual updates about how we measure progress and drive outcomes.

| Strategic Pillar | Goals | Initiatives | Vision |
|---|---|---|---|
| **Diversity Representation** | • Appoint at least one-third female directors to the Board<br>• Increase women in global senior leadership roles to 33% and U.S. URP[1] in U.S. senior leadership roles to 29%, by 2027 (in each case, a 50% increase relative to a 2022 baseline)<br>• Achieve gender parity in global senior roles, and population parity in U.S. senior roles, by 2032 | • Talent and Development<br>• Hiring and Advancement | • Equal opportunity at all levels of the organization<br>• Robust diverse talent pipelines of future leaders |
| **Equity Fairness** | • Increase perception of fairness to 100%<br>• Annual audits reported for 100% of key People and Culture programs by 2025 | • Pay Equity<br>• People and Culture Program Analysis | • Employees believe they are treated fairly with opportunities to thrive<br>• People and Culture programs (hiring, promotion, pay, performance) regularly reviewed for bias |
| **Inclusion Belonging** | • Increase global participation rate in Employee Networks to 55%<br>• Increase perception of belonging to 100%<br>• 100% completion of required training | • Employee Networks<br>• DEI Training<br>• Community and Outreach | • Reputation as inclusive employer<br>• Leaders foster a culture of belonging<br>• Positive employee culture of inclusion and belonging |

1. U.S. Underrepresented population ("URP") is based on reporting for the U.S. Equal Employment Opportunity Commission and includes employees who self-identify as Hispanic or Latino, Black or African American, Asian or Pacific Islander, Indian, Alaskan Native, Native Hawaiian or two or more races.

## Our goal

# Achieve gender parity in global senior leader roles and population parity in U.S. senior leader roles by 2032

In 2022, we set five-year goals to increase the number of female senior leaders globally to at least 33% and the number of senior leaders from underrepresented populations in the U.S. to at least 29%, representing 50% increases in both groups relative to a 2022 baseline. In the long term, we have committed to achieving gender parity in global senior leadership (i.e., approximately 50% women and 50% men) and population parity in U.S. senior leadership (i.e., representation of underrepresented populations equal to their proportion of the U.S. population) by 2032.

In 2023, we made progress toward our goals. As of December 31, 2023, women served in 25% of global senior leadership roles, which is an increase from 22% in 2022. In the U.S., 19% of senior leaders were from underrepresented populations, consistent with the prior year. Our Executive pay band (the highest level of leadership) also experienced representation growth in women and underrepresented populations. Women now make up 27% of this band, an increase from 24% in 2022, while the percentage of individuals from underrepresented populations grew from 19% in 2022 to 23% in 2023. Of the ten members on our Executive Committee, comprised of senior executives who lead our businesses and functions, four are women, and together, our CEO and Executive Committee represent six different nationalities.

Our increase in female representation is the result of increased external hiring and exceptional retention performance. In 2023, the attrition rate of female employees decreased from 9% in 2022 to 3% in 2023. We attribute part of this success to our focus on talent development and offering a compelling employee value proposition. For employees from underrepresented populations, hiring, promotion, and attrition rates all improved. While still higher than desired, the attrition rate for employees from underrepresented populations decreased from 14% in 2022 to 9% in 2023. This, coupled with the addition of new senior leadership roles in the U.S., resulted in flat overall representation when compared to 2022. Despite this, we still experienced a net gain in the number of employees from underrepresented populations resulting in a 21% increase in senior leadership headcount.

In 2022, we implemented hiring practices that included broader recruiting efforts, diverse interview panels and candidate slates, standardized interview questions and hiring-manager training. In 2023, we made process refinements and offered additional training and reporting. We believe this will help increase our success in this highly competitive talent market.

Increasing representation requires a focused effort on identifying, retaining and accelerating development of our talent. In 2023, we enhanced the equity metrics of our talent management reviews to better measure our progress. Our talent programs provide women and underrepresented employees with professional development and exposure.

| Global employee gender representation | 2022 | 2023 |
|---|---|---|
| **Total global employees** | | |
| **Men** | 81% | 80% |
| **Women** | 19% | 20% |
| **Senior leaders** | | |
| **Men** | 78% | 75% |
| **Women** | 22% | 25% |
| **Professionals** | | |
| **Men** | 67% | 66% |
| **Women** | 33% | 34% |

| U.S. employee ethnicity representation | 2022 | 2023 |
|---|---|---|
| **Total U.S. employees** | | |
| **Non-underrepresented** | 67% | 65% |
| **Underrepresented** | 33% | 35% |
| **Senior leaders** | | |
| **Non-underrepresented** | 81% | 81% |
| **Underrepresented** | 19% | 19% |
| **Professionals** | | |
| **Non-underrepresented** | 65% | 62% |
| **Underrepresented** | 35% | 38% |

Data is as of December 31, 2023. Senior leaders, for the purposes of our diversity goals, refers to employees that represent the top six job bands of our employees and executives. Professionals refers to the employees in the next eight job bands, excluding technical and hourly employees.

## Increase perception of fairness to 100% and complete annual audits for key programs by 2025

Our efforts to improve equity are focused on ensuring that our systems and process are fair to all employees. This also requires us to ensure we are communicating transparently with our employees. Our goal is for 100% of employees to believe they are being treated fairly. Similar to our GoalZERO safety culture, our approach to equity focuses on continuous improvement and striving for excellence. To measure our progress, we conduct annual engagement surveys with our employees. Our most recent survey in 2023 indicates that 83% of employees who responded believe they are being treated fairly. We also identified 22 teams of five or more people where the 100% goal was achieved.

### Equity Committee

In 2023, we established an Equity Committee comprised of all key functional groups in the People and Culture function with the intention of leveraging the interconnectivity to create a path to greater equity and improve the understanding and impression of fairness among employees. The committee's key responsibilities include:

- Monitoring progress toward DEI Equity goals
- Evaluating the impact of the action plans and adjusting as needed
- Ensuring key People and Culture policies are audited annually to ensure equity goals are met
- Communicating our vision for targeted efforts to advance equity within the organization to build trust and transparency

In 2023, the committee was instrumental in driving completion of the equity projects detailed in this report.

We identified key People and Culture programs potentially impacting DEI, including compensation, benefits, policies, performance management, and talent advancement. We initially focused on identifying and correcting gaps in our current People and Culture programs and ensuring we incorporate DEI best practices.

We also identified pay, workplace flexibility, performance management and talent advancement as impacts to DEI and we are working to improve in the areas by incorporating best practices.

We are committed to auditing these key programs annually to ensure that they are operating as intended and driving successful outcomes.

### Equity Champion

This year, we introduced an Equity Champion role into the year-end performance management process to listen for equitable discussions on performance and help identify potential biases. We also implemented tools and steps for reviewing equity throughout the year-end performance management process.

## Fair pay

We have established our approach to fair pay, and this approach aligns with our DEI vision, goals and objectives. We hold ourselves accountable by monitoring and sharing our progress. As part of our commitment to pay fairness, we focus on the following four pillars: market competitiveness, pay governance, pay transparency and equal pay opportunities.

| Market competitive | Consistent approach and governance | Pay transparency | Equity in opportunity and pay |
|---|---|---|---|
| We strive to provide competitive pay opportunities based on role, performance and skills. We work to ensure job offers (promotions and external hires) are based on the job responsibilities and the job market regardless of a candidate's historical compensation. Our roadmap to achieve this includes: conducting thorough analyses of the current market conditions; benchmarking our compensation strategy and making adjustments to keep pace with market fluctuations. | We are committed to ensuring that our pay processes and practices promote fairness for all our employees and are screened for potential bias. We test the application of our frameworks and pay processes in each geography to ensure pay is being managed and governed in a consistent and equitable manner. | We continue to support employees in their understanding of where they fit in the organization, what they can do to progress in their career, how pay and career-related decisions are made and how our talent and reward processes work. We publish key results from fair pay analysis globally. | We aim to offer equal opportunities to our employees, enabling them to progress from both a career and pay perspective. Multiple salary reviews are conducted during the year to meet our pay equity directives, ensuring comparable pay for similar work. Alongside this review, we conduct a global median pay gap analysis, measuring differences in the median pay by gender and by underrepresented employees, which is an indicator of representation. |

| | 2022 | 2023 |
|---|---|---|
| **Pay equity** | | |
| **Global women-to-men** | $1.00/$1.00 | $0.99/$1.00 |
| **U.S. Underrepresented to non-underrepresented** | $1.01/$1.00 | $1.00/$1.00 |
| **Global gender base pay gap: Women to men median $** | | |
| **All employees** | 0.98 | 0.99 |
| **Senior leaders** | 0.96 | 0.95 |
| **Professionals** | 0.81 | 0.82 |
| **U.S. ethnicity base pay gap: Underrepresented to non-underrepresented $** | | |
| **All employees** | 0.96 | 0.97 |
| **Senior leaders** | 1.00 | 0.98 |
| **Professionals** | 0.91 | 0.91 |

Women-to-men median $: This is the unadjusted pay gap which does not account for education, location, or other factors.

## Our pay equity approach

For the third consecutive year, the company completed a pay equity review with the support of external experts to advise on pay equity requirements and considerations and conducted statistical pay analyses based on best practices and industry standards. We utilize a licensed software tool to run multiple regression analyses comparing pay across employee populations while accounting for differences in factors like location, job level and function.

Our most recent pay equity review found that globally, on an adjusted pay basis, women are paid $0.99 to $1.00 for men. This same analysis reflected that U.S. underrepresented employees are paid $1.00 to $1.00 compared with non-underrepresented employees. Consistent with 2022, this review demonstrates that generally, employees doing like work of equal or similar value continue to receive equal or similar pay. While our global pay equity results are positive, we continued to review results deeper in the organization. Of the 13,500 employees, we identified employee groups in specific segments of the organization requiring more in-depth review.

We use the analysis to identify any employee whose pay is not comparable to those doing similar work with similar experience.

In 2023, our analysis led to a pay review for approximately 380 employees. Ultimately, after additional review, we adjusted the base salary for approximately 50 employees, 50% of whom are female and/or underrepresented.

## Our median pay gap and how we are working to eliminate it

We also conducted a global median pay gap analysis, which measures differences in the median pay of one group to another—women compared to men and underrepresented groups compared to the majority—without adjusting for factors designed to create a like-for-like comparison. This analysis is known as the unadjusted pay gap.

Our analysis found that the median pay for women is 98% of the median for men (globally), and the median pay for underrepresented employees is 97% of the median for white employees (U.S. only). While we are proud of our actions to ensure equal pay for equal work, the median pay gap confirms lower representation of women and underrepresented employees in higher-paid positions, and further supports that continued work is needed to achieve our representation goals.

## Increase perception of belonging to 100% and increase global participation rate in employee networks to 55%

Promoting a culture of inclusion is critical. Similar to our equity goal, we strive to have 100% of our employees feel they are included and belong. Our most recent engagement survey in 2023 indicates that 80% of respondents feel a sense of belonging at the company. Similar to our fairness goals, we have also identified 41 teams who have achieved 100% sense of belonging on their teams. Most importantly, we have 17 teams whose results are at 100% with both fairness and belonging, which is a strong indication that we can achieve our goals.

To drive change, we focus our inclusion efforts on key initiatives that include learning and education, outreach, and employee networks.

Our most recent engagement survey in 2023 indicates that 80% of respondents feel a sense of belonging at the company.

# Employee networks

Our employee networks help cultivate a community where all employees feel valued and respected. They also give our employees the opportunity to connect with colleagues who have similar interests, identities, and goals; to network, demonstrate allyship, share ideas and learn; and to foster professional and personal growth. We understand the vital role that these networks play in cultivating an inclusive culture so we established a 55% participation goal. In 2023, we achieved 18% participation, which is a 20% growth rate relative to 2022.

Our networks are open to all employees. We have network members at 92% of our global sites, with 51% of members residing outside of the U.S. and 26% have joined as allies of underrepresented groups. We measure the act of allyship within our networks as we know that support by people who may not share the same characteristics is an important part of building an inclusive culture. This allyship has been even more important as our initial networks have been focused on ethnicity, gender, sexual orientation, and age.

Our engagement survey indicates members of employee networks are 20% more engaged and are 10% more likely to report satisfaction with the company's future than employees who are not members of a network.

Our networks are:

Employees are selected as co-chairs, and they are responsible for selecting leadership team members and local site champions. Senior leaders serve as executive sponsors.

Networks help to promote inclusion by conducting professional development and networking events, and coordinating heritage and cultural month celebrations. In addition, they sponsor a variety of career and professional development activities meant to engage their members. Since 2021, the networks have conducted more than 300 events to support their members.

The employee networks are provided an operating budget and additional funds for donation to select charities and causes that are important to their members and aligned with our Advancing Good and DEI strategies. This year, the networks focused their community engagement activities on projects that address food scarcity, urgent community needs, and education:

- BELIEVE donated to the Almeda Plaza Food Pantry, a Houston organization which offers assistance in meeting the essentials of daily living such as job search services, a food pantry, gently used items (when available), and various hygiene products. BELIEVE also distributed over 2,000 meals during Free Heri-Heri in Rotterdam.
- ASPIRE participated in Langar at the Gurdwara Sahib in Houston, preparing meals for 350 people, and supported Feeding Hong Kong in China. The group also helped to establish a mini science center in a school located in Matunga, Mumbai, India.
- YPEN provided funds to Hürther Tafel e.V. in Germany to support its food bank.
- LIFT provided funds to support Dress for Success, a global not-for-profit organization that empowers women to achieve economic independence by providing a network of support, professional attire and the development tools to help women thrive in work and in life.
- TrueColors supported the Trevor Project, a leading suicide prevention and crisis intervention nonprofit organization for LGBTQ+ young people, and Allies in Hope which aims to create a community where HIV is stigma-free and rare, and people have equitable access to care.
- LEAD donated funds to support education programs at Nuestra Casa in Rotterdam. The organization focuses on the integration and participation of Spanish speakers in Dutch society.
- Our BELIEVE and LEAD employee networks in Houston teamed up to help Booker T. Washington High School engineering students with a sustainability project. Using 3D printers, students designed water filtration systems for a college in Karoi, Zimbabwe, that lacked access to purified water. They also provided solar panels and wind turbines for needed electricity. BELIEVE established a leadership program to help the students, which are 97% economically disadvantaged, learn engineering and the power of public speaking, "That's what we need in education. We need people to invest in our students. To really believe in what they're doing and how they're going to help make well-rounded citizens here locally and globally," said Principal Dr. Carlos Phillips II.

Through their diverse initiatives and strong partnerships, our employee networks are demonstrating the company's commitment to social responsibility, community engagement, and building a more inclusive future.

## Listening and employee engagement

We believe in the importance of listening to our employees. We invite our employees to help shape our culture and work environment through ongoing and continued measures including engagement surveys, smaller pulse surveys, and listening circles. We conducted pulse surveys open to all employees in the third and fourth quarters of 2023. Approximately 65% of employees participated in these pulse surveys. Survey questions gathered feedback on our LYB strategy and values along with our efforts on inclusion and equity.

Of particular note:

- Employees participating in the employee networks had a higher response rate to the survey, demonstrating greater engagement, and scored more favorably in the areas of authenticity at work, fair treatment and sense of belonging.
- Globally, women and underrepresented groups scored more favorably than the average in the following categories: ability to be their authentic self at work; their excitement about the future of LYB; LYB being a good place to work; and the perception of fair treatment by their managers.

## Learning and education

Our company has prioritized and implemented DEI training to accelerate change in our workforce at all levels. In 2023, development was primarily focused on our manufacturing workforce and People and Culture professionals. We engaged 7,145 manufacturing employees with DEI training through guided topics and learning materials led by supervisors and leadership at the site level. These leader-led learnings and discussion guides were completed at 86 sites globally, in local languages. For our People and Culture employees across the world, we focused on DEI upskilling, and building capability to better address and champion DEI in daily activities and interactions with leaders. Through regional training sessions, we engaged 288 People and Culture employees in 2023. We believe our People and Culture community is in a unique position to further embed DEI into everything we do and to continue evolving DEI from awareness into action.

In 2023, 70% of employees completed more than 35,000 DEI-related training sessions. This included mandatory training sessions for 8,299 manufacturing employees and new employees, and 6,155 employees who completed DEI courses voluntarily.

In 2023, we brought additional awareness to our DEI goals and initiatives by incorporating this topic into some of our leadership programs. While all of our new competencies descriptions incorporate DEI language, the new competency of Promote Inclusion was specifically added to reinforce psychological safety, respect, integrating differences and allyship. We introduced the new competencies to the organization in 2023, and will be integrating them to our programs in 2024. The new competency framework will reinforce equitable and inclusive behaviors for all within the company.

## External outreach

Our main vehicle for external outreach is via employee networks. Through our employee networks, we have invested in and engaged with organizations that are advancing DEI. Since their inception in 2021, more than 300 events have been conducted by network members and $700,000 has been directed to community efforts. We further ensure our DEI efforts are aligned with our overall philanthropic efforts, Advancing Good.

Outside of the networks, we remain a sponsor of the FOSSI program (Future of STEM Scholars Initiative). This is a program that provides scholarships to STEM students at HBCUs (Historically Black Colleges and Universities) that is a partnership with AICHE (American Institute of Chemical Engineers) and ACC (American Chemistry Council).

In 2023, we committed $480,000 to sponsor 10 additional students, bringing our total number of sponsored students to 30 and our total commitment to $1.4 million in scholarships.

## Sustainable procurement

We are cultivating strong relationships across the supply chain to effectively address global sustainability challenges and achieve positive outcomes.

## Our goal

# Assess a minimum of 70% of our key suppliers globally using sustainability criteria by 2025

Sustainability performance is one of the key elements of our procurement strategy. We are cultivating strong relationships across the supply chain to effectively address global sustainability challenges and achieve positive outcomes.

As a responsible business, we expect our suppliers to comply with applicable laws and internationally recognized standards, conduct business ethically and share the principles set out in our Supplier Code of Conduct. To support this endeavor, we utilize EcoVadis assessments and Together for Sustainability (TfS) audits, which offer transparency and valuable insights into our suppliers' sustainability performance and supply chain.

These sustainability assessments play a pivotal role in identifying potential risks and opportunities, driving ongoing sustainability enhancements and facilitating open and constructive dialogue with our suppliers to improve their sustainability practices.

## Our supplier due diligence

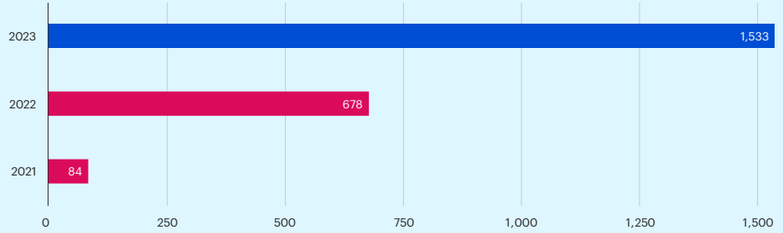
We completed an extensive supplier sustainability risk mapping project in 2023 following an initial application of risk criteria the prior year. We leveraged the EcoVadis IQ platform to gain a detailed view of risks in the areas of environment, social standards and ethics. From this analysis, we obtained valuable insights into potential risks in our supply chain allowing us to take proactive measures to mitigate potential impacts if necessary.

Based on the risk mapping, we request certain suppliers to complete an EcoVadis sustainability assessment or a TfS audit. If the assessment or audit identifies a need to improve, we may request that the supplier implements corrective actions. For suppliers with an EcoVadis score below 45, corrective actions are mandatory.

