LyondellBasell Industries N.V.

Financial Report

For the Year Ended December 31, 2023

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Corporate Financial Statements

1. About LyondellBasell

OVERVIEW

LyondellBasell Industries N.V. is a global, independent chemical company and was incorporated, as a *Naamloze Vennootschap,* under Dutch law on October 15, 2009. Unless otherwise indicated, the "Company," "we," "our," "us" and "LyondellBasell" are used in this report to refer to the businesses of LyondellBasell Industries N.V. and its consolidated subsidiaries.

We participate globally across the petrochemical value chain and are an industry leader in many of our product lines. Our chemicals businesses consist primarily of large processing plants that convert large volumes of liquid and gaseous hydrocarbon feedstocks into plastic resins and other chemicals. Our chemical products tend to be basic building blocks for other chemicals and plastics. Our plastic products are used in large volumes as well as smaller specialty applications. Our customers use our plastics and chemicals to manufacture a wide range of products that people use in their everyday lives including food packaging, home furnishings, automotive components, paints and coatings. Our refining business consists of our Houston refinery, which processes crude oil into refined products such as gasoline and distillates. We also develop and license chemical and polyolefin process technologies and manufacture and sell polyolefin catalysts.

Our financial performance is influenced by the supply and demand for our products, the cost and availability of feedstocks and commodity products, global and regional production capacity, our operational efficiency and our ability to control costs. We have a strong operational focus and, as a large volume producer of commodities, continuously strive to differentiate ourselves through safe, reliable and low-cost operations in all of our businesses. We purchase large quantities of natural gas, electricity and steam which we use as energy to fuel our facilities and purchase large quantities of natural gas liquids and crude oil derivatives which we use as feedstocks. The relatively low cost of natural gas-derived raw materials in the U.S. versus the global cost of crude oil-derived raw materials has had a significant positive influence on the profitability of our North American operations.

We are 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. As 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.

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. Together with our business strategy, our story and culture powerfully communicate the role we play in creating a more sustainable world.

Our Purpose—Creating solutions for everyday sustainable living.

Our Commitments—We are committed to delivering unique products and services in the following ways:

Sustainability-focused innovation—We redefine our industry by developing circular and low carbon products and technologies at scale and championing chemistry as a sustainable solution for our planet.

Ever-better performance—As an inventor and leader in chemistry, we apply our combined expertise to elevate our performance and develop extraordinary, high-quality products.

Outside-in perspective—We develop a deep understanding of emerging trends, end-markets, and consumer needs to stay one step ahead, create meaningful value, and lead our customers forward.

Impactful collaboration—We foster relationships across the entire value chain to successfully solve global challenges, create better outcomes, and amplify our impact on the communities we serve.

Our Values—Our values give us direction on how to behave, providing grounding in actions that ensure our team is achieving company objectives while also engendering a unifying culture of commitment and shared purpose.

We champion people—We put people at the heart of everything we do by embracing a diverse, equitable, and inclusive culture, adopting a customer-centric lens, and being safety-minded.

We strive for excellence—We relentlessly raise the bar by feeling empowered to take ownership, promoting collaborative ways of working, and being passionate about our impact on the world.

We shape the future—We remain on the cutting-edge by initiating environmentally conscious decisions, spurring creative solutions and cultivating a pioneering mindset.

SEGMENTS

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, polyethylene and polypropylene.
- *Olefins and Polyolefins-Europe, Asia, International* ("O&P-EAI"). Our O&P-EAI segment produces and markets olefins and co-products, polyethylene and polypropylene.
- *Intermediates and Derivatives* ("I&D"). Our I&D segment produces and markets propylene oxide and its derivatives; oxyfuels and related products; and intermediate chemicals, such as styrene monomer, acetyls, ethylene oxide and ethylene glycol.
- *Advanced Polymer Solutions* ("APS"). Our APS segment produces and markets compounding and solutions, such as polypropylene 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.

Effective January 1, 2023, our *Catalloy* and polybutene-1 businesses were moved from the APS segment and reintegrated into the O&P-Americas and O&P-EAI segments. This move allows the APS team to focus on our compounding and solutions business, and to develop a more agile operating model with meaningful regional and segment growth strategies.