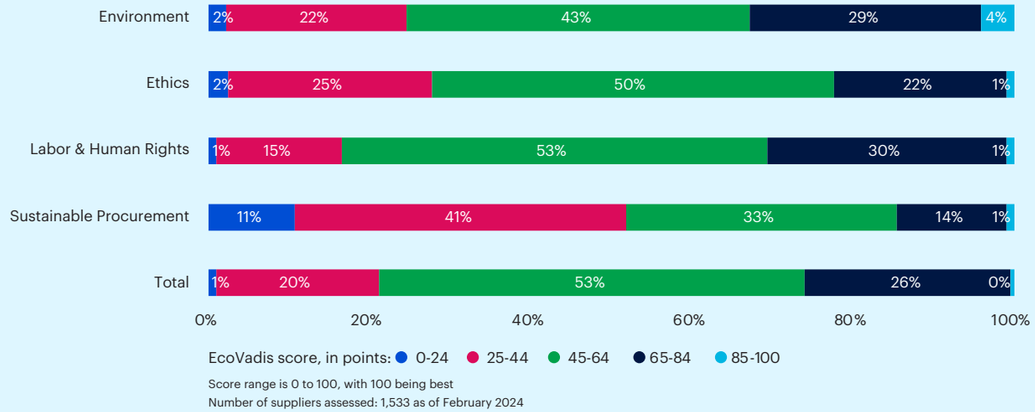
In 2023, more than 1,500 suppliers with a spend threshold of $150,000 in 2022 were assessed, which represents a 120% increase over 2022.

Also in 2023, our Global Supplier Engagement Team reached out to 27 suppliers whose EcoVadis score did not meet our minimum requirements to provide the training needed to help them improve. The team also offered support to suppliers who previously declined participation in sustainability assessments or audits to help kickstart their engagement.

### Number of suppliers assessed

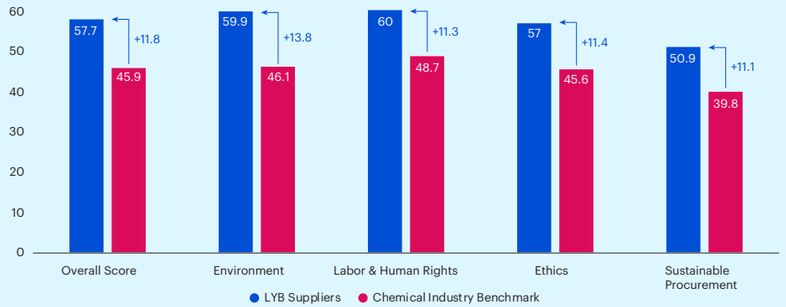



### EcoVadis performance of suppliers in 2023




Score range is 0 to 100, with 100 being best
Number of suppliers assessed: 1,533 as of February 2024

### Supplier EcoVadis sustainability evaluation results vs. chemical industry benchmark



## Audits help drive performance improvement

The TfS audit is conducted by an external TfS-accredited auditor who performs an on-site tour and interviews employees typically over one to three days. These comprehensive audits examine a supplier's key sustainability practices concerning management, environment, health and safety, labor and human rights, and governance. The audit process may result in a supplier or site-specific corrective action plan to address areas with potential for improvement. This plan is agreed between the auditor and a senior manager of the company being audited, which helps ensure that the improvements are implemented.

We piloted a smaller number of TfS audits and built internal processes to define which suppliers should undergo an audit in 2023. TfS audit findings are classified by their severity and differentiated as critical, major, minor and no findings. Of the audits conducted by TfS of four of our suppliers, three major findings were identified. They were related to health and safety, and labor and human rights issues. We requested correction within an appropriate time frame. LYB may terminate relationships with a supplier if, after repeated engagement, no action is taken on the findings.

We also embedded other non-TfS audits in our supplier risk assessment processes. In particular, we are using Safety and Quality Assessment System (SQAS) audits, an initiative of the European Chemical Industry Council (CEFIC), to assess the safety, environmental, security and health quality and corporate social responsibility performance of our European logistic service providers. Ninety-eight percent of our road transport and warehouse providers have been SQAS audited.

In 2023, no supplier relationships were terminated due to audit findings or EcoVadis assessments.

## Scope 3 supplier engagement program

Sustainable procurement plays a pivotal role in working across the value chain to reduce carbon emissions in order to meet the goals of the Paris Agreement. Emissions associated with feedstocks and raw materials make up the largest category of our reported scope 3 emissions.

In 2023, we:

- Rolled out a supplier carbon reduction program with a focus on those with the most material impact on our product carbon footprint (PCF). We are engaging with suppliers to better understand the PCF of the materials we procure and the potential for collaboration on emissions reduction opportunities. We requested that all suppliers share their PCF.
- Held multiple meetings with the main feedstock suppliers for our integrated hubs to discuss pathways to scope 1 and 2 GHG emissions reductions.
- Conducted a survey among our feedstock and raw material suppliers to understand their GHG emissions reductions ambitions. The answers to this survey allowed us to develop a supplier GHG engagement strategy.
- Involved a selected group of suppliers in a pilot test of TfS' PCF data sharing solution using Siemens' SiGreen technology. SiGreen is an information technology (IT) platform that enables TfS members and suppliers to share upstream PCF information. The selected pilot suppliers already provide PCF data and are now testing the sharing functionality of the platform.

## TfS elected LYB Chief Procurement Officer (CPO) Jen Jewson as President

The TfS General Assembly, at its Annual Meeting in 2023, elected Jennifer Jewson, CPO of LYB, as its new TfS President. Her mandate is for two years.

Sustainability is important because it affects not only our environment but also our economy and society as a whole. By working together and sharing our best practices, TfS can be a role model for other industries as we work to reduce our carbon footprint, drive circularity, conserve our natural resources, and promote social responsibility. This means inspiring and motivating others to take action within our space and externally to have a positive impact on the world.

LYB is also heavily involved at the working level in TfS. We are represented in three TfS workstreams including TfS assessments, scope 3, and as chair of the workstream on capability building and communication.

## First LYB Sustainability Award issued

In 2023, for the first time, we are proud to have bestowed a LYB Sustainability Award. The award recognized Imerys for their sustainability performance, including their strong EcoVadis rating, and their efforts in reducing the carbon footprint of the raw materials they supply us with.

Imerys' solutions contribute essential properties to customers' products and their performance, including heat resistance, hardness, conductivity, opacity, durability, purity, lightness, filtration, absorption and water repellency.

## Supply chain finance program incentivizes suppliers to obtain a sustainability rating

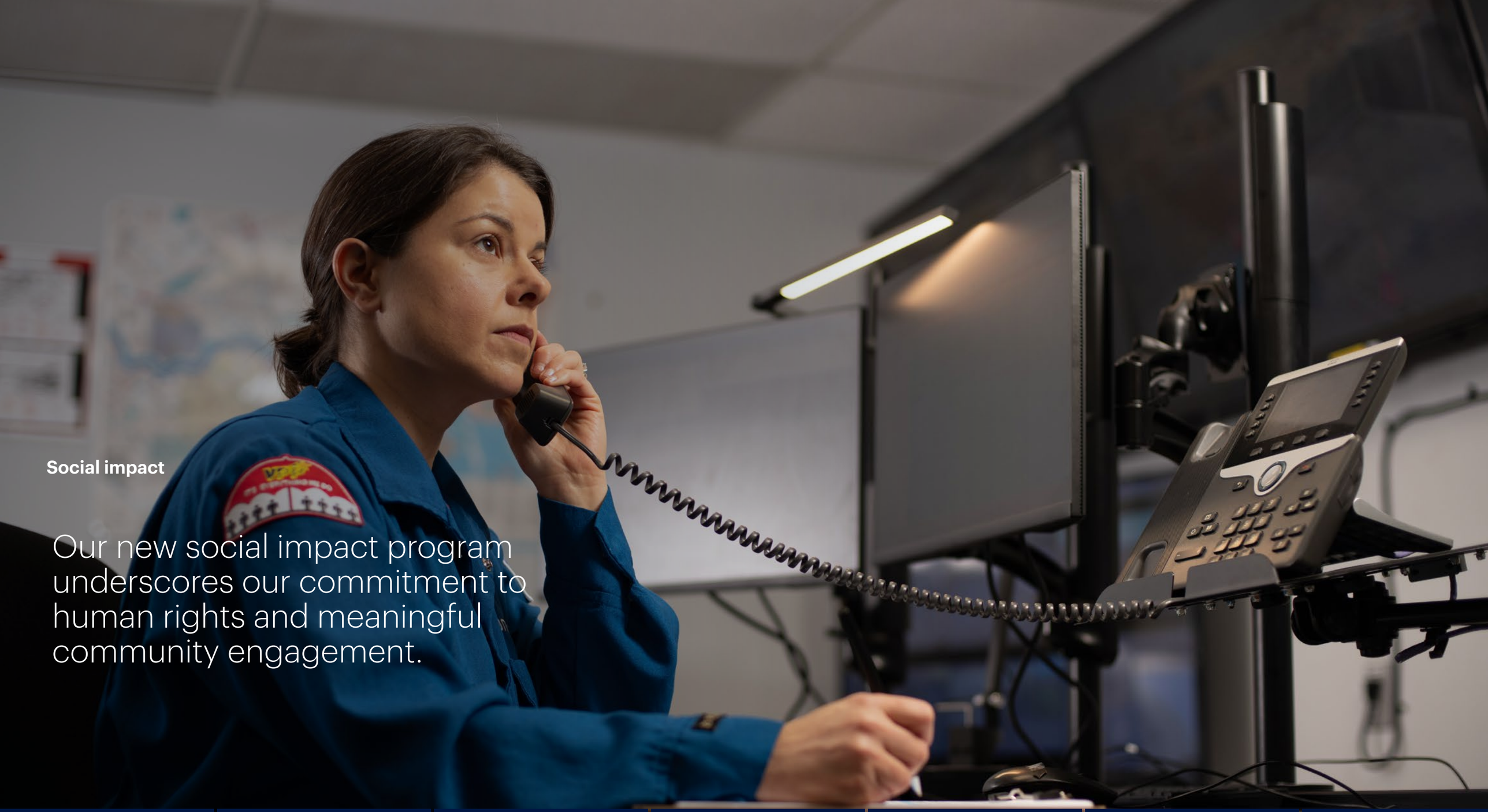
LYB is working with J.P. Morgan and Taulia to offer our suppliers an early payment program with an ESG-linked feature. With this offer, we aim to further support our ambitions for a more sustainable supply chain. The LYB Supply Chain Finance (SCF) program incentivizes suppliers to obtain a sustainability rating, offering improved pricing under the program for suppliers who obtain an EcoVadis rating with qualifying scores. This ESG-linked feature of our program is unique among SCF solutions in the U.S. and one aspect that makes the solution best-in-class. The better a participating supplier's EcoVadis score, the larger ESG margin reduction they may receive under the program.

# Supplier Diversity Program

Through our commitment to equitable opportunities and partnerships, we drive positive social impact, foster innovation, and set a benchmark for sustainable and responsible procurement practices as part of our Supplier Diversity Program.

We conducted an extensive evaluation of our global supplier base to gauge the impact of diverse suppliers on our global spend. This information serves as a crucial asset in pinpointing opportunities for growth.

As we set our sights on 2024, we are committed to expanding our approach of ensuring equitable opportunities and partnerships with diverse suppliers.



## Social impact

# Our new social impact program underscores our commitment to human rights and meaningful community engagement.

# Social impact

In 2023, we established a social impact program, which will provide a coordinated framework to deliver on our commitments to human rights and to being a responsible, good neighbor in the communities where we operate.

One of the key focus areas of the program is community engagement, which will focus meaningful, two-way engagement and enhancement of communities, as well as the management of potential impacts and delivery of needs-based community benefits. The program will establish policies and management processes that are aligned with regulatory requirements, industry best practices and community expectations, and ensure these are consistently implemented across our global footprint.

Our approach is based on continuous engagement with our communities through different, fit-for-purpose methods. For example, we participate in community events and Community Advisory Panels (known as CAPs) and conduct community surveys, which help us understand community needs, concerns, and expectations. Our site leadership teams work closely with our Advancing Good program to identify opportunities to provide need-based community benefits. As part of our commitment to continuous improvement, we will develop a coordinated global approach to social impact and integrate the approach into our existing management frameworks.

## Engaging communities in Channelview, Texas, U.S.

In July 2023, we conducted a survey in the communities around our Channelview complex in Texas. The goal of the survey was to better understand the community profile, including needs, concerns, and expectations, help identify potential need-based benefits and seek community feedback on potential GHG emission reduction projects at the site.

The survey respondents indicated that energy utility costs, transportation costs and crime and security are their main challenges. The respondents expressed need for quality jobs, workforce development and training, environmental conservation and restoration, infrastructure improvement, as well as development of green spaces and community gathering places.

We also asked the survey respondents to indicate how they would like us to engage with them and keep them informed and whether there were certain accommodations that would support their participation. The respondents expressed preferences to access information via the LYB website and social media postings and engage us via community meetings, such as town halls and surveys.

We plan to use the information gathered in the survey to shape our community engagement plans, activities and social investments in the Channelview area. In the future, we hope to implement similar community surveys at other sites to support our GHG emission reduction programs and other activities.

**Channelview Community Survey**

**Challenges**

- Energy and utility costs
- Transportation costs
- Crime and security

**Benefits**

- Quality jobs
- Environmental conservation
- Infrastructure improvements
- Workforce development and training

**Engagement**

- LYB website
- Community meetings
- Social Media postings

## Collecting community feedback at Berre l'Etang, France

Our site in Berre l'Etang in France has had a toll-free telephone number since 1999. Any community member can ask questions, submit feedback and/or complaints by calling this number. When a call is received, our local site representatives record the reason(s) for the call and log it into our internal system for tracking purposes. From there, we are able to evaluate the feedback and/or complaint submitted, direct it to the right function within the company and start working on addressing it. Once the situation has been addressed, we contact the caller again to share our findings.

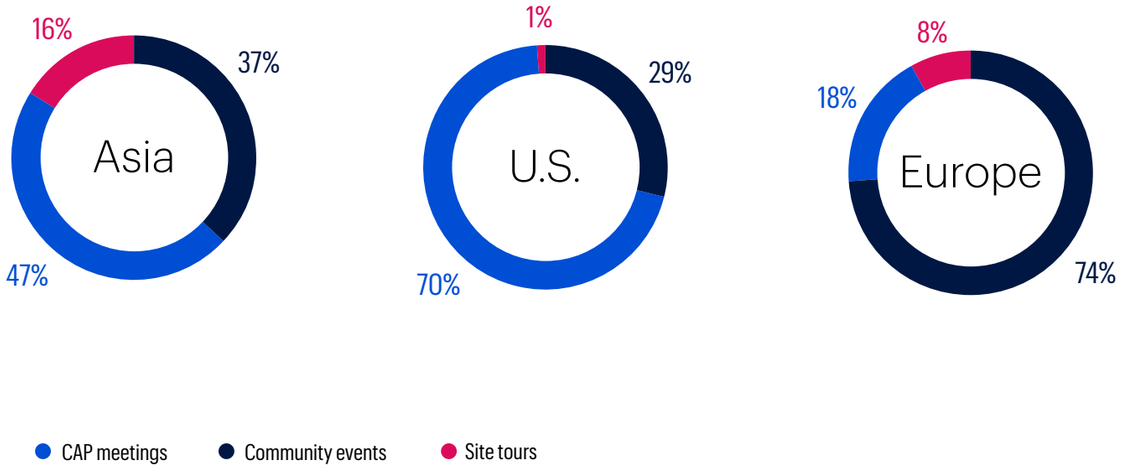
Over the years, the toll-free number has received a consist flow of feedback from the community, demonstrating community access to a feedback mechanism at our Berre site. The number has effectively fostered dialogue between the site and the community on feedback and concerns.

Apart from this call system, the site also organizes an annual forum called the Commission Locale d'Information et d'Échanges, which provides local community members with an opportunity to meet with the site management face-to-face to ask questions and/or submit feedback or complaints.

## Community engagement activities by region

In 2023, we utilized our CAPs to engage with community stakeholders. In Asia, 47% of our engagement activities were carried out through our local CAPs and 37% through community events. In the United States, 70% of engagements were through the CAPs and 29% through community events. In Europe, the breakdown was 18% CAP engagements and 74% community events.

Throughout the three regions, we also hosted a number of site tours, which provide an opportunity for LYB to be transparent about our operations and answer questions from community members and representatives.



# Human rights

Our Human Rights Policy is guided by common principles found within the UN Universal Declaration of Human Rights, the UN Guiding Principles on Business and Human Rights, and the International Labor Organization Declaration on Fundamental Principles and Rights at Work, among other international instruments.

Our Human Rights Policy sets forth our commitment to respecting human rights throughout our global operations and establishes our minimum standards for the following fundamental aspects of human and labor rights: Workforce health and safety; prevention of discrimination, harassment and retaliation; diversity, equity and inclusion; workplace security; working conditions and fair wages; freedom of association; freely chosen employment; and child labor protections. Our commitment to human rights is also reflected in our Code of Conduct, our HSE&S Policy, and our Supplier Code of Conduct.

## Preventing forced, compulsory or child labor

We forbid the use of child or forced, indentured or involuntary labor (including modern slavery and human trafficking). Each year, we issue Human Trafficking and Anti-Slavery Statements in line with the requirements of the United Kingdom's Modern Slavery Act of 2015, and the California Transparency in Supply Chains Act of 2010. In these statements, we publish information regarding our efforts to ensure that slavery, forced labor and human trafficking are not taking place in any of our supply chains or in any part of our business.

We expect our suppliers to share our commitment to upholding human rights. Our Supplier Code of Conduct defines this expectation and is incorporated in our standard contracts and purchase order terms and conditions. At the end of 2022, we updated our Supplier Code of Conduct, Human Rights Policy, and general terms and conditions to strengthen our requirements for suppliers.

Compliance with the principles set forth in our Supplier Code of Conduct is monitored through supplier risk assessments, ratings and audits.

In line with the German Supply Chain Due Diligence Law, we have started developing processes for increased human rights due diligence. We are also in the process of identifying and prioritizing our company-wide salient human rights issues. The principles described in our Human Rights Policy are important to us and, therefore, we continuously evaluate our approach to human rights, including human rights due diligence. As such, we are developing a coordinated global approach for our processes relating to community engagement, risk-based social and human rights due diligence and impact management, and community feedback, as well as integrating those processes into our existing management frameworks. For more information about our Sustainable Procurement program, refer to pages 74-77 of this report.

## Security personnel and human rights

We promote the security of our workers and premises and take affirmative steps to maintain a workplace that is free from violence, intimidation, or other disruptive conditions. We work with our security groups to ensure security response is respectful of human rights, consistent with international standards and proportional to the threat identified.

## Conflict minerals

We comply with conflict minerals laws and regulations and our Conflict Minerals Policy outlines our approach to sourcing responsibly. We outline the risks and report due diligence actions taken to manage risks with our suppliers in our annual Conflict Minerals Report filed with the U.S. Securities and Exchange Commission.

## Environmental justice

Our approach to environmental justice is grounded in our purpose, values and commitments, as well as our HSE&S Policy and Human Rights Policy. We acknowledge the importance of engaging in meaningful conversations with community stakeholders about our operations, and their needs and potential concerns.

We support the fair treatment and meaningful involvement of all people regardless of race, color, national origin or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies.

We will demonstrate our commitment to environmental justice by:

- Living our commitments to environmental, health, safety, human rights and community engagement
- Contributing to communities' environmental, economic and social well-being
- Providing opportunities for our community members to engage in meaningful two-way dialogue
- Understanding and mitigating the potentially adverse impacts of our operations
- Ensuring that environmental justice is considered in our proposed activities, projects and investments
- Reviewing and updating our environmental justice approach as appropriate for continuous improvement

Finally, we support sound policies that advance environmental justice. We believe that well-designed policies should include transparent, objective, and fact- and risk-based approaches to decision-making. This approach is designed to support our engagements with stakeholders as well as our policy efforts.