Financial information about our business segments and geographical areas can be found in Note 31 to the Consolidated Financial Statements.

2. Report of the Board of Directors

2.1 Operational and Financial Overview

This discussion should be read in conjunction with the information contained in our Consolidated Financial Statements and the accompanying notes elsewhere in this report. Unless otherwise indicated, the "Company," "we," "us," "our" or similar words are used to refer to LyondellBasell Industries N.V. together with its consolidated subsidiaries ("LyondellBasell N.V."). As we are a holding company incorporated in the Netherlands, we conduct substantially all of our operations through subsidiaries.

Throughout 2023, petrochemical markets faced headwinds from soft global demand, capacity additions and economic uncertainty. Markets were broadly pressured by weak demand for durable goods which impacted margins in the O&P-Americas, O&P-EAI, I&D and APS segments. Refining results declined primarily as a result of lower demand for diesel and other distillates, compared to the prior year. In contrast, oxyfuels margins benefited from tight supply and strong summertime gasoline crack spreads.

In the first quarter of 2023, we started up the world's largest propylene oxide (PO) and tertiary butyl alcohol (TBA) unit in Texas. These new assets on the U.S. Gulf Coast have an annual capacity of 470 thousand metric tons of PO and one million metric tons of TBA and its derivatives.

Results of operations for the periods discussed are presented in the table below.

	Year Ended December 31,	
Millions of U.S. Dollars (except for earnings per share amounts)	**2023**	**2022**
Results of Operations Data		
Revenue	$ 41,139	$ 51,739
Cost of sales	36,251	45,344
Operating profit	2,556	4,965
Finance costs	617	430
Depreciation and amortization	2,140	1,784
Impairments	616	69
Share of profit of investments accounted for using the equity method	68	16
Income tax expense	347	785
Profit for the year	1,794	3,798
Earnings per share:		
Basic	5.48	11.56
Diluted	5.46	11.54
Balance Sheet Data		
Total equity	12,923	12,903
Borrowings	12,077	12,108
Lease liabilities	1,964	2,026
Cash and cash equivalents	—	(2,389)
Net debt	14,041	11,745
Trade and other receivables	4,297	4,877
Inventories	5,501	5,790
Trade and other payables	(5,856)	(5,994)
Net working capital	$ 3,942	$ 4,673

Revenues—Revenues decreased by $10,600 million, or 20%, in 2023 compared to 2022. Average sales prices in 2023 were lower for many of our products as sales prices generally correlate with crude oil prices, which decreased relative to 2022. These lower prices led to a 22% decrease in revenue. Volume improvements resulted in a 1% increase in revenue, primarily driven by increased I&D sales volumes. Favorable foreign exchange impacts resulted in a 1% increase in revenue.

Cost of Sales—Cost of sales decreased by $9,093 million, or 20%, in 2023 compared to 2022. This decrease is primarily related to lower feedstock and energy costs. Fluctuations in our cost of sales are generally driven by changes in feedstock and energy costs. On an annual basis, feedstock and energy related costs generally represent approximately 70% to 80% of cost of sales. Other variable costs account for approximately 10% of cost of sales and fixed operating costs, consisting primarily of expenses associated with employee compensation, depreciation and amortization, and maintenance, account for the remainder.

Impairments—During 2023, we recognized non-cash impairment charges of $616 million, primarily consisting of impairment charges of $352 million related to the reallocation of our *Catalloy* and polybutene-1 businesses being moved from our APS segment and reintegrated into our O&P-Americas and O&P-EAI segments and an impairment charge of $192 million related to LyondellBasell Covestro Manufacturing Maasvlakte V.O.F (our "European PO Joint Operation"). During 2022 we recognized a non-cash impairment charge of $69 million related to the sale of our Australian polypropylene manufacturing facility.

Operating Profit—Operating profit decreased by $2,409 million in 2023 compared to 2022. In 2023, Operating income decreased for our Refining, O&P-Americas, I&D, APS and O&P-EAI segments by $668 million, $541 million, $342 million, $277 million and $235 million, respectively. Operating income for our Technology segment increased by $3 million in 2023 compared to 2022. Results for each of our business segments are discussed further in the Segment Analysis section below.