## Advancing Good

Our global corporate citizenship program, Advancing Good, demonstrates our commitment to being a responsible, good neighbor.

# Advancing Good

The program focuses on three key areas of impact: Advancing Our Communities, supporting healthy, diverse and dynamic communities; Advancing Our Planet, demonstrating our commitment to being leaders in the efforts to end plastic waste and develop sustainable solutions to protect our planet for future generations; and Advancing Tomorrow's Workforce, educating, training and preparing tomorrow's workforce to be our future leaders.

Through our Advancing Good program, we are:

- Committed to creating good through strategic community initiatives and collaboration
- Striving to make a meaningful and lasting difference, for now and for generations to come
- Actively listening to community needs and building relationships to amplify our impact through investments and volunteerism

**Advancing our planet: Promoting a beautiful and healthy environment**

## Cycling event supports Galveston Bay Foundation

More than 1,100 cyclists participated in Bike Around the Bay presented by LYB. The ride showcased the natural beauty of Galveston Bay in Texas, while supporting the mission and programs of Galveston Bay Foundation. Eighty riders participated on Team LYB, raising more than $51,000 to help ensure the bay remains a beautiful and productive place for years to come.

## LYB creates a special park accessible to every child

LYB and the City of Lake Charles, Louisiana, partnered to transform historic Lock Park into an all-inclusive park for children. The park's playground equipment will be selected to accommodate every child, regardless of need, and will feature sustainable materials and state-of-the-art design concepts. LYB committed $100,000 to the project.

"This proposal to transform Lock Park into a fully inclusive space is a dream come true for all families who have ever experienced watching their child sit on the sidelines, unable to participate in play with other children," said Julia Bourgeois, director of Families for Inclusion, Southwest Louisiana. "We are deeply appreciative for the commitment of LYB to help make this happen. This project has the ability to affect positive change in the lives of so many in our community, today and well into the future."

## 20 Houston area schools start a new recycling program with the help of LYB

As part of the Houston Recycling Collaboration, LYB provided a $100,000 grant to establish a new recycling program at the Houston Independent School District (HISD). The pilot program launched at 20 participating HISD schools where they are collecting cardboard, paper and a variety of plastics, including difficult-to-recycle plastics, from chip bags to takeout containers, for recycling. The district's staff and students received recycling education. "Our children will inherit the world we build for them, so it is key that they understand the value of recycling and the circular economy as early as possible," said Mayor Sylvester Turner of the City of Houston. "I commend HISD and its partners for embarking on such an ambitious program, driven by the need to address waste and landfill use today to enable a more sustainable future."

## Advancing our communities: Promoting healthy lives and well-being for all

# Employees volunteer to help end hunger around the world

In 2023, LYB celebrated our annual day of service by supporting World Food Day. Nearly 2,600 dedicated colleagues from 97 sites contributed 16,000 hours of work, translating to $508,000 in the value of volunteer hours served. LYB also donated 144,000 pounds (65,200 kilograms) of food to local charitable organizations, which benefited nearly 110,000 individuals.

Adding to our efforts in the fight against food insecurity, 230 Houston employees came together to package 40,200 nutritious meals in collaboration with Rise Against Hunger, a global movement dedicated to ending hunger and empowering communities.

# LYB provides emergency support for communities in crisis

An essential part of Advancing Our Communities is supporting first responders in the communities in which we operate. LYB is a sponsor of the Texas A&M Engineering Extension Service (TEEX), a global leader in industrial emergency response. We recently contributed $100,000 to support a new 40,000-square-foot classroom and office complex at the world-renowned Brayton Training Field and Disaster City in College Station, Texas. The largest liquid-fueled, live-fire training facility in the world, Brayton Fire Training Field offers training ranging from industrial complexes to a marine freighter and full-scale aircraft. Over 45,000 emergency responders train there each year. Since 2016, LYB has donated a total of $300,000 to TEEX to send community and municipality fire departments to specialized training.

Following a series of natural disasters across the globe in 2023, employees mobilized quickly to support emergency response through relief grants and matching gifts. In Turkey, LYB donated $106,000 and raised an additional $17,000 through 1:1 employee matching for Ahbap Platformu which provided shelter, food and medical supplies to those impacted by the February earthquake. In Italy, Coordinamento Associazioni di Volontariato della Protezione Civile received €300,000 for equipment, first aid, and food distributions following the catastrophic May floods. In September, an additional $10,000 was donated to International Medical Corps toward relief efforts for the earthquake in Morocco and flooding in Libya.

In August, the Asia Pacific Islander Region (ASPIRE) employee network donated $20,000 to the Hawaii Community Foundation to support relief and recovery following the deadly fires in Maui. "As a Native Hawaiian, and a cousin to one of the survivors that lost everything, I am proud that ASPIRE and LYB are supporting those that have lost so much in such a short time," said Diane Kilpatrick-Lee, ASPIRE Programming Co-Chair. "I am profoundly grateful to my ASPIRE and LYB ohana (family) for their aloha in providing this donation, which will help the people of Maui to rebuild their homes, their community, and their lives, which is the true measure of ohana and the spirit of aloha."

# Fifty-year milestone at LYB site in Germany benefits local community groups

Our Münchsmünster site celebrated its 50th anniversary in 2023. To commemorate the milestone, the site donated €70,000 to local aid organizations, focusing on food security, first responders, and general health. One of the recipient organizations is ELISA Familiennachsorge e.V. (ELISA), which offers family aftercare for seriously ill, chronically ill and cancer-stricken children. "We can't make children who are ill well again, but we can support them and their families, relieve them and accompany them," says Nadine Dier, Managing Director of ELISA. Other recipients are EFJ Hollerhaus gGmbH, cf-inititative-aktiv e.V., FIPS Kinderkrankenpflege Schiedermeier gGmbH, Förderverein Katastrophenschutz Pfaffenhofen a. d. Ilm e.V., Freiwillige Feuerwehr Münchsmünster e.V., Freiwillige Feuerwehr Schwaig e.V., Grundschule Münchsmünster, Stiftung Kinder-Universitätsklinik für Ostbayern (KUNO) Foundation, Schwoagara Dorfbühne Kunst und Kultur e.V., Tafel Abensberg e.V., Tafel Ingolstadt e.V., Verein zur Förderung krebskranker und körperbehinderter Kinder Ostbayern e.V. and Waisenhausstiftung Ingolstadt Peter-Steuart-Haus.

## Advancing tomorrow's workforce: Preparing tomorrow's leaders

# Partnership with San Jacinto College helps students explore careers in the petrochemical industry

At LYB, we are dedicated to creating equitable access to education at all levels of education with a focus on science, technology, engineering, and mathematics (STEM) and strive to empower students to explore careers in the petrochemical industry. LYB invests in training opportunities for the next generation of workers. One way we do this is through our ongoing partnership with San Jacinto College (SJC) in Pasadena, Texas. To date, the company has donated $350,000 to the college's Promise@SanJacScholarship program, which provides debt-free college, covering tuition, books and supplies for up to three years for any student graduating high school within the college's tax district. With a greater than 60% Hispanic student population, SJC is a federally designated Hispanic Serving Institution.

In 2023, 23 SJC graduates turned new hires were recognized in signing day events where their families and company leadership celebrated their graduation from the college's LYB Center for Petrochemical, Energy & Technology and commemorated beginning their careers.

Through our partnership with SJC, we also support hands-on K-12 STEM programs hosted by the college. One of these programs, Energy Venture Camp, introduces middle school-age students to local industry career opportunities at no-cost to their families or schools. Students spend a week at camp performing lab experiments, touring behind-the-scenes of a production facility, and meeting with experts in the field.

# A unique career path from camper to engineer

LYB Polymers Production Engineer Myles Chapman's career path began in 2013 as an Energy Venture camper. A natural tinkerer, Myles was drawn to STEM-related activities from a very young age, preferring tool belts to teddy bears as a toddler and helping his father, a mechanical engineer, build their house from the ground up. Chapman was first introduced to the petrochemical industry and LYB, through a site field trip during camp. The following summer Myles continued pursuing his new interest at the pre-college Minority Engineering Advancement Program at Purdue University, where he ultimately graduated from in 2023 with a bachelor's in chemical engineering. While working toward his degree, Myles's Energy Venture Camp experience helped open the door for two years of co-ops and internships with industry partners he learned about at camp. Today, hired on after his final co-op term, Myles now works on the same LYB unit he first visited as a student ten years ago.

"Energy Venture camp unlocked a whole new world for me to get my hands on as a kid, and my co-op experience with LYB helped bring my academic and professional journey full circle," said Myles. "It's important for students to keep their eyes open for and take advantage of these opportunities and programs at their schools and with local companies."

# LYB joins the Discovery Education STEM Careers Coalition

To help K-12 educators connect students to STEM in the U.S., LYB joined the Discovery Education STEM Careers Coalition, which focuses on equity and access to quality education and building the next generation of solution-seekers. The company also helped found the Sustainability Education Coalition, a first of its kind initiative to empower K-12 students to serve as ambassadors for sustainability by providing the resources they need to make informed decisions and take responsible actions supporting sustainability.

## Advancing Tomorrow’s Workforce: Preparing tomorrow's leaders

# LYB and Dutch professional football club use STEM and sport to improve the lives of children

Since 2020, LYB has been a strategic partner of Feyenoord, a Dutch professional football club known for its achievements in Dutch football and impactful community service initiatives in the southern region of Rotterdam. In 2023, 65 employees volunteered as guest lecturers to engage young students in STEM education, life skills and future career development. As part of this community partnership, LYB actively contributes to Feyenoord in four key areas and has dedicated 300 volunteer hours.

**Club 1908:** Enhances STEM education for primary school students, with 641 participants last season.

**Zuidblinkers:** Fosters career development and life skills for youth aged 12-30.

**Street League:** Sponsors an engaging football tournament that had 324 participants from the region of south Rotterdam.

**Technasium:** Ignites innovation through a competition promoting healthy lifestyles.

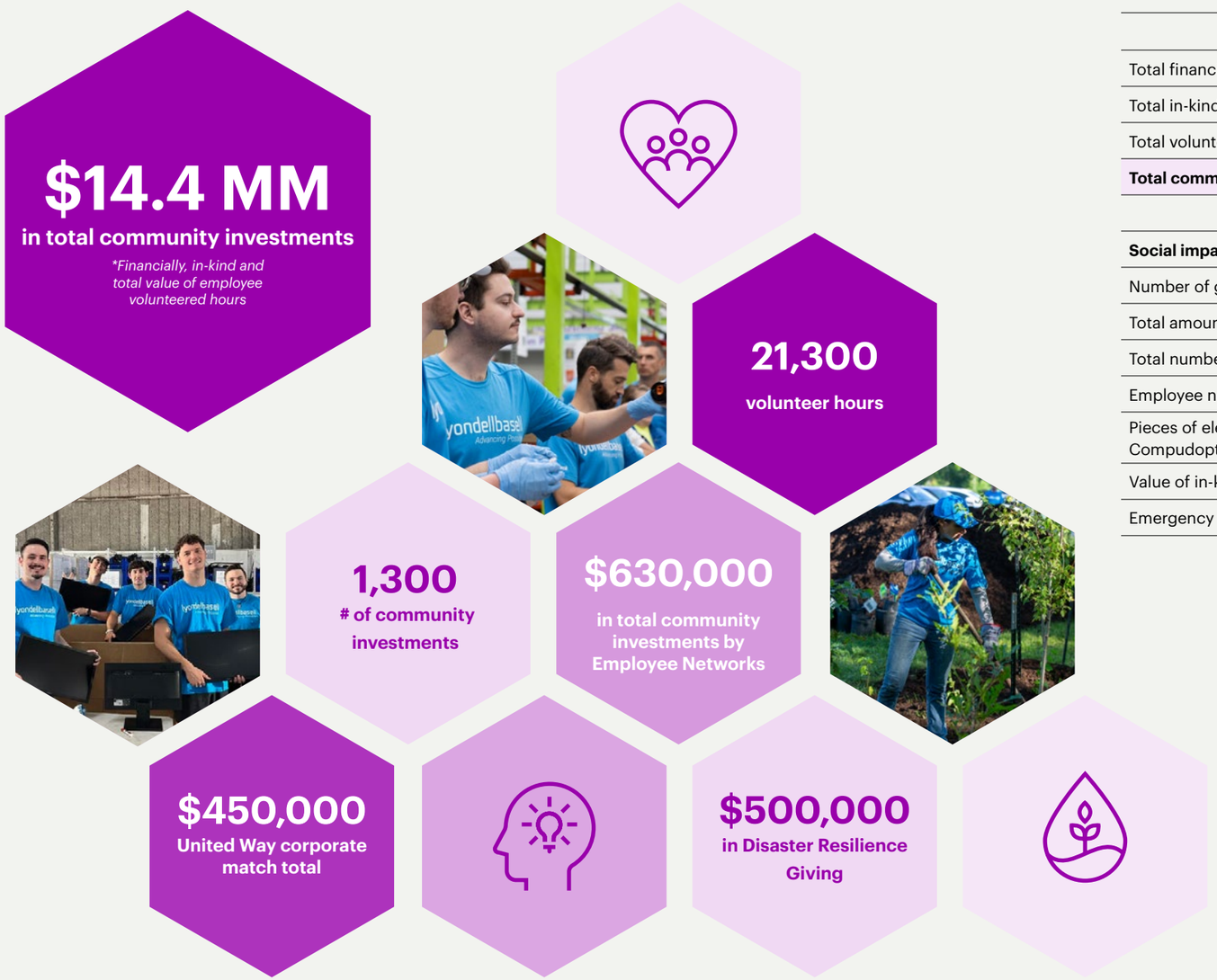
Research from the Impact Center Erasmus shows that Feyenoord Street League ensures connection among participants. Participants of the Feyenoord Street League have better mutual relationships after the season 2022-2023.
In addition, they have a high intrinsic motivation to play sports throughout the year and a lot of bond and trust with the team.

In 2023, we increased our involvement in Feyenoord’s grassroots initiatives. During a Christmas dinner for vulnerable families from the south of Rotterdam, we gave 175 STEM-focused toys to children aged 8-12. Our goal
is to make learning STEM fun and inspiring. Our colleagues took the time to wrap each gift with care before personally handing them to every child.

# Language program in Louisiana school leads to bi-literacy and student achievement

In Louisiana, our Latin Employees Advancing DEI (LEAD) employee network commemorated Hispanic Heritage Month with a $20,000 donation for an English as a Second Language program at Fairview Elementary School in Lake Charles, where the student population is nearly 60% Hispanic. The contribution will provide the school with the resources to earn the Louisiana State World Language Immersion Certification, which helps establish and maintain high-quality dual language immersion programs that lead to biliteracy, student achievement, positive self-esteem, and marketable skills for the global workforce.

# Impact by the numbers




| | 2020 | 2021 | 2022 | 2023 |
|---|---|---|---|---|
| Total financial contributions | $10,828,000 | $10,558,000 | $10,214,000 | $13,284,000 |
| Total in-kind donations globally | $280,000 | $296,000 | $273,000 | $425,000 |
| Total volunteer hour value | $171,000 | $302,000 | $740,000 | $676,000 |
| **Total community investments** | $11,279,000 | $11,156,000 | $11,227,000 | $14,385,000 |

| **Social impact details** | | | | |
|---|---|---|---|---|
| Number of grants | 900 | 1,280 | 1,800 | 1,220 |
| Total amount of employee matched requests | $417,000 | $541,440 | $907,620 | $614,450 |
| Total number of volunteer hours | 6,000 | 10,600 | 23,290 | 21,270 |
| Employee networks contributions | | | $106,750 | $623,100 |
| Pieces of electronic equipment recycled through Compudopt since 2020 | 1,270 | 1,369 | 1,260 | 1,930 |
| Value of in-kind donation of electronic equipment | $274,300 | $296,580 | $273,000 | $417,500 |
| Emergency relief and first responder support | $1,490,170 | $993,430 | $721,270 | $862,500 |

# Governance

# Governance

We have a steadfast commitment to doing business in an ethical and responsible manner. This value is reflected in our Code of Conduct, Financial Code of Ethics, Corporate Governance Guidelines and participation in the UN Global Compact.

## Board structure and independence

Our Board is responsible for general oversight of our management team and the overall course of affairs of LYB. The Board is comprised of 11 independent directors and our CEO. The Board, acting in the interests of LYB and taking into account the relevant interests of our stakeholders, supervises and advises our CEO and other executives in managing the day-to-day affairs of the company and setting the direction of the company's business. Major management decisions and strategy are discussed with and approved by the Board.

Our goal is to have a Board that provides effective oversight of the company through the appropriate balance of experience, expertise, skills, competencies, specialized knowledge, and other qualifications and attributes. Our Board is led by an independent Chair, Jacques Aigrain.

## Board Diversity Policy, gender diversity data, tenure, experience

As outlined in our Corporate Governance Guidelines, our Board considers diversity a priority and seeks representation across a range of attributes, including gender, race, ethnicity, nationality, background and expertise. Our Board remains committed to appointing at least one-third female directors, alongside continued focus on increasing the racial and ethnic diversity of the Board.

For more information about our 2023 Board including director independence, tenure and diversity, refer to our 2024 Proxy Statement, pages 10-19.

## Board oversight of sustainability

Our Board is committed to sustainability, social responsibility, and good corporate governance and delegates oversight to its committees.

Our HSE&S Committee oversees risks and opportunities related to safety, sustainability and climate change. Management reports on key sustainability and climate topics and initiatives at each regularly scheduled HSE&S Committee meeting, and the Board participates in a session on sustainability strategy and actions at least annually. During the Board's annual strategy meeting in July 2023, the Board reviewed the company's strategy, progress, and programs related to its goals on sustainability, climate and the circular economy. The HSE&S Committee reviewed updates to the company's ESG dashboard, which summarizes key environmental, social and governance metrics and activities, at each of its four regularly scheduled meetings. The Committee reviews and approves this report.

The specific responsibilities of the HSE&S Committee are summarized below.

- **HSE:** Review and monitor the company's health, safety, environmental and climate policies and performance results, including processes to ensure compliance with applicable laws and regulations; review with management environment, health, safety, and product stewardship issues that can have a material impact on the company; and review the status of related policies, programs, and practices.

- **Sustainability:** Provide oversight of the company's sustainability programs, initiatives, and activities; review with management relevant sustainability risks and trends; and monitor the company's progress on sustainability targets, ambitions, and reporting.
- **Audit:** Review and approve the scope of the company's health, safety, and environmental audit program; regularly monitor audit program results; and review and approve the annual budget for the health, safety, and environmental audit program.

The Compensation and Talent Development Committee oversees our talent management and DEI programs, among other responsibilities.

## Climate change risk management

The Enterprise Risk Management (ERM) organization, led by our General Counsel, is responsible for defining our overall risk profile and overseeing our risk management programs. Our ERM team aims to integrate a forward-thinking risk culture into every level of our organization by providing actionable risk management insights to leadership and equipping employees and management with tailored frameworks, tools, and processes to address significant threats and opportunities.

In 2023, our ERM function focused on four strategic priorities: (1) enterprise level risks, (2) departmental risks, (3) climate change risk management, and (4) building risk management capabilities.

Climate change risks include both physical risks stemming from the direct impact of climate change on the environment and our assets and operations, and transition risks and opportunities that arise from the global shift toward a lower carbon and more sustainable economy. A multi-disciplinary team led by ERM identifies and assesses climate-related risk exposures throughout LYB and our extended supply chain. We address specific climate-related risks through structured response plans, which are shared with our Sustainability Council Committee, with input and alignment from the Executive Committee and the HSE&S Committee of the Board. We utilize the Task Force on Climate-Related Financial Disclosures (TCFD) framework to guide our approach to reporting and disclosure, underscoring our commitment to transparency.