Income Taxes—Our effective income tax rates of 16.2% in 2023 and 17.1% in 2022 resulted in Income tax expense of $347 million and $785 million, respectively.

Our effective income tax rate fluctuates based on, among other factors, changes in pre-tax income in countries with varying statutory tax rates, changes in unrecognized deferred tax assets, changes in foreign exchange gains/losses, the amount of exempt income, changes in unrecognized tax benefits associated with uncertain tax positions and changes in tax laws. We continue to maintain unrecognized deferred tax assets in various jurisdictions totaling to $78 million as of 2023, which could impact our effective income tax rate in the future.

Compared to 2022, the 2023 effective income tax rate decreased primarily due to the relative impact of our exempt income on reduced earnings, coupled with fluctuations in return to accruals and benefits recognized in the fourth quarter of 2023 related to a patent box ruling. These decreases were partially offset by an increase in the effective tax rate related to non-deductible impairments, an audit settlement recognized in the second quarter of 2023 and fluctuations in uncertain tax positions.

2.1.1 Segment Analysis

We use earnings from continuing operations before interest, income taxes, and depreciation and amortization ("EBITDA") as our measure of profitability for segment reporting purposes. This measure of segment operating results is used by our chief operating decision maker to assess the performance of, and allocate resources to, our operating segments. Intersegment eliminations and items that are not directly related or allocated to business operations, such as foreign exchange gains (losses) and components of pension and other post-retirement benefit costs other than service cost, are included in "Other." Information presented to our chief operating decision maker is prepared in accordance with generally accepted accounting principles in the United States of America ("U.S. GAAP"). As such, the segment analysis disclosed below is prepared in accordance with U.S. GAAP. For additional information related to our operating segments, as well as a reconciliation of EBITDA to its nearest U.S. GAAP and IFRS measure, Operating profit, see Note 31 to our Consolidated Financial Statements.

Effective January 1, 2023, our *Catalloy* and polybutene-1 businesses were moved from our Advanced Polymer Solutions segment and reintegrated into our Olefins and Polyolefins-Americas and Olefins and Polyolefins-Europe, Asia, International segments. Segment information provided within has been revised for all periods presented to reflect these changes on a retrospective basis as if the changes had taken place prior to the fiscal years presented. This change has no impact on the Company's consolidated statements of income, consolidated balance sheets, consolidated statements of shareholders' equity and consolidated statements of cash flows previously reported.

Our continuing operations are managed through six reportable segments: O&P-Americas, O&P-EAI, I&D, APS, Refining and Technology.

Accounting policies for internal reporting, which are based on U.S. GAAP, are materially similar to those described in Summary of Material Accounting Policies (see Note 2 of the Consolidated Financial Statements), except for:

- *Inventories*—The Company measures its inventories in accordance with the Last In, First Out ("LIFO") method, which is permitted under U.S. GAAP. According to International Accounting Standards ("IAS") 2, *Inventories,* the LIFO method is prohibited under IFRS. Therefore, inventories are measured using the First In, First Out ("FIFO") method for the Consolidated Financial Statements. This inventory measurement difference between the reportable segments and the consolidated information results in different cost of sales and net profit for the period.

- *Employee Benefits*—Under U.S. GAAP, ASC Topic 715, *Compensation—Retirement Benefits* ("ASC 715") requires the interest expense component of pension expense to be calculated as the product of the defined benefit liability and the discount rate. Such interest expense is netted against interest income resulting from the expected rate of return on plan assets applied to the market value of assets. The expected rate of return on plan assets is a longer term rate, and is expected to change less frequently than the discount rate, reflecting long-term market expectations, rather than current fluctuations in market conditions. Under IFRS, in accordance with IAS 19, *Employee Benefits*, the Company recognizes a net interest expense (income), which is the product of the net defined benefit liability (asset) and the discount rates, as a component of its pension expense on defined benefit plans. Under ASC 715, past service cost and actual return on plan assets in excess of expected return are initially recorded in other comprehensive income and subsequently recognized in earnings over the average remaining service period of the participants to the extent it exceeds the "corridor." The corridor is defined as the greater of 10 percent of the accumulated projected benefit obligation or the fair value of the plan assets as of the beginning of the year. Under IFRS, the Company immediately recognizes past service cost and net interest expense (income) as discussed above in the Consolidated Statement of Income. Actual return of plan assets in excess of recognized interest income is permanently recorded in other comprehensive income.