## Management oversight of sustainability

At the management level, our CEO oversees the company's ESG profile through regular reporting and discussion on key topics and initiatives among members of his Executive Committee, comprised of senior executives that lead businesses and functions. ESG matters impact, and are impacted by, all of our operations, with each function playing a role in identifying relevant opportunities, managing associated risks, and contributing to our overall sustainability program. The Executive Committee includes, among others, our Executive Vice President, Sustainability and Corporate Affairs, with responsibility for sustainability strategy and ESG reporting, our Executive Vice President, CLCS, who is building and leading a scalable, circular and low-carbon solutions business, and our Executive Vice President, Operational Excellence and HSE, who is responsible for the execution of our plans to reach our interim and long term scopes 1 and 2 targets. Our Executive Committee meets regularly to review strategies, policies and risks related to sustainability and ESG topics, including climate-related topics. The Vice President and CSO is responsible for the management of sustainability programs, strategy, and reporting, and is supported by a global group of dedicated employees. This group collaborates with leaders across the organization, including the members of the Executive Committee and the Net Zero Transition team, to bring together the functional expertise and skills needed to achieve our sustainability and ESG objectives.

## The Sustainability Council and Net Zero Transition team

The Executive Committee is supported by the Sustainability Council, which was formed in 2023 and provides guidance in all matters related to sustainability, including on climate-related matters. The Net Zero Transition team, established in 2022, and reporting to our Executive Vice President of Operational Excellence and HSE, is responsible for the execution of our plans to reach our interim and long-term scope 1 and scope 2 GHG emission reduction goals.

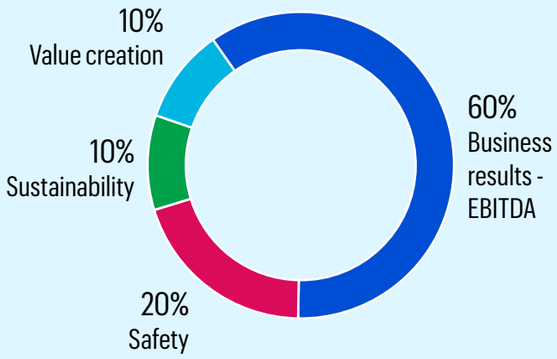
Progress against our scope 3 target is under the oversight of our Global Sustainability Team, working closely with internal stakeholders across the organization including with our business segments, procurement, and supply chain.

Since 2022, sustainability has been factored into our short-term incentive program for our CEO, Executive Committee and employees.

## Compensation tied to ESG metrics

To underscore our commitment to safety, accountability and timely delivery of our climate and circularity goals, ESG performance accounts for 30% of the total payout under the company's short-term incentive program (20% Safety and 10% Sustainability).

### 2023 sustainability metrics tied to our short-term incentive compensation program:




| Goal | Result |
|---|---|
| Operate in a safe, reliable manner to protect our employees, our assets, and the communities in which we operate. | Achieved a total recordable injury rate of 0.14 and process safety total incident rate of 0.035. Details of our safety performance are on pages 51-54. |
| Execute power purchase agreements with cumulative value from January 1, 2022 of 700 gigawatt (GW) of renewable energy capacity. | Signed PPAs with a combined renewable energy capacity of 1,041 GW. A discussion of our 2030 renewable electricity goal is on page 31. |
| Progress energy efficiency projects to improve energy efficiency by 1%. | Completed projects improving energy efficiency by 1.1%. |
| Produce and market 150kt of recycled and renewable-based polymers.[1] | Produced and marketed: 123kt of recycled and renewable-based polymers[1]. An overview of our CLCS business unit and Circulen products is on pages 14-26. |

1. Production and marketing include: (i) joint venture production marketed by LYB plus our pro rata share of our ownership interest of the remaining production produced and marketed by the joint venture, and (ii) production via third-party tolling arrangements.

# Ethics and integrity

LYB upholds high ethical standards and is committed to complying with applicable laws and regulations.

Our Compliance Department is governed by a written charter and led by our Chief Compliance Officer (CCO), who has a direct reporting relationship to the LYB Audit Committee, the CEO and the General Counsel. The CCO discusses the compliance program with the Audit Committee at each of its quarterly meetings, including details on training, metrics and risk assessments. We conduct global anti-corruption, antitrust/competition law and trade sanctions compliance risk assessments at least once every three years with the most recent concluded in 2022. Additionally, our Audit Committee oversees periodic reviews of the Compliance function and its effectiveness, which are conducted by external law firms as well as the company's internal audit function. The most recent assessment of our Compliance function was conducted in 2022.

## Code of Conduct

Our Code of Conduct sets out our expectations on topics such as respecting fellow employees, anti-corruption, conflicts of interest, trade compliance, antitrust and competition law, insider trading, sanctions, misconduct and political donations. Our Code of Conduct can be found on our website at www.lyb.com in 17 languages. We take steps to ensure it is fully explained through annual trainings and other internal communications. In addition to the Code of Conduct, our CEO, CFO and Chief Accounting Officer must also adhere to an additional Financial Code of Ethics.

Our Supplier Code of Conduct outlines our health, safety, environmental, social, governance and ethical expectations for those with whom we do business. We utilize the globally recognized EcoVadis platform to better understand our suppliers' sustainability performance.

We also uphold policies related to, among other things, political contributions and international business transactions. We periodically update these policies and develop new policies according to emerging topics or risks as they arise.

## Training on the Code of Conduct and compliance policies

All employees are required to complete training on the Code of Conduct annually and must acknowledge they have read and understand the Code. In 2023, 100% of employees received, and 99.5% completed the training. In past years, approximately 2,200 select contractors received training based on their location, job function and access to sensitive company information. In 2023, we expanded the population to approximately 5,800 contractors. In 2023, approximately 70% of the assigned contractors completed the training.

The company has established additional compliance policies, forms and procedures related to anti-bribery and corruption, antitrust/competition law and international trade/sanctions. These policies and procedures are routinely reviewed and updated as necessary and made available to all employees in multiple languages. Excluding Code of Conduct training, in 2023, approximately 25% of employees received and completed web-based, virtual or in-person training on targeted ethics and compliance issues including anti-corruption, conflicts of interest, trade compliance and antitrust.

In addition to annual training on the Code of Conduct, in the fourth quarter of 2023, approximately 2,000 employees – based upon location and position – were required to certify compliance with the Code of Conduct by completing the 2023 Annual Code of Conduct Certification. The certification includes questions about compliance with our:

- Conflicts of Interest Policy
- Trade compliance efforts
- Anti-corruption and anti-money laundering efforts
- Antitrust/Competition Law Policy

Responses to the questions were reviewed on a case-by-case basis, and investigations were conducted into any alleged noncompliance.

## Mechanisms for concerns

We encourage employees to speak up if they have concerns about violations of company policies or the law by reporting the issue to their supervisor or manager, People and Culture representative or any member of the Legal or Compliance Department. We also offer an independent whistleblower telephone helpline and website, which is available 24 hours a day and in multiple languages to all employees and stakeholders. It is operated by EthicsPoint, a company providing third-party reporting for many global companies. As provided in both our Code of Conduct and our European Union Whistleblower Policy, LYB prohibits retaliation against people raising concerns and investigates any allegation that such retaliation has occurred.

In 2023, we received a total of 172 reports through EthicsPoint, a 23% increase over the prior year. Of the EthicsPoint reports received, 72% were anonymous. Each report which alleges behavior that, if true, would constitute a violation of law or company policy is fully investigated and documented with a written report of the investigation, conclusion and remedial action if any is warranted. Of the allegations received in 2023 and closed as of February 12, 2024, 17% were substantiated, 26% were partially substantiated, 38% were unsubstantiated, 8% are in process, 6% had no violation of company policy/law identified, and 5% were not investigated due to insufficient information.

An overview of all investigated matters is presented to the company's Audit Committee at its quarterly meetings. Reports involving the CEO or his direct reports, the General Auditor, or the CCO must be reported immediately to the Audit Committee for review and appropriate action.

## Conflicts of interest

The company has a Related Party Transaction Approval Policy requiring Audit Committee approval of certain transactions between the company and related parties. In reviewing each transaction, the Audit Committee considers, among other factors, whether the terms of the transaction are fair to the company and whether the transaction would present an improper conflict of interest for any director or executive officer of the company. During 2023, all transactions requiring approval under the policy were reviewed and approved by the Committee. The company also has a Conflicts of Interest Policy that governs the approval process for relationships of officers, directors and employees, that might conflict, or appear to conflict with the best interests of the company. For more information on Related Party Transactions, refer to our 2024 Proxy Statement, page 88.

## Anti-corruption

With a focus on behaving ethically and operating with integrity, LYB views compliance with all applicable laws as the responsibility of all employees and others with whom we do business. Our Anti-Corruption Policy makes clear our commitment to detecting and preventing corruption by our employees and those acting on our behalf.

## Operations assessed for risks related to corruption

We utilize the Resource Guide to the Foreign Corrupt Practices Act published by the U.S. Department of Justice and the Securities and Exchange Commission, the U.K. Bribery Act Guidance, various guidance provided in the U.S. Department of Justice settlement documents and Evaluation of Corporate Compliance Programs, published by the U.S. Department of Justice Criminal Division along with the Transparency International Corruption Perceptions Index and other guidance from jurisdictions where we operate to assess risks related to corruption. We periodically conduct internal and external audits of the books and records of our subsidiaries, joint ventures and affiliates to ensure compliance with the anti-corruption, anti-bribery and commercial bribery laws.

LYB has an established due diligence policy for certain third-party relationships including joint venture partners, international representatives, distributors, resellers/traders and technology licensing projects. Corresponding due diligence or risk mitigation procedures are based on the type of service provided and risk footprint. As part of our trade control processes, we also check whether persons, companies or organizations appear on sanctions lists, and whether there are business processes with business partners from or in countries under embargo.

## Communication and training on anti-corruption

In addition to the ethics and compliance training all employees are required to complete annually, which addresses anti-corruption policies and procedures, the company also provides tailored anticorruption training to approximately 4,900 employees each year, including all executive, management and selected additional employees depending on relevant job functions. The training is available in 17 languages, and annual completion rates have historically been 100%, with 2023 being no exception.

Additionally, the Compliance Department delivers quarterly, web-based awareness videos to selected employees on a variety of topics including conflicts of interests, bribery and corruption, and gifts and entertainment. For our joint ventures identified as higher risk, the company works to maintain an ongoing dialogue regarding compliance with anticorruption laws and has provided targeted informational training to joint venture employees on best practices for compliance, as well as LYB policies and procedures.

## Anti-competitive behavior

We  avoid any agreements with other companies that limit competition in the marketplace. This policy applies to all persons and entities acting for or on behalf of LYB, including but not limited to our employees. For more information, refer to our Antitrust/Competition Law Policy.

The LYB Compliance Department conducts annual antitrust/ competition law training for approximately 2,000 employees, with a 100% completion rate. Employees completing the training are selected based on their role within the company and potential antitrust risks related to their function. The training is available in 16 languages and covers key concepts such as the need to avoid the improper exchange of commercially sensitive information with competitors, and antitrust/ competition law offenses, such as price fixing and market allocation.

The Compliance Department's standard annual live compliance training program for new and existing employees includes modules dedicated to antitrust/ competition law compliance. Additional, specialized live trainings are provided from time to time to address specific antitrust risks.

# Concerns reported

In 2023, LYB had no legal actions pending or completed regarding anticompetitive behavior, violations of antitrust, or monopoly legislation in which the company was identified as a participant.

| Concerns about ethics | 2022 | 2023 |
|---|---|---|
| **Concerns reported** | | |
| Discrimination (harassment and retaliation) | 52 | 61 |
| Misconduct or inappropriate behavior | 26 | 43 |
| Conflict of interest | 15 | 13 |
| Environmental protection, health or safety | 5 | 10 |
| Accounting and auditing | 5 | 5 |
| Embezzlement and theft | 2 | 5 |
| Violence or threat | 3 | 5 |
| Anti-bribery | 0 | 4 |
| Substance abuse | 3 | 3 |
| Antitrust/Competition law activity | 0 | 1 |
| Confidentiality and misappropriation | 0 | 1 |
| Financial issues | 3 | 1 |
| Privacy and IS Security | 0 | 1 |
| Computer, e-mail and internet use | 2 | 0 |
| Covid 19-related concerns | 4 | 0 |
| Other | 20 | 19 |
| **Total** | 140 | 172 |

| Investigations by region | | |
|---|---|---|
| U.S. | 85 | 103 |
| Latin America (including Mexico) | 6 | 28 |
| Asia Pacific | 19 | 18 |
| Europe | 21 | 16 |
| Middle East & Africa | 9 | 7 |
| **Total** | 140 | 172 |

| | 2022 | 2023 |
|---|---|---|
| **Disciplinary actions** | | |
| Counseling | 16 | 31 |
| Procedure changed | 0 | 14 |
| Policy/Process review | 0 | 7 |
| Training | 6 | 6 |
| Disciplined | 0 | 7 |
| Warning | 7 | 5 |
| Referred to other department | 0 | 2 |
| Referred to third party (vendor or contractor) | 0 | 1 |
| Third-party relationship terminated | 2 | 0 |
| Performance improvement plan | 1 | 0 |
| Termination | 5 | 16 |
| **Total** | 37 | 89 |

The table shows concerns reported through EthicsPoint, an independent whistleblower telephone helpline and website, which is available 24 hours a day and in multiple languages to all employees and stakeholders.

# Stakeholder engagement

We recognize the vital role that stakeholders play in our business operations and the importance of fostering positive, collaborative relationships with them. We engage daily with stakeholders globally covering a wide variety of topics and issues. We know that our stakeholders have a broad range of interests, and we strive to seek their input, listen to their perspectives and expertise, and prioritize and integrate their feedback in a strategic and sustainable manner. LYB believes that systematically engaging with stakeholders will allow us to better understand, address, and manage stakeholder expectations, interests and concerns, identify emerging trends and opportunities; gather external input and expertise to inform strategy, promote innovation and collaboration on solutions to challenges; increase transparency; discover and reduce risk; efficiently allocate resources; and better serve our stakeholders.

On an ongoing basis, LYB receives feedback from stakeholders in a variety of ways, including investor events, telephone and in-person conversations, employee discussions and surveys, customer discussions and surveys, community and local engagements, and social media interactions.

We are committed to open and two-way communication with our stakeholders. We actively seek and listen to feedback, concerns, and suggestions from our stakeholders. The method and frequency of engagement with our stakeholders may change according to their needs and priorities.[1]

In 2023, our Board adopted a Stakeholder Engagement Policy, which is available on our website, to outline our values and approach to stakeholder engagement, including shareholders.

| Stakeholder Group | Type of Engagement |
|---|---|
| **Customers** | In 2022, we formed the Customer and Commercial Excellence group to enhance our customer focus and ensure the customer's experience from beginning to end is consistent in quality, service, and innovation. We engage regularly with customers to improve our products, respond to their needs and support sustainability commitments along the value chain. We also use customer surveys as a feedback mechanism. Our sales representatives and technical experts work closely with customers to address concerns and provide product stewardship information. According to their requirements, customers visit our manufacturing sites to review our operations and observe our compliance with international standards. |
| **Employees** | We receive input from our employees in many ways, including through the MyVoice biennial employee engagement survey and our employee networks. Employee-wide communications include regular news updates on our intranet site and a weekly global employee newsletter, quarterly newsletters at the major manufacturing sites, social media updates and access to an employee mobile app. We also receive employee input through representatives of our business units and employee networks. Our Employee & Labor Relations group within the People and Culture department also receives employee feedback or concerns. In addition to contacting management or People and Culture, employees can anonymously report concerns at any time through EthicsPoint, our third-party ethics helpline. |
| **Government and regulators** | We communicate with government, legislative and regulatory officials through issue-specific meetings, industry events and visits to our sites. We respond to public consultations to provide input and share expertise on future legislation or regulation. |
| **Industry associations** | We regularly collaborate with industry and value chain partners. We belong to more than 170 industry associations worldwide, most of which are in the U.S. and Europe. Senior executives and more than 400 employees participate in industry association boards, committees and working groups. |
| **Investors and shareholders** | Engagement with shareholders occurs in one-on-one meetings and calls with shareholder representatives, at our annual general meeting of shareholders, and through our regular participation in industry conferences, investor road shows, and analyst meetings. Throughout the year, we discussed the company's strategy and environmental, social, and governance profile with multiple investors and engaged with their questions or concerns on these and other topics. Our Chief Sustainability Officer regularly joins meetings to discuss our climate and sustainability ambitions. In addition, our independent Board Chair has joined these discussions when requested. Management updates the Board regularly on conversations with shareholders and feedback received. We are committed to remaining proactive in our engagement efforts and shareholder outreach. |
| **Local communities** | We regularly meet with community members to share information about our activities, and listen to their concerns and feedback. Community leaders, elected officials and the public are invited periodically to tour our sites. Additionally, 15 of our manufacturing sites have formal Community Advisory Panels or Community Action Committees. These groups represent a cross-section of the community, including local residents living in neighborhoods near our sites and facilities, industry peers, local academia and healthcare, and business and civic leaders. We also participate in multiple associations across the U.S., including economic development corporations, environmental councils, local emergency planning committees and mutual aid organizations. |
| **Non-governmental organizations** | We regularly engage with NGOs. These engagements take place through discussions with senior leaders, as well as through coalitions that bring together stakeholders on sustainability topics that we advance. |
| **Suppliers** | At our manufacturing sites, we regularly engage with our suppliers to achieve our GoalZERO ambitions, with a particular focus on people, product and process safety. Our Global Sustainable Procurement program seeks to accelerate environmental and social improvements in our supply chain and industry. |

1. In line with the Dutch Corporate Governance Code, it is up to the discretion of the management of LYB to determine on a case-by-case basis whom to enter into dialogue with and in which form.

# Industry associations

LYB is a member of industry associations that provide a venue for chemical, plastic and refining companies to lend our voices to issues impacting our industry. While we may not completely agree with every position taken by an association or its members, corporate memberships enable us to voice our support, concerns, perspectives and positions on proposed legislation and regulations. We also participate in a variety of issue advocacy coalitions and alliances that seek to advance policy proposals focused on key priorities for the chemical, plastic and refining industries and our company.

We regularly review our memberships in coalitions, alliances and trade associations to assess their business value and alignment with our policies and priorities. The Vice President of Government Relations has oversight of our memberships in trade associations. The following is a list of our most significant membership associations:

- American Chemistry Council
- American Fuel & Petrochemical Manufacturers
- Business Europe
- The European Chemistry Industry Council (Cefic)
- China Petroleum and Chemical Industry Association
- European Petrochemical Association
- International Council of Chemical Associations
- National Association of Manufacturers
- Plastics Europe
- Plastics Industry Association (U.S.)
- World Plastics Council

# Engagement with value chain stakeholders

We aim to become an influential leader in addressing plastic waste and taking climate action. Collaboration across and beyond our industry and value chain is essential for us to realize our ambition and achieve our sustainability goals. This is why we are participating in strategic alliances that can accelerate solutions to challenges we face as an industry and as a society.

### Alliance to End Plastic Waste (AEPW)

We have been a founding member of the AEPW, since its inception in 2019, and we remain invested in the collective goal to address the challenge of plastic waste in the environment. In 2023, we refocused our commitment to AEPW through more active participation in workstreams in areas of digital innovation, circularity, plastic recycling and waste management projects.

In 2023, we also committed to participating in one of the Alliance's projects in the Bersih Indonesia: Eliminasi Sampah Plastik, or Berish Indonesia: Elimination of Plastic Waste, program. This public-private-people partnership aims to develop effective, replicable and commercially viable waste management systems in underserved communities and help to end plastic waste in Indonesia. During 2024 LYB will support the clean-up of the Tumpang region, one of the larger areas in the Malang Recency, including 43 target areas with the aim to divert around four kilotons of plastic waste from the environment.

### Ocean Plastic Leadership Network (OPLN)

Founded in 2019, the OPLN brings together a diverse group of NGO, industry, and brand stakeholders (90+) with the aim to build capacity for collaboration and deepen the understanding of each other's positions to accelerate progress on action plans, especially around the development of the Global Plastics Treaty.

In 2023 LYB was invited to join the Stewardship Committee of the OPLN's Progressive Advanced Recycling Forum. This Stewardship Committee was established to co-create a set of Responsible Production Guidelines for Progressive Advanced/Chemical Recycling to address important performance metrics on environmental protection, environmental justice, circularity and the waste hierarchy, operational transparency, and complementarity to mechanical recycling. These guidelines will be shared with policymakers, regulators, market stakeholders, and NGOs with a particular focus on contributing to the ongoing negotiations for the Global Plastics Treaty.

### Science-Based Targets Initiative (SBTi)

The SBTi is developing a chemical sector-specific standard for defining science-based climate targets. Along with several industry peers, LYB is a member of the SBTi Expert Advisory Group (EAG) to support this development and provide input and feedback on this standard. This standard is expected to be published in 2024.

### Together for Sustainability (TfS)

As an active member of TfS since 2022, we participate in different initiatives to address scope 3 emissions and promote collaboration across the value chain. This effort particularly focuses on our collaboration with suppliers to improve our overall understanding of the emission footprint of our procured goods. We use TfS' Product Carbon Footprint (PCF) guidance to calculate chemical sector PCF's and scope 3 emissions. Through TfS we support the development of a platform to enable the exchange of PCF data between companies and their suppliers. TfS's initiatives are important to us to build on our relationships with our suppliers and reduce the GHG footprint of our feedstocks and raw materials. For more information on our engagement through TfS, refer to Sustainable Procurement on pages 74-77 of this report.

### World Business Council for Sustainable Development (WBCSD)

In 2023, LYB became an active member of the WBCSD, a CEO-led organization which brings together leading businesses to form a global community supporting collective business action on climate change, restoring nature and tackling inequality. LYB is participating in the Circular Products and Materials, Redefining Value, Climate Action, Nature Action and Equity Action pathways. These workstreams aim to enable collaboration on relevant topics, such as those related to scope 3, plastic packaging and a climate-related corporate performance and accountability system.

### World Economic Forum (WEF)

LYB has been a member of the WEF since 2022, when we joined the their Low Carbon Emitting Technologies working group. In 2023, this group became an independent entity called the Global Impact Coalition. This coalition focuses on accelerating the development and upscaling of low-carbon emitting technologies in chemical production and related value chains. Ideation workshops have been held among members and the first projects are being prepared for initiation.

# Materiality

We use materiality assessments to help define the environmental, social and governance topics that matter most to our business and stakeholders.

Our approach to conducting materiality assessments and determining material topics for sustainability reporting is based on voluntary frameworks and best practices, which includes extensive stakeholder feedback. Our assessment is based on a double materiality approach: We evaluate risks and opportunities that could influence our financial performance and long-term enterprise value (financial materiality), and the ways in which we could impact the economy, environment and society (impact materiality) in the short, medium and long term.

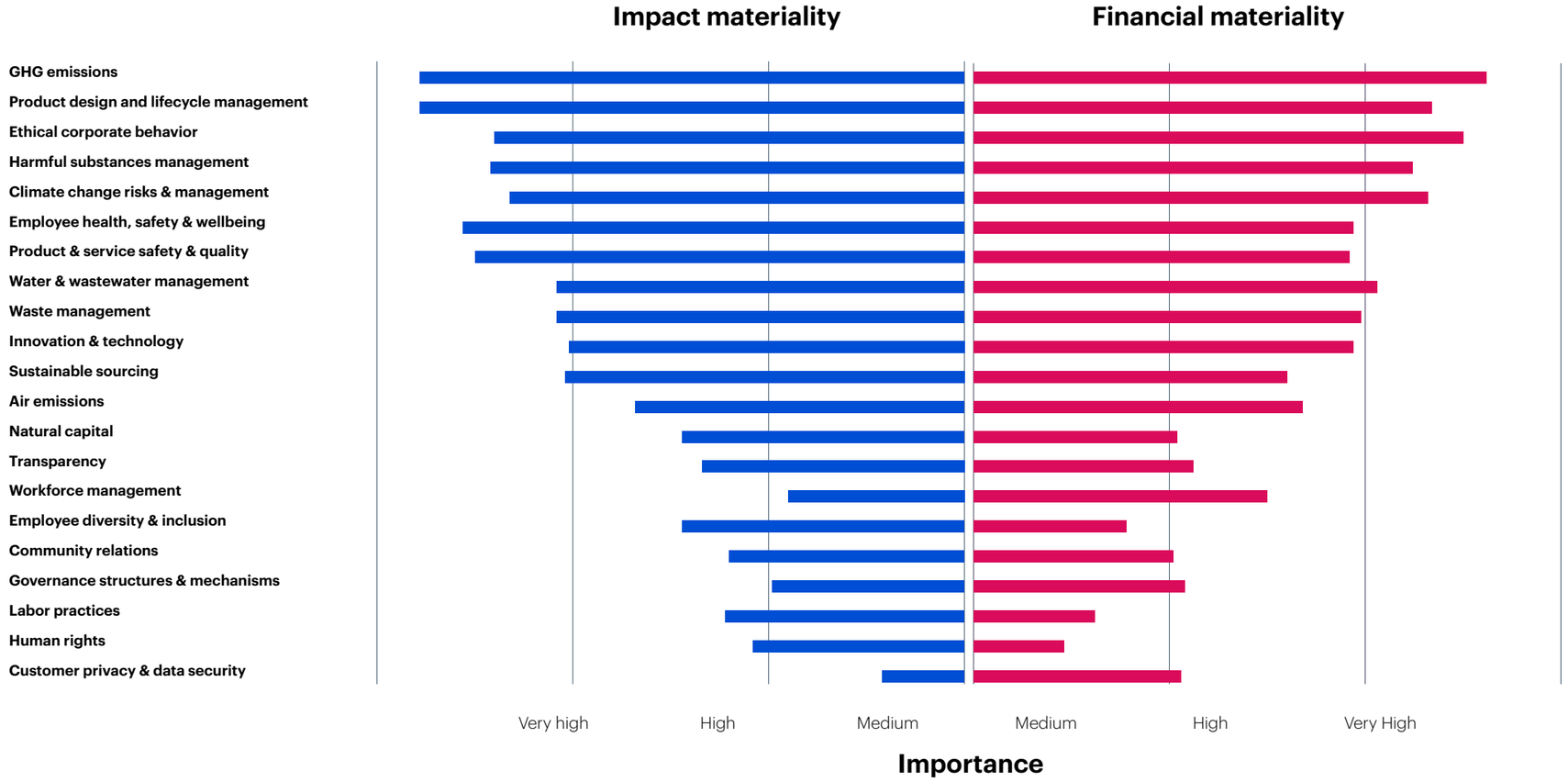
Our last materiality assessment was conducted in 2022. We engaged with employees, investors, key suppliers, customers and peers, and with local community members and non-governmental organizations (NGOs).

Based on this assessment, LYB considers GHG emissions and climate change management (physical and transitional); product design and lifecycle management; ethical corporate behavior; harmful substances management; employee health, safety and well-being; product and service quality; and safety of customers and end consumers to be the top issues that have the greatest impact on LYB and where LYB has the greatest impact on society and the environment. These topics are aligned with our strategic objectives, sustainability goals, and our Code of Conduct. Interconnectivity of our material topics to our company strategy and performance demonstrates an understanding of impact on LYB and on the society and environment in which we operate. We set appropriate targets to measure performance and implemented processes to report on our progress.

The results of our materiality assessment and determination of our material topics are reviewed by the Sustainability, Legal and Finance teams, as well as the Executive Committee and the LYB Board of Directors.

## Materiality assessment results

Representation of results based on a combined score of impact materiality and financial materiality in order of importance



# United Nations framework

The United Nations (UN) Global Compact aims to mobilize a global movement of sustainable companies and stakeholders. The UN Global Compact encourages companies to conduct business responsibly by aligning strategies and operations with Ten Principles on human rights, labor, environment and anti-corruption. LYB joined in 2020. The UN Global Compact also encourages companies to advance broader societal goals such as the 17 UN Sustainable Development Goals (UN SDGs), which serve as a call for action to tackle global challenges by 2030. Alignment of our sustainability strategy with the UN SDGs is detailed in the following list.

We support foodbanks in the communities where we operate through monetary donations, food collection drives and employee volunteerism.

We work every day to protect the health and safety of our employees, contractors and the communities where we operate.

We are committed to educating and training our current and future workforce. Our business is driven by the next generation of Science, Technology, Engineering and Mathematics (STEM) professionals.

We aim to achieve gender parity in senior leadership roles globally by 2032, and increase the number of women senior leaders by 50% globally in the next five years.

We strive to optimize energy consumption in our operations by reducing resource use and GHG emissions. We are working to increase our use of renewable energy.

We believe in integrity, diversity and fairness, and a work environment that is safe, respectful and inspires employees to strive for excellence.

We aim to increase the number of people from underrepresented groups in U.S. senior leadership roles. We are committed to fairness in our pay practices.

We believe transitioning to a circular economy will enable a more sustainable future. We are investing in mechanical and advanced recycling to make plastics a recoverable resource.

We are working to reduce our GHG emissions and deliver solutions which advance our customer's climate ambitions and support the transition to a low carbon economy.

We are committed to helping end plastic waste in the environment and advancing a circular economy.

We are collaborating with our value chain partners on projects to reach the scale and impact needed to address global challenges.

# Public policy

We believe active participation in the political process is essential to our long-term success. We advance our public policy agenda through direct lobbying, involvement in various trade associations and the LYB Political Action Committee (LYB PAC). Transparency and accountability are embedded into our public policy, political spending and lobbying actions. The company maintains policies and procedures consistent with our Code of Conduct that support continued compliance with applicable political laws and regulations. Our engagement, including public policy advocacy directly and through trade associations, is subject to oversight by LYB senior management and our CEO. In addition, the LYB PAC Board is responsible for the management of all PAC activities, including the approval of all PAC distributions.

### Political contributions

LYB does not make direct political contributions to political parties or candidates using company resources (including monetary and in-kind services), even where permitted by law. All political contributions are made solely through the LYB PAC, which is funded voluntarily by employees. All financial contributions strictly adhere to federal and state laws regarding contribution limits on amount and source, criteria and reporting requirements. LYB refrains from making political contributions in any country other than the United States. All political contributions are made without regard to the personal political affiliations or views of any individual LYB employee at any level across the organization.

### Public policy and advocacy

Our advocacy activities are directed toward advancing LYB business interests, to foster the protection and advancement of strong petrochemical and refining industries and not the personal political preferences of our executives or employees. Contributions are based upon advancing our business goals in a broad range of public policies.

For information on our public policy and advocacy activities, refer to our website at www.lyb.com under Public Policy & Political Engagement. We disclose details of our U.S. political contributions in our annual U.S. Political Activity Report which may also be found on our website. LYB is assessed annually by the Center for Political Accountability (CPA) and in 2022 received a First Tier score on CPA's Zicklin Index, which measures transparency and accountability in corporate political spending.

| LYB PAC political contributions | 2020 | 2021 | 2022 | 2023 |
|---|---|---|---|---|
| **Value of contributions ($ thousands)** | 129.5 | 85.5 | 128.5 | 104.0 |

Dues paid to industry associations are not included. No in-kind political contributions were made. The company discloses its U.S. federal, state and local lobbying activity and expenditures as required by law.

## Ending plastic waste

Effective public policies are essential to address the plastic waste challenge and advance a circular economy. We support legislation and policy to:

- Advance waste management systems, infrastructure and recycling standards
- Increase the reuse and recycling of plastic
- Support the introduction of new recycling technologies needed to complement existing mechanical recycling technologies
- Strengthen demand for recycled plastics
- Promote the use of renewable-based plastics
- Inform consumers and incentivize responsible consumer behavior to recycle and reduce plastic waste

## Taking climate action

We are committed to disclosing our approach to climate advocacy including detailing our climate policy positions, setting out our approach to participating in trade associations, and publishing review and evaluation of trade association alignment with our climate policy positions.

We support legislation and public policy to:

Encourage the development of affordable and reliable low carbon energy needed to support industrial operations through various incentives that reward investment in carbon-reducing technologies and support the development of needed infrastructure.

Promote advances to develop carbon capture and storage infrastructure at the scale required to enable the storage of GHG emissions, which are technically unavoidable today, or where the solution involves excessively high economic or social costs.

Promote significant increases in renewable electricity production and grid capacity upgrades needed to support the high electricity demand tied to the electrification of processes.

Encourage further development of affordable, reliable renewable energy and baseload generation from other non-emitting sources.

Accelerate the development of emerging technologies that enable the reduction of emissions from carbon intensive, large scale manufacturing needs, including processes and adjacent infrastructure to enable cost effective use of $CO_2$ at scale for the production of higher value chemicals.

Our first Climate Advocacy Report was published in May 2023, and describes our approach to climate advocacy, including climate policy positions, approach to participating in trade associations, and review and evaluation of trade association alignment with our climate policy positions.

## UN Global Plastics Agreement

In 2022, Heads of State, Ministers of Environment, and other representatives from UN Member States endorsed a resolution at the UN Environment Assembly (UNEA-5) to End Plastic Pollution and create an international legally binding agreement. The resolution addresses the full lifecycle of plastic, including its production, design, and disposal.

LYB supports governments' ambition to eliminate additional plastic pollution by 2040. To achieve this, we need to accelerate a circular economy in which plastic products and packaging are sustainably reused or recycled instead of being discarded, enabled by a global agreement that unlocks industry innovation and global investment in plastics circularity.

The LYB Position on the UN Global Plastics Agreement details what we believe the agreement should accomplish and may be found on our website at www.lyb.com.

# Tax

We recognize the economic importance of taxes to our communities and are committed to fulfilling our corporate obligations to the communities in which we operate.

In doing so, we pay significant taxes, including income taxes, sales taxes, value added taxes, excise taxes, payroll taxes, property taxes and other taxes and duties, to local, state, and national governments around the globe.

More information on income taxes can be found in our 2023 Form 10-K, pages 116-121.

## Our approach

In parallel with our obligations to our communities, we have an obligation to our shareholders and other stakeholders to effectively manage our tax affairs in order to achieve the company's capital structure and investment objectives and deliver sustainable and profitable long-term growth. In order to fulfill our obligations, we have developed three tenets, as follows, which are the foundation for our tax strategy and governance framework.

- We are committed to complying with all applicable laws, rules, regulations, and reporting and disclosure requirements related to our business presence and transactions
- We have a fiduciary obligation and commitment to our shareholders to structure our affairs in a tax efficient manner to maximize shareholder value within the bounds of the law
- We are committed to acting with transparency, integrity and respect toward our stakeholders about tax matters

## Tax strategy and governance framework

Our tax strategy and governance is ultimately the responsibility of the CFO and Senior Vice President of Tax and supported by their direct and indirect reports, and other senior personnel. Significant changes to the tax strategy, including significant tax matters and recommendations, are reviewed by the Board, or a committee thereof, as appropriate as well as any notable tax matters that could materially impact the company's financial statements.

We structure our tax affairs to control tax costs and obtain tax efficiency in accordance with the laws. When structuring our commercial transactions, we provide tax advice aligned with the commercial substance of the transaction while maintaining tax efficiency.

Effective tax governance is critical to meeting our obligations and underpins the tenets described above. Effective tax governance at LYB includes maintaining a control framework of appropriate processes, procedures, and documentation, with respect to tax compliance and reporting, tax planning and tax advice, tax audits and dispute resolution, and ensuring that senior personnel with the appropriate skill and experience are involved in key tax decisions. We supplement our expertise by seeking advice from reputable external advisors to have reasonable certainty in tax positions we adopt, and to appropriately assess tax risks and ensure our compliance with applicable laws, rules, regulations, and reporting and disclosure requirements.

Because tax laws are subject to interpretation, differences of opinion are inevitable. Our tax governance processes include the evaluation of differing interpretations, including subsequent changes in interpretations, and where appropriate, disclosures are made in the applicable reporting tool (i.e. tax return, financial statements, and other reporting requirements).

Our transfer pricing policy for cross-border intra-group transactions requires such transactions to be conducted and priced on an arm's-length basis with appropriate and timely supporting documentation. Further, we established a policy requiring intercompany financial transactions and corporate restructurings, including those that are tax planning-related, to obtain prior approval of the CFO, General Counsel or their designees.

Our Code of Conduct embodies our dedication to conducting business ethically and responsibly and to complying with applicable laws and regulations. Employees can report concerns about violations of company policies or the law by reporting the issue to their supervisor or manager, People and Culture representative, or any member of the Legal or Compliance Department. We also offer an independent whistleblower telephone helpline and website operated by EthicsPoint, which is available 24 hours a day and in multiple languages.

# Cybersecurity

We recognize sophisticated global cybersecurity threats and targeted computer crimes pose a continuously evolving risk to the confidentiality, availability, and integrity of our data, operations and infrastructure. We have implemented comprehensive practices to minimize these risks.

## Our approach

Our cybersecurity program is certified to International Organization for Standardization (ISO) 27001, a standard for information security management, which covers key areas of management, technical and physical controls, legal, compliance and business continuity management.

Our management utilizes a systematic approach to evaluating and determining risk tolerance and prioritizes the safeguarding of our digital assets. The Vice President of Cybersecurity leads our cybersecurity program and reports to the Executive Vice President and Chief Innovation Officer, who serves on the Executive Committee and reports to the CEO. The Vice President of Cybersecurity has a Master of Science degree in Cybersecurity Operations, is certified as an information security professional with the International Information System Security Certification Consortium (ISC2) and International Association of Privacy Professionals, and has over thirty years of leadership experience in technology, systems architecture, and cybersecurity.

Cybersecurity events are continuously monitored by global security operations centers staffed in the U.S., European Union, and Asia Pacific with events and incidents being managed based upon the MITRE ATT&CK framework, a system for classifying and describing cyber attacks and intrusions. Management provides guidance and is informed of cybersecurity events through a committee with cross-functional representation of executive leadership. The committee meets at least quarterly for activities such as determining policy, reviewing active risks, assessing impact of emerging threats or regulatory changes, and monitoring active incidents. This committee also receives escalated alerts within 24-hours of confirmed cybersecurity events, and will determine the severity, engage with crisis management as necessary, and disseminate information internally as appropriate and warranted.

Third-party service providers must meet baseline security requirements before they connect to our systems or manage sensitive information. They are evaluated based on risk, which is based on financial, operational, legal/regulatory, capacity, cybersecurity posture, and reputational impact. Additionally, high risk third-party service providers are continuously monitored for security health and active threats.

We recognize the risk posed by global cybersecurity threats, and our Board is regularly updated on emerging risks and maintains oversight of our cybersecurity program. In 2023, the Board conducted an annual comprehensive review of specific cybersecurity and process control topics at its September meeting. Cybersecurity risk evaluation is integrated into our enterprise risk management processes and is presented to management and the Board as a part of that process.

While management is responsible for assessing and managing our day-to-day risks and control systems, the Audit Committee of the Board oversees our information technology and cybersecurity risks. The Committee conducts a comprehensive review of cybersecurity topics and reviews our programs and practices with management at least annually, and receives management's report on our cybersecurity dashboard, which summarizes key security metrics and activities, at each quarterly Committee meeting.