- *Joint Operations*—Both U.S. GAAP and IFRS require a reporting entity to consolidate an entity that it controls as a result of holding a majority of the voting rights. Under IFRS 11 Joint Arrangements, investments in joint arrangements are classified as either joint operations or joint ventures. For joint operations, we recognize our share of revenue earned from the joint operations and our share of expenses incurred. We also recognize the assets associated with the joint operations that it controls and the liabilities it incurs under the joint arrangement. For joint ventures we recognize our interest in the joint venture or associate as an investment and uses the equity method of accounting. Under U.S. GAAP, ASC 323, *Investments—Equity Method and Joint Ventures*, we account for equity investments using the equity method of accounting if we have the ability to exercise significant influence over, but not control of, an investee. Significant influence generally exists if we have an ownership interest representing between 20% and 50% of the voting rights. Under the equity method of accounting, investments are stated initially at cost and are adjusted for subsequent additional investments and our proportionate share of profit or losses and distributions.

- *Other*—Amongst others, there are differences between IFRS and U.S. GAAP with respect to leases, discontinued operations, the subsequent measurement of asset retirement obligations, cross-currency swaps, capitalization of development costs related to research and development and amortization of debt issuance costs. If material, these differences are separately disclosed in the Consolidated Financial Statements reconciliation.

The following tables reflect selected financial information for our reportable segments:

	Year Ended December 31,	
Millions of U.S. Dollars	**2023**	**2022**
Sales and other operating revenues:		
O&P-Americas	$ 11,280	$ 14,480
O&P-EAI	10,479	13,455
I&D	11,086	12,950
APS	3,698	4,202
Refining	9,714	11,893
Technology	663	693
Other, including intersegment eliminations	(5,813)	(7,222)
Total	$ 41,107	$ 50,451
Share of profit/(loss) of associates and joint ventures:		
O&P-Americas	$ 49	$ 98
O&P-EAI	(55)	(68)
I&D	(13)	(25)
APS	(1)	—
Total	$ (20)	$ 5
EBITDA:		
O&P-Americas	$ 2,303	$ 2,865
O&P-EAI	(9)	178
I&D	1,679	1,872
APS	(162)	115
Refining	379	921
Technology	375	366
Other, including intersegment eliminations	(56)	(16)
Total	$ 4,509	$ 6,301

O&P-Americas Segment

Overview—EBITDA decreased in 2023 relative to 2022 primarily driven by lower olefins margins.

In calculating the impact of margin and volume on EBITDA, consistent with industry practice, management offsets revenues and volumes related to ethylene co-products against the cost to produce ethylene. Volume and price impacts of ethylene co-products are reported in margin.

Ethylene Raw Materials—Ethylene and its co-products are produced from two major raw material groups:

- NGLs, principally ethane and propane, the prices of which are generally affected by natural gas prices; and
- Crude oil-based liquids (“liquids” or “heavy liquids”) including naphtha, condensates, and gas oils, the prices of which are generally related to crude oil prices.

We have flexibility to vary the raw material mix and process conditions in our U.S. olefins plants in order to maximize profitability as market prices fluctuate for both feedstocks and products. Although prices of crude-based liquids and natural gas liquids are generally related to crude oil and natural gas prices, during specific periods the relationships among these materials and benchmarks may vary significantly. Ethane made up approximately 70% of the raw materials used in our North American crackers in 2023 and 2022.

The following table sets forth selected financial information for the O&P-Americas segment including Income from equity investments, which is a component of EBITDA.