To further advance cybersecurity awareness, we are developing solutions to mitigate the impact of third-party fraudulent cyber activity, including public facing portals for potential and current partners with capability to report suspected phishing.

External Perimeter Rating
Bitsight Score 790+:

Best in Class

Our cybersecurity program includes, but is not limited to:

- Annual cybersecurity education for all company computer users on relevant policies and standards, best practices at work and at home.
- Communication processes including how to identify, respond, and report threats or potential vulnerabilities.
- Protective software installed and configured on Company systems and mobile devices, updated and patched on a regular basis, to provide the highest level of protection against malicious threats.
- An established program based on the MITRE ATT&CK framework for dealing with ransomware and other cybersecurity incidents.
- Regular technical risk assessments of our network, applications and manufacturing facilities, using a combination of trusted suppliers and a dedicated, objective team.
- Penetration, discovery and vulnerability assessments conducted daily.
- Mobile threat protection mechanisms and policies.
- Business continuity plans that are well documented and tested regularly; disaster recovery plans that are also well documented and tested at least annually.
- Coverage for non-damage business interruption or liability for data breaches as a part of the company's combined insurance programs.

In addition, in 2023, management conducted ransomware simulation exercises and engaged outside consultants to perform external perimeter penetration testing.

# Customer privacy

The company maintains a privacy program that is based on a Data Privacy and Personal Protection Policy and corresponding standards and practices that facilitate adherence to personal data protection laws globally.

## Our approach

As part of its global privacy program, the company's Data Privacy counsel and the Data Privacy Committee (the Committee), guides, monitors and stays accountable for data privacy compliance efforts globally. The Committee is established to assist with centralized and cross-functional governance of data privacy standards and provides a framework that supports administration of the Data Privacy program.

## Our privacy program

We maintain a privacy management tool that helps us comply with global privacy regulations and provides LYB with a centralized platform to track data and automate privacy processes and assessments. We also utilize this tool to maintain our Record of Processing Activities (ROPA) or data inventory, which provides a view of personal data that is being processed by the company.

We closely monitor changing legal requirements and engage external resources and experts as necessary to help us appropriately adapt and improve our global program to data protection laws and regulations in the jurisdictions where we operate.

For more information regarding how the company processes personal data, refer to the LYB Privacy Statement on our website at www.lyb.com under the Data Protection & Privacy Statement.

# Data and assurance

We aim to meet the informational needs of our stakeholders by providing clear, relevant and reliable sustainability performance data. Aligning to regulatory and voluntary reporting frameworks requires a robust ESG data gathering and controls process. In addition, external assurance helps us improve our reporting processes, data management, and accountability thereby enhancing our overall sustainability performance. We are committed to transparency and providing the appropriate assurance on our disclosed data aligned to the frameworks that we apply to our disclosures.

## Report of independent accountants

**Report of Independent Accountants**

To the Management of LyondellBasell Industries N.V.

We have reviewed the accompanying management assertion of LyondellBasell Industries N.V. (LyondellBasell) that the greenhouse gas (GHG) emissions and energy consumption, diversity, equity, and inclusion, and health and safety metrics (metrics) for the year ended or as of December 31, 2023 in management's assertion are presented in accordance with the assessment criteria set forth in management's assertion. LyondellBasell's management is responsible for its assertion and for the selection of the criteria, which management believes provide an objective basis for measuring and reporting on the metrics. Our responsibility is to express a conclusion on management's assertion based on our review.

Our review was conducted in accordance with attestation standards established by the American Institute of Certified Public Accountants (AICPA) in AT-C section 105, *Concepts Common to All Attestation Engagements*, and AT-C section 210, *Review Engagements*. Those standards require that we plan and perform the review to obtain limited assurance about whether any material modifications should be made to management's assertion in order for it to be fairly stated. The procedures performed in a review vary in nature and timing from, and are substantially less in extent than, an examination, the objective of which is to obtain reasonable assurance about whether management's assertion is fairly stated, in all material respects, in order to express an opinion. Accordingly, we do not express such an opinion. Because of the limited nature of the engagement, the level of assurance obtained in a review is substantially lower than the assurance that would have been obtained had an examination been performed. We believe that the review evidence obtained is sufficient and appropriate to provide a reasonable basis for our conclusion.

We are required to be independent and to meet our other ethical responsibilities in accordance with relevant ethical requirements related to the engagement.

The firm applies the Statements on Quality Control Standards established by the AICPA.

The procedures we performed were based on our professional judgment. In performing our review, we performed inquiries, performed tests of mathematical accuracy of computations on a sample basis, read relevant policies to understand terms related to relevant information about the metrics, reviewed supporting documentation in regard to the completeness and accuracy of the data in the metrics on a sample basis, and performed analytical procedures.

GHG emissions quantification is subject to significant inherent measurement uncertainty because of such things as GHG emissions factors that are used in mathematical models to calculate GHG emissions, and the inability of these models, due to incomplete scientific knowledge and other factors, to accurately measure under all circumstances the relationship between various inputs and the resultant GHG emissions. Environmental and energy use data used in GHG emissions calculations are subject to inherent limitations, given the nature and the methods used for measuring such data. The selection by management of different but acceptable measurement techniques could have resulted in materially different amounts or metrics being reported.

The preparation of the total energy consumption metric, pay equity and pay gap metrics, and health and safety metrics requires management to establish the criteria, make determinations as to the relevancy of information to be included, and make assumptions that affect reported information. The selection by management of different but acceptable measurement techniques could have resulted in materially different amounts or metrics being reported.

As discussed in management's assertion, in calculating certain health and safety metrics, LyondellBasell has estimated hours worked for certain locations for which no primary data is available.

Based on our review, we are not aware of any material modifications that should be made to LyondellBasell's management assertion in order for it to be fairly stated.

PricewaterhouseCoopers LLP

Houston, Texas
April 8, 2024

# LYB management assertion

**LyondellBasell Industries N.V. Management Assertion**
**For the year ended or as of December 31, 2023**

**Overview**

The management of LyondellBasell Industries N.V. (LyondellBasell) is responsible for the completeness, accuracy, and validity of the greenhouse gas emissions and energy consumption, diversity, equity, and inclusion (DEI), and health and safety metrics (collectively, "the metrics") presented in the tables below for the year ended or as of December 31, 2023 (reporting period). Management asserts that the metrics are presented in accordance with the assessment criteria set forth below. Management is responsible for the selection of the criteria, which management believes provide an objective basis for measuring and reporting on the metrics.

## Greenhouse Gas (GHG) Emissions and Energy Consumption

**Organizational Boundary**

LyondellBasell accounts and reports the GHG emissions and energy consumption metrics under the operational control approach, as defined in the Protocol (defined below), which includes operations over which we, or one of our subsidiaries, have operational control. Data related to acquisitions and divestitures during the reporting period are included for the period in which LyondellBasell had operational control. Acquisitions made within the reporting period may use actual or estimated data depending upon the timing and ability to obtain actual data. Adjustments are made, if necessary, in the reporting period following the acquisition based upon actual data.

LyondellBasell's reported GHG emissions and energy consumption metrics include our manufacturing sites (also referred to as plants), pipelines, offices, and research/technical centers; and exclude small regional offices defined as those with energy consumption lower than a 3,500 gigajoules threshold (collectively referred to as "sites").

**Table: GHG Emissions and Energy Consumption Metrics**

| Metric | Unit of Measure | Definition | Metric Value Reported for the Year Ended December 31, 2023 (in millions) |
|---|---|---|---|
| Scope 1 emissions | Metric tons $CO_2e$ | Includes direct GHG emissions from (1) the generation of electricity, heat, or steam resulting from the combustion of fossil fuels in stationary sources, (2) process related GHG emissions from venting and flaring activities and other process-related GHG emissions, and (3) fugitive emissions (including methane).[1,2,3,4] | 15.4 |
| Scope 2 emissions (market-based) | Metric tons $CO_2e$ | Includes indirect GHG emissions from the generation of purchased electricity and steam (market-based).[1,2,3,5] | 7.0 |
| Scope 2 emissions (location-based) | Metric tons $CO_2e$ | Includes indirect GHG emissions from the generation of purchased electricity and steam (location-based).[1,2,3,5] | 7.1 |
| Total energy consumption | Gigajoules | Direct and indirect energy consumption related to Scope 1 and 2 activities.[6] | 380 |

**GHG Emissions and Energy Consumption Metric Disclosures**

1. LyondellBasell considers the principles and guidance of *The Greenhouse Gas Protocol: A Corporate Accounting and Reporting Standard, Revised Edition*, and *GHG Protocol Scope 2 Guidance: An amendment to the GHG Protocol Corporate Standard* (collectively referred to as the "Protocol") developed by the World Resources Institute (WRI) and the World Business Council for Sustainable Development (WBCSD) to collect, calculate and report GHG emissions. The Protocol is the basis for LyondellBasell's definitions, calculation methodologies and calculation results included in this management assertion, unless explicitly stated otherwise.

2. GHG emissions quantification is subject to significant inherent measurement uncertainty because of such things as GHG emissions factors that are used in mathematical models to calculate GHG emissions, and the inability of these models, due to incomplete scientific knowledge and other factors, to accurately measure under all circumstances the relationship between various inputs and the resultant GHG emissions. Environmental and energy consumption data used in GHG emissions calculations are subject to inherent limitations, given the nature and the methods used for measuring such data. The selection by management of different but acceptable measurement techniques could have resulted in materially different amounts or metrics being reported.

3. Scope 1 and 2 emissions are inclusive of the main gases considered under the Protocol and include carbon dioxide ($CO_2$), methane ($CH_4$), nitrous oxide ($N_2O$), and industrial gases such as hydrochlorofluorocarbons (HCFCs) and hydrofluorocarbons (HFCs). The other three gases considered – perfluorocarbons (PFCs), nitrogen trifluoride ($NF_3$), and sulfur hexafluoride ($SF_6$) – are not emitted at LyondellBasell's sites. Emissions data by individual gas is not disclosed as a majority relates to $CO_2$. The $CO_2$ equivalent ($CO_2e$) emissions utilize Global Warming Potentials (GWPs) defined by the Intergovernmental Panel on Climate Change's (IPCC) Fifth Assessment Report (AR5 – 100 year). $CO_2$ equivalent emissions are calculated by multiplying actual or estimated energy and fuel usage or

## LYB management assertion

refrigerant gas loss by the relevant emission factor and/or GWP. All emission factors are updated annually where applicable.

4. Related to Scope 1 emissions:

- Emissions resulting from the combustion of fossil fuels used in stationary equipment and machinery at LyondellBasell sites (natural gas, refinery gas, light fuel oil/diesel, heavy fuel oil/diesel, hydrogen, coal, lignite, butene, pitch, and the site-generated fuels of fuel gas/tail gas (a blend of process gases used as fuel onsite), fuel A xTBE (manufacturing of tertiary butyl ethers), fuel A POTBA (propylene oxide/tertiary butyl alcohol), and fuel B).
    - Fuel usage data was collected from monthly utility invoices, readings from on-site third-party managed meters, or readings from on-site LyondellBasell managed meters.
    - Emission factors:
        - Natural gas, refinery gas, light fuel oil/diesel, heavy fuel oil/diesel, hydrogen, coal, lignite, butene, and pitch: American Petroleum Institute's Compendium of Greenhouse Gas Emissions Methodologies for the Oil and Natural Gas Industry, November 2021, Tables 4-3 ($CO_2$), 4-6 and 4-8 ($CH_4$ and $N_2O$).
        - Site-generated fuels:
            - Fuel gas/tail gas - Calculated value derived from a weighted average energy content and emission factor for the fuel gas.
            - Fuel A xTBE - Calculated value from site heating value and emissions for fuel A (gaseous waste) stream specific to xTBE technology.
            - Fuel A POTBA - Calculated value from site heating value and emissions for fuel A (gaseous waste) stream specific to the POTBA technology.
            - Fuel B - Calculated value from site heating value and emissions for fuel B (liquid waste) stream.
- Emissions resulting from venting and flaring activities as well as other process-related GHG emissions which include, but are not limited to, emissions from wastewater treatment (WWT) activities and peroxide decomposition byproducts, at LyondellBasell's sites.
    - Venting and flaring as well as other process-related activity is reported annually on a site-by-site basis via direct measurement. The resulting emissions are converted to $CO_2e$ on a site-by-site basis using GWPs from the IPCC Fifth Assessment Report.
- Emissions resulting from fugitive emissions at LyondellBasell's sites:
    - Fugitive emissions related to volatile organic compounds (VOCs), including methane, are measured per environmental requirements in CFR Title 40 Chapter I Subchapter C and converted to $CO_2e$ using GWPs from the IPCC Fifth Assessment Report.
    - HCFCs and HFCs are related to replenishment of refrigerants. Refrigerant gases (including refrigerants other than HCFCs and HFCs) are calculated on a loss replenishment basis using site-specific refrigerant management records. The GWP of the individual refrigerant from the IPCC Fifth Assessment Report is used to convert the losses into $CO_2e$.
- Direct emissions associated with the sale of energy generated from our own operations to another company are not deducted/netted from Scope 1, in accordance with the recommendations of the Protocol.
- Excluded Scope 1 emissions: LyondellBasell excluded the following sources of GHG emissions:
    - Combustion related to emissions from LyondellBasell owned or leased motor vehicles.
    - Combustion related to emissions from non-stationary leased and rented equipment such as temporary air compressors and pumps, welding machines, and mobile light plants used onsite.

5. Related to Scope 2 emissions:

- Emissions resulting from the purchase of energy in the form of electricity or steam used at LyondellBasell sites. Consumption data was collected from monthly utility invoices for electricity and steam usage.
- LyondellBasell may purchase electricity or steam that is used by on-site third-party users due to common transport header. In this event, the third-party's use is deducted from the aggregate invoice. The quantity used on-site by the third-party users is documented and invoiced to them.
- Emission factors for steam:
    - Provided by the third-party steam supplier.
- Emission factors for electricity (location-based):
    - In 2023, LyondellBasell changed the source of the emission factors applied for its U.S. and European sites from the International Energy Agency (IEA) to the sources included below.
    - United States sites: United States (U.S.) Energy Information Administration (EIA), Energy-Related $CO_2$ Emission Data Tables, Table 6 Carbon intensity of the energy supply by State (1970-2021), release date July 12, 2023
    - European sites: European Environment Agency, Greenhouse gas emission intensity of electricity generation in Europe, published October 24, 2023
    - Middle East and Asia sites: IEA, Emissions Factors Database, 2023 edition, published September 2023
- Emission factors for electricity (market-based):
    - LyondellBasell used Energy Attribute Certificates (EACs) procured through power purchase agreements during 2023 to contractually procure renewable energy in relation to our manufacturing sites in North America, Europe, Brazil, and Sweden. Any remaining electricity not associated with a contracted for and retired EAC was converted to emissions using the emission factor hierarchy described below.
    - After application of EACs, the emission factors were applied based on the Protocol hierarchy and availability of data, including the factors below listed from highest to lowest precision:
        1. Utility-specific market-based emission factors were provided by the utility suppliers.
        2. Other grid-average emission factors – same as location-based.
- Excluded Scope 2 emissions: LyondellBasell excluded the following sources of GHG emissions:
    - District heating and cooling.
    - Cooling water and chilled water purchased from third-party suppliers.
    - Compressed air or nitrogen purchased from third-party suppliers.

6. Related to total energy consumption:

## LYB management assertion

- LyondellBasell considers the principles and guidance of the Sustainability Accounting Standards Board (SASB) Chemicals Industry Standard Accounting Metric RT-CH-130a.1 to guide the criteria to assess, calculate, and report total energy consumption.
- Total energy consumption (in gigajoules) is the sum of direct energy from purchased fuels and other fuels produced on-site (natural gas, refinery gas, light fuel oil/diesel, heavy fuel oil/diesel, hydrogen, coal, lignite, butene, pitch, and the site-generated fuels of fuel gas/tail gas, fuel A xTBE, fuel A POTBA, and fuel B) and indirect energy from purchased electricity and steam.
- Energy is calculated by conversion to gigajoules of direct and indirect energy usage from Scope 1 and 2 consumption data as discussed in the Scope 1 and Scope 2 emissions footnotes above.
- The preparation of the total energy consumption metric requires management to establish the criteria, make determinations as to the relevancy of information to be included, and make assumptions that affect reported information. The selection by management of different but acceptable measurement techniques could have resulted in a materially different amount or metric being reported.

## Diversity, Equity, and Inclusion (DEI)

**Organizational Boundary**

LyondellBasell accounts and reports the DEI metrics for operations over which we, or one of our subsidiaries, have operational control. Pay equity and pay gap DEI metrics additionally include employees temporarily assigned (expatriates) to non-operated joint ventures if LyondellBasell directed the employee's pay. Data related to acquisitions and divestitures during the reporting period are included for the period in which LyondellBasell had operational control. Pay equity DEI metrics exclude recently acquired sites (defined below) for whom job responsibilities were not available as of December 31, 2023.

LyondellBasell's reported DEI metrics include our manufacturing sites (also referred to as plants), pipelines, offices, and research/technical centers (collectively referred to as "sites").

The preparation of the pay equity and pay gap metrics requires management to establish the criteria, make determinations as to the relevancy of the information to be included, and make assumptions that affect reported information. The selection by management of different but acceptable measurement techniques could have resulted in materially different amounts or metrics being reported.

**Table: Global Employee Gender Representation DEI Metrics**

| Metric | Definition | Metric Value Reported as of December 31, 2023 |
|---|---|---|
| Total global employees | Percentage of total employees by gender.[1,2] | Men: 80%<br>Women: 20%<br>Other: <1% |
| Senior leaders | Percentage of senior leaders by gender.[1,2,3] | Men: 75%<br>Women: 25%<br>Other: 0% |
| Professionals | Percentage of professionals by gender.[1,2,4] | Men: 66%<br>Women: 34%<br>Other: <1% |

**Global Employee Gender Representation DEI Metric Disclosures**

1. Employee population includes global workers with a permanent or temporary employment relationship with LyondellBasell; and excludes workers with a dormant employment relationship and contractors. Permanent employment includes the regular employee class. Temporary employment includes students and apprentices. Dormant employment broadly includes specified workers on paid leave, unpaid leave, or partial retirement. Contractors include workers who are not employees but whose work is supervised by LyondellBasell on a day-to-day basis. The employment categories are identified based on information recorded in the LyondellBasell Human Resources (HR) system.
2. Gender is self-identified by the employee in the LyondellBasell HR system as either male (reported as men), female (reported as women), or unknown, undeclared, or other (reported as other).
3. Senior leaders refers to employees that represent the top six job bands of our employees and executives, which includes director level employees and higher (e.g., Vice President, Director), based on a LyondellBasell grading system and as recorded in the LyondellBasell HR system.
4. Professionals refers to employees in the next eight job bands, which includes employees below director level (e.g., Manager, Engineer, Analyst) but excludes technical and hourly employees, based on a LyondellBasell grading system and as recorded in the LyondellBasell HR system.

**Table: Pay Equity DEI Metric**

| Metric | Definition | Metric Value Reported as of December 31, 2023 |
|---|---|---|
| Global women to men | Weighted-average adjusted base pay for women employees as a percentage of the weighted-average adjusted base pay for men employees.[1,2,3,4] | $0.99/$1.00 |

**Pay Equity DEI Metric Disclosures**

1. A multivariate regression analysis was utilized to calculate the weighted-average adjusted base pay for women and men employees doing similar work. Inputs into the multivariate regression analysis included gender, base pay, job category/type of work (e.g., finance, manufacturing operations), job band (e.g., Manager, Analyst), total years of professional work experience (not only at LyondellBasell), years in position (e.g., years as an Operations Supervisor), and working location country with the exception of expatriates whose pay is linked to their home country. Inputs were identified based on information recorded in the LyondellBasell HR system.
2. Base pay represents the full-time equivalent base salary of an employee. Full-time equivalent base salary is the annualized base pay based on the employee's work schedule, excluding variable

components such as overtime (i.e., hours worked in addition to standard working hours) and incentive pay (e.g., bonuses). Base pay was identified based on information recorded in the LyondellBasell HR system.
3. Gender is self-identified by the employee in the LyondellBasell HR system as either male (reported as men), female (reported as women), or unknown, undeclared, or other. Employees self-identified as unknown, undeclared, or other were excluded.
4. Employee population includes global workers with a permanent employment relationship with LyondellBasell and workers with a dormant employment relationship; and excludes the CEO, workers with a temporary employment relationship and contractors. Permanent employment includes the regular employee class. Temporary employment includes students and apprentices. Dormant employment broadly includes specified workers on paid leave, unpaid leave, or partial retirement. Contractors include workers who are not employees but whose work is supervised by LyondellBasell on a day-to-day basis. In addition, any employee population for whom the pay is fixed based on the job (U.S. and Belgium hourly employees, European employees on a step rate and German Tariff employees) and employees at recently acquired sites for whom job responsibilities are not available are excluded. The employment categories were identified based on information recorded in the LyondellBasell HR system.

**Table: Global Gender Base Pay Gap: Women to Men Median DEI Metrics**

| Metric | Definition | Metric Value Reported as of December 31, 2023 |
|---|---|---|
| All employees | Median unadjusted base pay for women employees as a percentage of the median unadjusted base pay for men employees.[1,2,3] | $0.99 |
| Senior leaders | Median unadjusted base pay for women senior leaders as a percentage of the median unadjusted base pay for men senior leaders.[1,2,3,4] | $0.95 |
| Professionals | Median unadjusted base pay for women professionals as a percentage of the median unadjusted base pay for men professionals.[1,2,3,5] | $0.82 |

**Global Gender Base Pay Gap DEI Metric Disclosures**

1. Base pay represents the full-time equivalent salary of an employee. Full-time equivalent salary is the annualized base salary based on the employee's work schedule, excluding variable components such as overtime (i.e., hours worked in addition to standard working hours) and incentive pay (e.g., bonuses). Base pay was identified based on information recorded in the LyondellBasell HR system.
2. Gender is self-identified by the employee in the LyondellBasell HR system as either male (reported as men), female (reported as women), or unknown, undeclared, or other. Employees self-identified as unknown, undeclared, or other were excluded.
3. Employee population includes global workers with a permanent employment relationship with LyondellBasell and workers with a dormant employment relationship; and excludes the CEO, workers with a temporary employment relationship and contractors. Permanent employment includes the regular employee class. Temporary employment includes students and apprentices. Dormant employment broadly includes specified workers on paid leave, unpaid leave, or partial retirement. Contractors include workers who are not employees but whose work is supervised by LyondellBasell on a day-to-day basis. The employment categories were identified based on information recorded in the LyondellBasell HR system.
4. Senior leaders refers to employees that represent the top six job bands of our employees and executives, which includes director level employees and higher (e.g., Vice President, Director) but excludes the CEO, based on a LyondellBasell grading system and as recorded in the LyondellBasell HR system.
5. Professionals refers to employees in the next eight job bands, which includes employees below director level (e.g., Manager, Engineer, Analyst) but excludes technical and hourly employees, based on a LyondellBasell grading system and as recorded in the LyondellBasell HR system.

## Health and Safety

**Organizational Boundary**

LyondellBasell accounts and reports the health and safety metrics for operations over which we, or one of our subsidiaries, have operational control. Data related to acquisitions and divestitures during the reporting period are included for the period in which LyondellBasell had operational control.

LyondellBasell's reported health and safety metrics include our manufacturing sites (also referred to as plants), pipelines, offices, and research/technical centers (collectively referred to as "sites").

The preparation of the health and safety metrics requires management to establish the criteria, make determinations as to the relevancy of information to be included, and make assumptions that affect reported information. The selection by management of different but acceptable measurement techniques could have resulted in materially different amounts or metrics being reported.

**Table: Occupational Safety Health and Safety Metrics**

| Metric | Definition | Metric Value Reported for the Year Ended December 31, 2023 - Employees[1] | Metric Value Reported for the Year Ended December 31, 2023 - Contractors[2] |
|---|---|---|---|
| Fatalities as a result of work-related injuries (number) | A recordable work-related injury (defined below) that results in death. | 0 | 0 |

## LYB management assertion

| | | | |
|---|---|---|---|
| Fatalities as a result of work-related injuries (rate) | Fatalities as a result of work-related injuries normalized by total number of hours worked.<br><br>Rate is calculated as (fatalities as a result of work-related injuries x 200,000 hours worked) / total number of hours worked.[3,4] | 0 | 0 |
| High-consequence work-related injuries (number) | A recordable work-related injury (defined below) that requires formal admittance by a hospital or other inpatient health care facility of a patient who is to be provided with room, board, and medical treatment in an area of the hospital or facility where patients generally reside at least overnight, excluding fatalities. | 1 | 0 |
| High-consequence work-related injuries (rate) | High-consequence work-related injuries normalized by total number of hours worked.<br><br>Rate is calculated as (high-consequence work-related injuries x 200,000 hours worked) / total number of hours worked.[3,4] | 0.005 | 0 |
| Recordable work-related injuries (number) | As per Occupational Safety and Health Administration (OSHA) general recording criteria, a recordable work-related injury results in any of the following: death, days away from work, restricted work or transfer to another job, medical treatment beyond first aid, loss of consciousness, or a significant injury or illness diagnosed by a physician or other licensed health care professional. | 27 | 21 |
| Recordable work-related injuries (rate) | Recordable work-related injuries normalized by total number of hours worked.<br><br>Rate is calculated as (recordable work-related injuries x 200,000 hours worked) / total number of hours worked.[3,4] | 0.139 | 0.140 |
| Number of hours worked | Number of hours worked by employees or contractors.[1,2,4] | 38,956,092 | 30,010,833 |

**Occupational Safety Health and Safety Metric Disclosures**

1. Employee population includes global workers with a permanent or temporary employment relationship with LyondellBasell and workers with a dormant employment relationship. Permanent employment includes the regular employee class. Temporary employment includes students and apprentices. Dormant employment broadly includes specified workers on paid leave, unpaid leave, or partial retirement. The employment categories are identified based on information recorded in the LyondellBasell HR system.
2. Contractors include global workers who are not employees but whose work is supervised by LyondellBasell on a day-to-day basis. The employment categories are identified based on information recorded in the LyondellBasell HR system.
3. As per OSHA guidance, rates were calculated on the basis of 200,000 hours worked to identify the number of work-related injuries per 100 full-time workers. 200,000 hours worked assumes one full-time worker works 2,000 hours per year.
4. The total number of hours worked represents the actual and/or estimated hours worked by employees or contractors. Data to calculate the total number of hours worked was collected from internal LyondellBasell systems, third-party access control systems, manual gate logs, third-party invoices, and/or estimation. An average of 160-175 (depending on location and site type) monthly working hours per headcount was estimated when actual hours were not available from third-party access control systems, manual gate logs, or third-party invoices. Additional hours were also estimated to account for overtime, employees traveling between sites, and employees working from home.

**Table: Process Safety Health and Safety Metrics**

| Metric | Definition | Metric Value Reported for the Year Ended December 31, 2023 |
|---|---|---|
| Process safety incidents count (PSIC) | Count of incidents that meet the definition of a Tier 1 process safety event as described in American Petroleum Institute's (API) *Process Safety Performance Indicators for the Refining and Petrochemical Industries* | 12 |

## LYB management assertion

| | | |
|---|---|---|
| | Recommended Practice (RP) 754 3rd Edition (American National Safety Institute (ANSI)/API RP 754).<br><br>Tier 1 process safety events are classified as Level 3+ events by LyondellBasell. Level 3+ events include loss of primary containment (LOPC) resulting in either (1) an employee or contractor "days away from work" injury and/or fatality; (2) a hospital admission and/or fatality of a third party; (3) an officially declared community evacuation or community shelter-in-place, including precautionary community evacuation or community shelter-in-place; (4) a fire or explosion damage with a direct cost greater than or equal to $100,000; (5) an engineered pressure relief device discharge to atmosphere whether directly or via a downstream destructive device greater than or equal to a Level 3 threshold, within any 60 minute time period, with negative effects; (6) an upset emission from a permitted or regulated source greater than or equal to a Level 3 threshold, within any 60 minute time period, with negative effects; or (7) an unignited release of material greater than or equal to a Level 3 threshold, within any 60 minute time period.[1,2,3] | |
| Process safety total incident rate (PSTIR) | PSIC normalized by total number of hours worked.<br><br>Rate is calculated as (PSIC x 200,000 hours worked) / total number of hours worked.[4,5] | 0.035 |
| Process safety incident severity rate (PSISR) | Severity-weighted rate of PSIC normalized by total number of hours worked.<br><br>Rate is calculated as (total severity score for all PSIC x 200,000 hours worked)/total number of hours worked.[4,5,8] | 0.046 |

**Process Safety Health and Safety Metric Disclosures**

1. A "days away from work" injury, as described in ANSI/API RP 754, is a work-related injury that results in a person being unfit for work on any day after the day of the injury as determined by a physician or other licensed health professional. "Any day" includes rest days, weekend days, vacation days, public holidays, or days after ceasing employment.
2. A third party is any individual other than an employee[6] or contractor[7].
3. Negative effects, or consequences, as described in ANSI/API RP 754, include one of more of the following: rainout; discharge to a potentially unsafe location; an on-site shelter-in-place or on-site evacuation, excluding precautionary on-site shelter-in-place or on-site evacuation; and/or public protective measures (e.g., road closure) including precautionary public protective measures.
4. As per OSHA guidance, rates were calculated on the basis of 200,000 hours worked to identify the number of process safety events per 100 full-time workers. 200,000 hours worked assumes one full-time worker works 2,000 hours per year.
5. The total number of hours worked represents the actual and/or estimated hours worked by employees[6] and contractors[7]. Data to calculate the total number of hours worked was collected from internal LyondellBasell systems, third-party access control systems, manual gate logs, third-party invoices, and/or estimation. An average of 160-175 (depending on location and site type) monthly working hours per headcount was estimated when actual hours were not available from third-party access control systems, manual gate logs, or third-party invoices. Additional hours were also estimated to account for overtime, employees traveling between sites, and employees working from home.
6. Employee population includes global workers with a permanent or temporary employment relationship with LyondellBasell and workers with a dormant employment relationship. Permanent employment includes the regular employee class. Temporary employment includes students and apprentices. Dormant employment broadly includes specified workers on paid leave, unpaid leave, or partial retirement. The employment categories are identified based on information recorded in the LyondellBasell HR system.
7. Contractors include global workers who are not employees but whose work is supervised by LyondellBasell on a day-to-day basis. The employment categories are identified based on information recorded in the LyondellBasell HR system.
8. A severity weighting, as described in ANSI/API RP 754, was applied to each process safety event based on safety/human health, direct cost, material release, community impact, and off-site environmental impact.

# Reconciliations for non-GAAP measures

This report makes reference to certain non-GAAP financial measures as defined in Regulation G of the U.S. Securities Exchange Act of 1934, as amended.

We report our financial results in accordance with U.S. generally accepted accounting principles, but believe that certain non-GAAP financial measures, such as EBITDA, and EBITDA, net income and diluted earnings per share (EPS) exclusive of identified items provide useful supplemental information to investors regarding the underlying business trends and performance of the company's ongoing operations and are useful for period-over-period comparisons of such operations. Non-GAAP financial measures should be considered as a supplement to, and not as a substitute for, or superior to, the financial measures prepared in accordance with GAAP.

We calculate EBITDA as income from continuing operations plus interest expense (net), provision for (benefit from) income taxes, and depreciation and amortization. EBITDA should not be considered an alternative to profit or operating profit for any period as an indicator of our performance, or as an alternative to operating cash flows as a measure of our liquidity. We also present EBITDA, net income and diluted EPS exclusive of identified items. Identified items include adjustments for "lower of cost or market" ("LCM"), impairments and refinery exit costs. Our inventories are stated at the lower of cost or market. Cost is determined using the last-in, first-out ("LIFO") inventory valuation methodology, which means that the most recently incurred costs are charged to cost of sales and inventories are valued at the earliest acquisition costs. Fluctuation in the prices of crude oil, natural gas and correlated products from period to period may result in the recognition of charges to adjust the value of inventory to the lower of cost or market in periods of falling prices and the reversal of those charges in subsequent interim periods, within the same fiscal year as the charge, as market prices recover. Property, plant and equipment are recorded at historical costs. If it is determined that an asset or asset group's undiscounted future cash flows will not be sufficient to recover the carrying amount, an impairment charge is recognized to write the asset down to its estimated fair value. Goodwill is tested for impairment annually in the fourth quarter or whenever events or changes in circumstances indicate that the fair value of a reporting unit with goodwill is below its carrying amount. If it is determined that the carrying value of the reporting unit including goodwill exceeds its fair value, an impairment charge is recognized. We assess our equity investments for impairment whenever events or changes in circumstances indicate that the carrying amount of the investment may not be recoverable. If the decline in value is considered to be other-than-temporary, the investment is written down to its estimated fair value. In April 2022 we announced our decision to cease operation of our Houston Refinery. In connection with exiting the refinery business, we began to incur costs primarily consisting of accelerated lease amortization costs, personnel related costs, accretion of asset retirement obligations and depreciation of asset retirement costs.

Circular & Low Carbon Solutions ("CLCS") incremental EBITDA is estimated EBITDA which is incremental to LyondellBasell's fossil-based O&P Americas and O&P EAI annual EBITDA. CLCS incremental EBITDA cannot be reconciled to net income due to the inherent difficulty in quantifying certain amounts that are necessary for such reconciliation at the business unit level including adjustments that could be made for interest expense (net), provision for (benefit from) income taxes and depreciation & amortization, the amounts of which, based on historical experience, could be significant.

Recurring annual EBITDA for the Value Enhancement Program is the year-end EBITDA run rate estimated based on 2017-2019 mid-cycle margins and modest inflation relative to a 2021 baseline. We believe recurring annual EBITDA is useful to investors because it represents a key measure used by management to assess progress toward our strategy of value creation.

These non-GAAP financial measures as presented herein, may not be comparable to similarly titled measures reported by other companies due to differences in the way the measures are calculated.

**Reconciliations of Net Income to Net Income Excluding Identified Items and to EBITDA Including and Excluding Identified Items**

| Millions of dollars | Year Ended December 31, 2023 |
|---|---|
| Net income | $2,121 |
| add: Identified items | |
| Impairments, pre-tax[a] | 518 |
| Refinery exit costs, pre-tax[b] | 334 |
| Benefit from income taxes related to identified items | (135) |
| Net income excluding identified items | $2,838 |
| | |
| Net income | $2,121 |
| Loss from discontinued operations, net of tax | 5 |
| Income from continuing operations | 2,126 |
| Provision for income taxes | 501 |
| Depreciation and amortization[c] | 1,534 |
| Interest expense, net | 348 |
| add: Identified items | |
| Impairments[a] | 518 |
| Refinery exit costs[d] | 195 |
| EBITDA excluding identified items | 5,222 |
| less: Identified items | |
| Impairments[a] | (518) |
| Refinery exit costs[d] | (195) |
| EBITDA | $4,509 |

**Reconciliation of Diluted EPS to Diluted EPS Excluding Identified Items**

| | Year Ended December 31, 2023 |
|---|---|
| Diluted earnings per share | $6.46 |
| Add: Identified items | |
| Impairments | 1.41 |
| Refinery exit costs, | 0.78 |
| Diluted earnings per share excluding identified items | $8.65 |

**Reconciliation of Net Income to Recurring Annual EBITDA for the Value Enhancement Program**

| Millions of dollars | 2023[a] |
|---|---|
| Net income | $300 |
| Provision for income taxes: | 75 |
| Depreciation and amortization | 25 |
| Interest expense, net | — |
| Recurring annual EBITDA[e] | $400 |

(a) The year ended December 31, 2023 reflects non-cash impairment charges of $518 million, which includes a non-cash goodwill impairment charge of $252 million in our Advanced Polymer Solutions segment, recognized in the first quarter of 2023, and $192 million related to our European PO joint venture in our Intermediates & Derivatives segment, recognized in the fourth quarter of 2023.

(b) Refinery exit costs include accelerated lease amortization costs, personnel related costs, accretion of asset retirement obligations and depreciation of asset retirement costs of $110 million, $76 million, $9 million and $139 million, respectively.

(c) Depreciation and amortization includes depreciation of asset retirement costs of $139 million in connection with exiting the Refining business.

(d) Refinery exit costs include accelerated lease amortization costs, personnel related costs and accretion of asset retirement obligations of $110 million, $76 million and $9 million, respectively.

(e) In 2022, we launched the Value Enhancement Program. In 2023, the program delivered a 2023 year-end run rate of approximately $400 million of recurring annual EBITDA.