Millions of U.S. Dollars	Year Ended December 31, 2023	2022
Sales and other operating revenues	$ 11,280	$ 14,480
Share of profit of associates and joint ventures	49	98
EBITDA	2,303	2,865

Revenues—Revenues decreased by $3,200 million, or 22%, in 2023 compared to 2022. Lower average sales prices for all businesses resulted in the 23% decrease in revenue primarily driven by increased market supply and lower demand. Higher volumes due to improved operating results resulted in a 1% increase in revenue.

EBITDA—EBITDA decreased by $562 million, or 20%, in 2023 compared to 2022. Lower polyolefins results led to a 29% decrease in EBITDA primarily due to lower margins as a result of lower average sales prices reflecting softer demand and new industry capacity. Higher olefins results contributed to a 7% increase in EBITDA driven equally by increased volumes and higher margins, due to higher operating rates and lower feedstock and energy costs, respectively.

O&P-EAI Segment

Overview—EBITDA decreased in 2023 compared to 2022 mainly as a result of lower polyolefin margins partially offset by higher olefins results.

In calculating the impact of margin and volume on EBITDA, consistent with industry practice, management offsets revenues and volumes related to ethylene co-products against the cost to produce ethylene. Volume and price impacts of ethylene co-products are reported in margin.

Ethylene Raw Materials—In Europe, naphtha is the primary raw material for our ethylene production and represents approximately 65% to 70% of the raw materials used in 2023 and 2022.

The following table sets forth selected financial information for the O&P-EAI segment including Share of profit of associates and joint ventures, which is a component of EBITDA.

Millions of U.S. Dollars	Year Ended December 31, 2023	2022
Sales and other operating revenues	$ 10,479	$ 13,455
Share of profit/(loss) of associates and joint ventures	(55)	(68)
EBITDA	(9)	178

Revenues—Revenues decreased by $2,976 million, or 22%, in 2023 compared to 2022. Lower average sales prices resulted in a 23% decrease in revenue as sales prices generally correlate with crude oil prices, which, on average, decreased compared to 2022. Lower volumes resulted in a revenue decrease of 1% primarily due to weak demand. Favorable foreign exchange impacts resulted in a revenue increase of 2%.

EBITDA—EBITDA decreased by $187 million, or 105%, in 2023 compared to 2022. Lower polyolefins results led to a 241% decrease in EBITDA primarily driven by decreased margins due to lower average sales prices reflecting weak demand. Higher olefins results led to an 88% increase in EBITDA driven equally by higher volumes and margins resulting from the absence of planned and unplanned downtime and lower feedstock and energy costs, respectively. In 2022, we recognized a $69 million non-cash impairment charge in conjunction with the sale of our polypropylene manufacturing facility located in Australia. The absence of this charge in 2023 resulted in a 39% increase in EBITDA. See Note 31 to the Consolidated Financial Statements for additional information.

Intermediates and Derivatives Segment

Overview—EBITDA decreased in 2023 compared to 2022, primarily driven by a non-cash impairment charge related to our European PO Joint Operation recognized in 2023. Segment results were relatively unchanged as improvements in our oxyfuels and related products results were offset by lower margins for propylene oxide and derivatives and intermediate chemicals.

The following table sets forth selected financial information for the I&D segment including Share of profit of associates and joint ventures, which is a component of EBITDA.

	Year Ended December 31,	
Millions of U.S. Dollars	**2023**	**2022**
Sales and other operating revenues	$ 11,086	$ 12,950
Share of profit/(loss) of associates and joint ventures	(13)	(25)
EBITDA	1,679	1,872

Revenues—Revenues decreased by $1,864 million, or 14%, in 2023 compared to 2022. Lower average sales prices resulted in a 20% decrease in revenue as a result of lower demand. Sales volumes increased resulting in a 5% increase in revenue primarily due to additional volumes derived from our new PO/TBA facility and strong demand. Favorable foreign exchange impacts resulted in a revenue increase of 1%.

EBITDA—EBITDA increased $193 million, or 10%, in 2023 compared to 2022. During 2023, we recognized a non-cash impairment charge of $192 million related to our assets held in our European PO Joint Operation resulting in a 10% decrease in EBITDA. See Note 9 to the Consolidated Financial Statements for additional information.