# Reporting frameworks

# Global Reporting Initiative (GRI) Index

LYB has reported the information cited in this GRI content index for the period January 1, 2023 and December 31, 2023 with reference to the GRI Standards. GRI 1 Foundation 2021

| Disclosure | Disclosure title | Reference location | Page # |
|---|---|---|---|
| **GRI 2: General Disclosures** | | | |
| 2-1 | Organizational details | 10-K - Items 1 and 2. Business and Properties. | 4-21 |
| 2-2 | Entities included in the organization's sustainability reporting | Sustainability Report - Report boundaries | 2 |
| 2-3 | Reporting period, frequency and contact point | Sustainability Report - About this report | 2 |
| 2-4 | Restatements of information | Sustainability Report - GHG emissions and energy (Scope 3)<br>Sustainability Report - Air emissions<br>Sustainability Report - Water use and availability<br>Sustainability Report - Material reuse and waste | 38<br>42<br>43<br>46-47 |
| 2-5 | External assurance | Sustainability Report - Report of independent accountants | 101-107 |
| 2-6 | Activities, value chain and other business relationships | Sustainability Report - About LYB | 7 |
| 2-7 | Employees | Sustainability Report - Our employees | 61 |
| 2-8 | Workers who are not employees | Sustainability Report - Our approach | 61 |
| 2-9 | Governance structure and composition | Proxy - Board oversight of risk<br>Proxy - Election of Directors<br>Sustainability Report - Board oversight of sustainability | 30-32<br>10-18<br>88-90 |
| 2-10 | Nomination and selection of the highest governance body | Sustainability Report - Board structure and independence<br>Proxy Statement - Election of directors | 89<br>10-18 |
| 2-11 | Chair of the highest governance body | Sustainability Report - Board structure and independence<br>Proxy Statement - Board leadership structure | 89<br>19 |
| 2-12 | Role of the highest governance body in overseeing the management of impacts | Sustainability Report - Board oversight of sustainability; Management oversight of sustainability<br>Proxy - Board oversight of risk | 89-90<br>30-32 |
| 2-13 | Delegation of responsibility for managing impacts | Sustainability Report - Board oversight of sustainability; Management oversight of sustainability<br>Proxy - Board oversight of risk | 89-90<br>30-32 |
| 2-14 | Role of the highest governance body in sustainability reporting | Sustainability Report - About this report<br>Sustainability Report - Board oversight of sustainability | 2<br>89 |
| 2-15 | Conflicts of interest | Sustainability Report - Conflicts of interest<br>Proxy Statement - Related party transactions | 91<br>88 |
| 2-16 | Communication of critical concerns | Sustainability Report - Board Diversity Policy, gender diversity data, tenure, experience<br>Proxy - Director nominees' independence, tenure, diversity, and experience | 89<br>10-18 |
| 2-17 | Collective knowledge of the highest governance body | Sustainability Report - Board Governance - Board Diversity Policy, gender diversity data, tenure, experience<br>Proxy - Board experience and expertise | 89 |
| 2-18 | Evaluation of the performance of the highest governance body | Proxy Statement - Board evaluation | 10-18 |
| 2-19 | Remuneration policies | Proxy Statement - Director compensation<br>Proxy Statement - Key compensation practices & what guides our program | 37-39<br>48-52 |
| 2-20 | Process to determine remuneration | Proxy Statement - Director compensation<br>Proxy Statement - compensation practices & what guides our program<br>Proxy Statement - Advisory vote on executive compensation | 37<br>48-52<br>45 |
| 2-21 | Annual total compensation ratio | Proxy Statement - CEO pay ratio | 79 |

| GRI Metric | Metric Description | Reference location | Page # |
|---|---|---|---|
| 2-22 | Statement on sustainable development strategy | Sustainability Report - From our CEO<br>Sustainability Report - From our Chief Sustainability Officer | 9-10<br>11-12 |
| 2-23 | Policy commitments | Sustainability Report - Ethics and integrity | 91-92 |
| 2-24 | Embedding policy commitments | Sustainability Report - Ethics and integrity | 91-92 |
| 2-25 | Processes to remediate negative impacts | Sustainability Report - Social impact<br>Sustainability Report - Stakeholder engagement<br>Charter of the Audit Committee of the Board | 79<br>93<br>www.lyb.com |
| 2-26 | Mechanisms for seeking advice and raising concerns | Sustainability Report - Mechanism for concerns | 91 |
| 2-27 | Compliance with laws and regulations | Sustainability Report - Environmental compliance & performance<br>10-K - Item 3, Legal Proceedings | 48<br>35 |
| 2-28 | Membership associations | Sustainability Report - Industry associations | 93 |
| 2-29 | Approach to stakeholder engagement | Sustainability Report - Stakeholder engagement | 93 |
| 2-30 | Collective bargaining agreements | Sustainability Report - Our approach | 61 |
| **GRI 3: Material Topics** | | | |
| 3-1 | Process to determine material topics | Sustainability Report - Materiality | 95 |
| 3-2 | List of material topics | Sustainability Report - Materiality assessment results | 95 |
| **Economic performance** | | | |
| 3-3 | Management of material topics | 2023 Annual Report | www.lyb.com |
| 201-1 | Direct economic value generated and distributed | Sustainability Report - 2023 Financial highlights & Value Enhancement Program<br>Press Release - LyondellBasell Reports 2023 Earnings, issued February 2, 2024 | 8<br>www.lyb.com |
| 201-2 | Financial implications and other risks and opportunities due to climate change | Sustainability Report - Climate-related risks and opportunities<br>CDP Climate Change Report and TCFD | 37<br>www.lyb.com |
| 201-3 | Defined benefit plan obligations and other retirement plans | Sustainability Report - Defined benefit plan obligations and other retirement plans<br>10-K - Pension and Other Post-retirement Benefits | 63<br>102-113 |
| 201-4 | Financial assistance received from government | Sustainability Report - EU Innovation Fund Grant | 23 |
| **Anti-corruption** | | | |
| 205-1 | Operations assessed for risks related to corruption | Sustainability Report - Operations assessed for risks related to corruption | 92 |
| 205-2 | Communication and training about anti-corruption policies and procedures | Sustainability Report - Communication and training on anti-corruption | 92 |
| **Anti-competitive behavior** | | | |
| 206-1 | Legal actions for anti-competitive behavior, anti-trust, and monopoly practices | Sustainability Report - Anti-competitive behavior | 92 |
| **Tax** | | | |
| 207-1 | Approach to tax | Sustainability Report - Tax<br>Website - Tax strategy | 98<br>www.lyb.com |
| 207-2 | Tax governance, control, and risk management | Sustainability Report - Tax | 98 |
| 207-3 | Stakeholder engagement and management of concerns related to tax | Sustainability Report - Stakeholder engagement<br>10-K - 17. Income taxes | 93<br>116-121 |

| GRI Metric | Metric Description | Reference location | Page # |
|---|---|---|---|
| **Materials** | | | |
| 3-3 | Management of material topics | Sustainability Report - Building a circular economy<br>Sustainability Report - Our climate ambition<br>Sustainability Report - Environment | 16<br>28<br>40 |
| 301-1 | Materials used by weight or volume | Sustainability Report - Our goal: Produce and market at least two milion metric tos of recycled and renewable-based polymers annually by 2030<br>10-K - Segments | 17-18<br>5-12 |
| **Energy** | | | |
| 3-3 | Management of material topics | Sustainability Report - Our climate ambition<br>Sustainability Report - GHG emissions and energy | 28-34<br>38 |
| 302-1 | Energy consumption within the organization | Sustainability Report - GHG emissions and energy | 38 |
| 302-3 | Energy intensity | Sustainability Report - GHG emissions and energy | 38 |
| 302-4 | Reduction of energy consumption | Sustainability Report - Our goal: Procure a minimum of 50% of electricity from renewable sources by 2030 | 29-30 |
| **Water and effluents** | | | |
| 3-3 | Management of material topics | Sustainability Report - Environment | 40 |
| 303-1 | Interactions with water as a shared resource | Sustainability Report - Water use and availability | 43 |
| 303-2 | Management of water discharge-related impacts | Sustainability Report - Air and water quality<br>Sustainability Report - Water use and availability | 41<br>43 |
| 303-3 | Water withdrawal | Sustainability Report - Water use and availability | 43 |
| 303-4 | Water discharge | Sustainability Report - Water use and availability | 43 |
| 303-5 | Water consumption | Sustainability Report - Water use and availability | 43 |
| **Biodiversity** | | | |
| 3-3 | Management of material topics | Sustainability Report - Environment<br>Sustainability Report - Biodiversity and ecosystem services | 40<br>44 |
| 304-1 | Operational sites owned, leased, managed in, or adjacent to, protected areas and areas of high biodiversity value outside protected areas | Sustainability Report - Water risk and key biodiversity areas | 45 |
| **Emissions** | | | |
| 3-3 | Management of material topics | Sustainability Report - Our climate ambition | 28 |
| 305-1 | Direct (scope 1) GHG emissions | Sustainability Report - Aggregated overview of GHG emissions | 38 |
| 305-2 | Energy indirect (scope 2) GHG emissions | Sustainability Report - Aggregated overview of GHG emissions | 38 |
| 305-3 | Other indirect (scope 3) GHG emissions | Sustainability Report - Aggregated overview of GHG emissions, Breakdwon of scope 3 emissions | 38 |
| 305-4 | GHG emissions intensity | Sustainability Report - Aggregated overview of GHG emissions | 38 |
| 305-5 | Reduction of GHG emissions | Sustainability Report - Our goal: Reduce absolute scope 1 and 2 GHG emissions 42% by 2030<br>Sustainability Report - Our goal: Reduce absolute scope 3 GHG emissions 30% by 2030 | 29-34<br>35 |
| 305-6 | Emissions of ozone-depleting substances (ODS) | Sustainability Report - Air emissions | 42 |
| 305-7 | Nitrogen oxides (NOx), sulfur oxides (SOx), and other significant air emissions | Sustainability Report - Air emissions | 42 |

| GRI Metric | Metric Description | Reference location | Page # |
|---|---|---|---|
| **Materials** | | | |
| **Waste** | | | |
| 3-3 | Management of material topics | Sustainability Report - Environment<br>Sustainability Report - Material reuse and waste | 40<br>46 |
| 306-3 | Waste generated | Sustainability Report - Material reuse and waste | 46 |
| 306-4 | Waste diverted from disposal | Sustainability Report - Material reuse and waste | 47 |
| 306-5 | Waste directed to disposal | Sustainability Report - Material reuse and waste | 47 |
| **Supplier environmental assessment** | | | |
| 308-1 | New suppliers that were screened using environmental criteria | Sustainability Report - Sustainable procurement | 75-76 |
| 308-2 | Negative environmental impacts in the supply chain and actions taken | Sustainability Report - Sustainable procurement | 75-76 |
| **Employment** | | | |
| 3-3 | Management of material topics | Sustainability Report - Workforce management | 60-62 |
| 401-1 | New employee hires and employee turnover | Sustainability Report - New employee hires and turnover | 62 |
| 401-2 | Benefits provided to full-time employees that are not provided to temporary or part-time employees | Sustainability Report - Education benefits<br>Sustainability Report - Employee benefits | 62<br>63 |
| 401-3 | Parental leave | Sustainability Report - Parental leave | 63 |
| **Occupational health and safety** | | | |
| 3-3 | Management of material topics | Sustainability Report - Supporting a thriving society | 50-53 |
| 403-1 | Occupational health and safety management system | Sustainability Report - Supporting a thriving society | 50-53 |
| 403-2 | Hazard identification, risk assessment, and incident investigation | Sustainability Report - Our goal: Operate safely every day and with zero incidents, zero injuries and zero accidents | 51-53 |
| 403-3 | Occupational health services | Sustainability Report - Occupational health services | 52 |
| 403-4 | Worker participation, consultation, and communication on occupational health and safety | Sustainability Report - Worker participation, consultation and communication on occupational health and safety | 52 |
| 403-5 | Worker training on occupational health and safety | Sustainability Report - Worker training on occupational health and safety | 52 |
| 403-6 | Promotion of worker health | Sustainability Report - Promotion of worker health | 52 |
| 403-8 | Workers covered by an occupational health and safety management system | Sustainability Report - Our goal: Operate safely every day and with zero incidents, zero injuries and zero accidents | 51 |
| 403-9 | Work-related injuries | Sustainability Report - Worker safety | 52 |
| **Training and education** | | | |
| 3-3 | Management of material topics | Sustainability Report - Our approach | 61 |
| 404-1 | Average hours of training per year per employee | Sustainability Report - Global talent development | 61 |
| 404-2 | Programs for upgrading employee skills and transition assistance programs | Sustainability Report - Global talent development<br>Sustainability Report - Education bnefits<br>Sustainability Report - Transition assistance program | 61-62<br>62<br>63 |
| 404-3 | Percentage of employees receiving regular performance and career development reviews | Sustainability Report - Global talent development | 61 |

| GRI Metric | Metric Description | Reference location | Page # |
|---|---|---|---|
| **Diversity and equal opportunity** | | | |
| 3-3 | Management of material topics | Sustainability Report - Diversity, Equity and Inclusion (DEI) | 66 |
| 405-1 | Diversity of governance bodies and employees | Sustainability Report - Our employees<br>Sustainability Report - Diversity, Equity and Inclusion (DEI)<br>2024 Proxy | 61<br>66-68<br>10 |
| 405-2 | Ratio of basic salary and remuneration of women to men | Sustainability Report - Fair pay | 70 |
| **Child labor** | | | |
| 408-1 | Operations and suppliers at significant risk for incidents of child labor | Sustainability Report - Human rights | 81 |
| **Forced or compulsory labor** | | | |
| 409-1 | Operations and suppliers at significant risk for incidents of forced or compulsory labor | Sustainability Report - Human rights | 81 |
| **Security practices** | | | |
| 410-1 | Security personnel trained in human rights policies or procedures | Sustainability Report - Security personnel and human rights | 81 |
| **Local communities** | | | |
| 413-1 | Operations with local community engagement, impact assessments, and development programs | Sustainability Report - Social impact<br>Sustainability Report - Advancing Good | 78-80<br>82-87 |
| **Supplier social assessment** | | | |
| 414-1 | New suppliers that were screened using social criteria | Sustainability Report - Sustainable procurement | 74-77 |
| **Public policy** | | | |
| 3-3 | Management of material topics | Sustainability Report - Public policy | 97 |
| 415-1 | Political contributions | Sustainability Report - Public policy | 97 |
| **Customer health and safety** | | | |
| 3-3 | Management of material topics | Sustainability Report - Product safety and stewardship | 55-58 |
| 416-1 | Assessment of the health and safety impacts of product and service categories | Sustainability Report - Product safety and stewardship | 55-58 |
| 416-2 | Incidents of non-compliance concerning the health and safety impacts of products and services | Sustainability Report - Incidents of non-compliance concerning the health and safety impacts of products and services | 55 |

# Sustainability Accounting Standards Board (SASB) index

This table demonstrates how we are pursuing alignment with the Sustainability Accounting Standards Board (SASB). Sector: Resource Transformation | Industry: Chemicals.

| SASB Topic | SASB code | Metric description | Reference location | Page # |
|---|---|---|---|---|
| Greenhouse gas emissions | RT-CH-110a.1 | Gross global scope 1 emissions, percentage covered under emissions-limiting regulations | Sustainability Report - Aggregated overview of GHG emissions | 38 |
| | RT-CH-110a.2 | Discussion of long-term and short-term strategy or plan to manage scope 1 emissions, emissions reduction targets, and an analysis of performance against those targets | Sustainability Report - Our goal: Reduce absolute scope 1 and 2 GHG emissions 42% by 2030 | 29-34 |
| Air quality | RT-CH-120a.1 | Air emissions of the following pollutants: (1) NOx (excluding N2O), (2) SOx, (3) volatile organic compounds (VOCs), and (4) hazardous air pollutants (HAPs) | Sustainability Report - Air emissions | 42 |
| Energy management | RT-CH-130a.1 | (1) Total energy consumed,<br>(2) percentage grid electricity,<br>(3) percentage renewable,<br>(4) total self-generated energy | (1) Total energy consumed – 380 million GJ<br>(2) Percentage grid electricity – 8%<br>(3) Percentage renewable – 5%<br>(4) Total self-generated energy – 278 million GJ<br>Sustainability Report - Energy<br>2023 CDP Climate - C8.2a | <br><br><br><br>38<br>71 |
| Water management | RT-CH-140a.1 | (1) Total water withdrawn, (2) total water consumed, percentage of each in regions with high or extremely high baseline water risk | Sustainability Report - Water use and availability<br>Sustainability Report - Water risk and key biodiversity areas | 43<br>45 |
| | RT-CH-140a.2 | Number of incidents of non-compliance associated with water quality permits, standards, and regulations | 2023 CDP Water - W8.1b | 20 |
| | RT-CH-140a.3 | Description of water management risks and discussion of strategies and practices to mitigate those risks | Sustainability Report - Air and water quality<br>Sustainability Report - Water use and availability | 41<br>43 |
| Hazardous waste management | RT-CH-150a.1 | Amount of hazardous waste generated, percentage recycled | Sustainability Report - Material reuse and waste | 46-47 |
| Community relations | RT-CH-210a.1 | Discussion of engagement processes to manage risks and opportunities associated with community interests | Sustainability Report - Social impact<br>Sustainability Report - Advancing Good | 78-80<br>82-87 |
| Workforce health & safety | RT-CH-320a.1 | (1) Total recordable incident rate (TRIR) and (2) fatality rate for (a) direct employees and (b) contract employees | Sustainability Report - GoalZERO | 51 |
| | RT-CH-320a.2 | Description of efforts to assess, monitor, and reduce exposure of employees and contract workers to long-term (chronic) health risks | Sustainability Report - Our goal: Operate safely every day with zero incidents, zero injuries and zero accidents | 51-53 |
| Safety & Environmental stewardship of chemicals | RT-CH-410b.1 | (1) Percentage of products that contain Globally Harmonised System of Classification and Labelling of Chemicals (GHS) Category 1 and 2 Health and Environmental Hazardous Substances<br>(2) Percentage of such products that have undergone a hazard assessment | (1) Less than 1%<br>(2) 100%<br>Sustainability Report - Product safety and stewardship | 55-57 |
| | RT-CH-410b.2 | Discussion of strategy to (1) manage chemicals of concern and (2) develop alternatives with reduced human and/or environmental impact | Sustainability Report - Product safety and stewardship | 55-58 |
| Genetically modified organisms | RT-CH-410c.1 | Percentage of products by revenue that contain genetically modified organisms (GMOs) | LYB produces no products containing genetically modified organisms | |
| Management of the legal & regulatory environment | RT-CH-530a.1 | Discussion of corporate positions related to government regulations and/or policy proposals that address environmental and social factors affecting the industry | Sustainability Report - Public policy<br>Our Principles for Public Policy can be found on our website at www.lyb.com | 97 |
| Operational safety, emergency preparedness & response | RT-CH-540a.1 | Process Safety Incidents Count (PSIC), Process Safety Total Incident Rate (PSTIR), and Process Safety Incident Severity Rate (PSISR) | Sustainability Report - Process safety | 53 |
| Activity metric | RT-CH-000.A | Production by reportable segment | Sustainability Report - About LYB | 7 |

# Sustainability acronyms list

| Acronym | Meaning |
|---|---|
| AEPW | Alliance to End Plastic Waste |
| ASPIRE | Asian Pacific Islander Region (DEI Network) |
| BELIEVE | Black Employees Lead, Influence, Empower, Value and Embrace (DEI Network) |
| CCS | Carbon Capture and Storage |
| CCU | Carbon Capture and Utilization |
| CCUS | Carbon capture, utilization and storage |
| CDP | Carbon Disclosure Project |
| CO | Carbon Monoxide |
| CO2 | Carbon Dioxide |
| CO2eq | Carbon Dioxide equivalent |
| CSO | Chief Sustainability Officer |
| CSRD | Corporate Sustainability Reporting Directive |
| DEI | Diversity, Equity and Inclusion |
| DJSI | Dow Jones Sustainability Index |
| EC | European Commission |
| ESG | Environmental, Social and Governance |
| ETS | Emissions Trading System |
| EU ETS | European Union Emissions Trading System |
| GHG | Greenhouse gas |
| GRI | Global Reporting Initiative |
| GWQD | Global Water Quality Dashboard |
| HAPs | Hazardous Air Pollutants |
| HFCs | Hydrofluorocarbons |
| HSE | Health, Safety and Environmental |
| HSE&S | Health, Safety, Environmental and Security |
| ICCA | International Council of Chemical Associations |
| ICP | Internal Carbon Pricing |
| IPBES | Intergovernmental Science-Policy Platform on |
| IPCC | Intergovernmental Panel on Climate Change |
| ISCC | International Sustainability and Carbon Certification |
| ISSB | International Sustainability Standards Board |
| KBA | Key Biodiversity Area |
| LCA | Life Cycle Assessment |

| Acronym | Meaning |
|---|---|
| LEAD | Latin Employees Advancing DEI |
| LIFT | LYB Inspiring Females Together (DEI Network) |
| MoReTec | Molecular Recycling Technology |
| NGO | Non Governmental Organization |
| NOx | Nitrogen Oxides |
| OCS | Operation Clean Sweep |
| ODS | Ozone-Depleting Substances |
| OPLN | Ocean Plastics Leadership Network |
| PCR | Post Consumer Resin |
| PFCs | Perfluorocarbons |
| PIW | Post Industrial Waste |
| PM | Particulate Matter |
| PPA | Power Purchase Agreement |
| PSIC | Process Safety Incidents Count |
| PSISR | Process Safety Incident Severity Rate |
| PSTIR | Process Safety Total Incident Rate |
| SASB | Sustainability Accounting Standards Board |
| SBT | Science Based Target |
| SBTI | Science Based Target Initiative |
| S&CA | Sustainability & Corporate Affairs |
| SDG | Sustainable Development Goal |
| SOx | Sulfur Oxides |
| TCFD | Taskforce on Climate-Related Financial Disclosures |
| TFND | Task Force for Nature Related Financial Disclosures |
| TfS | Together for Sustainability |
| TRIR | Total Recordable Incident Rate |
| QCP | Quality Circular Polymers |
| UNEA | United Nations Environment Assembly |
| UNSDG | United Nations Sustainable Development Goals |
| VOCs | Volatile Organic Compounds |
| WBCSD | World Business Council for Sustainable Development |
| WEF | World Economic Forum |
| YPEN | Young Professionals Employee Network |

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