Excluding the impact of the impairment discussed above, segment results remained relatively unchanged. Improved oxyfuels and related products results led to an EBITDA increase of 31% primarily driven by increased volumes due to increased capacity related to our PO/TBA facility combined with higher margins due to increased gasoline cracks. This improvement was largely offset by a 20% decrease in EBITDA from propylene oxide and derivatives results as margins decreased due to lower demand for durable goods. Lower intermediate chemicals results led to a 9% decrease in EBITDA driven by lower margins as demand softened.

Advanced Polymer Solutions Segment

Overview—EBITDA decreased in 2023 compared to 2022, primarily due to the recognition of a $252 million non-cash goodwill impairment charge in 2023.

The following table sets forth selected financial information for the APS segment.

	Year Ended December 31,	
Millions of U.S. Dollars	**2023**	**2022**
Sales and other operating revenues	$ 3,698	$ 4,202
Share of profit/(loss) of associates and joint ventures	(1)	—
EBITDA	(162)	115

Revenues—Revenues decreased in 2023 by $504 million, or 12%, compared to 2022. Average sales price declines resulted in an 11% decrease in revenue as a result of lower demand. Sales volumes declines resulted in a 2% decrease in revenue stemming from lower demand. Favorable foreign exchange impacts resulted in a revenue increase of 1%.

EBITDA—EBITDA decreased in 2023 by $277 million, or 241%, compared to 2022. During 2023, we recognized a non-cash goodwill impairment charge of $252 million after the effect of moving our *Catalloy* and polybutene-1 businesses from our APS segment and reintegrating them into our O&P-Americas and O&P-EAI segments. This impairment charge resulted in a 219% decrease in EBITDA. See Note 8 to the Consolidated Financial Statements for additional information. Lower volumes resulted in a 43% decrease in EBITDA as a result of a decline in demand. During 2023 and 2022, we recognized a LIFO inventory benefit of $8 million and charge of $21 million, respectively, which resulted in a 25% increase in EBITDA.

Refining Segment

Overview—EBITDA decreased in 2023 relative to 2022 primarily due to lower margins.

The following table sets forth selected financial information and heavy crude oil processing rates for the Refining segment and the U.S. refining market margins for the applicable periods. "Brent" is a light sweet crude oil and is one of the main benchmark prices for purchases of oil worldwide. "Maya" is a heavy sour crude oil grade produced in Mexico that is a relevant benchmark for heavy sour crude oils in the U.S. Gulf Coast market. References to industry benchmarks for refining market margins are to industry prices reported by Platts, a division of S&P Global.

	Year Ended December 31,	
Millions of U.S. Dollars	**2023**	**2022**
Sales and other operating revenues	$ 9,714	$ 11,893
EBITDA	379	921
Thousands of barrels per day		
Heavy crude oil processing rates	237	238
Market margins, dollars per barrel		
Brent - 2-1-1	25.71	33.62
Brent - Maya differential	13.26	11.71
Total Maya 2-1-1	$ 38.97	$ 45.33

Revenues—Revenues decreased by $2,179 million, or 18%, in 2023 compared to 2022. Lower product prices led to a revenue decrease of 19% as the average Brent crude oil price decreased approximately $16.68 per barrel. Sales volumes led to a revenue increase 1% due to higher operating rates at our fluid catalytic cracker and coker units, which yielded more higher-value refined products such as gasoline and distillates.

EBITDA—EBITDA decreased by $542 million or 59%, in 2023 compared to 2022. Lower margins drove a 45% decrease in EBITDA primarily due to a decrease in the Maya 2-1-1 industry crack spread of approximately $6 per barrel as a result of lower demand for diesel and other distillates, compared to the prior year. During 2023 and 2022, we recognized a LIFO inventory charge of $42 million and benefit of $40 million, respectively, which resulted in a 9% decrease in EBITDA.

Technology Segment

Overview—The Technology segment recognizes revenues related to the sale of polyolefin catalysts and the licensing of chemical and polyolefin process technologies. These revenues are offset in part by the costs incurred in the production of catalysts, licensing and services activities and research and development ("R&D") activities. In 2023 and 2022, our Technology segment incurred approximately 50% to 55% of all R&D costs.

EBITDA was relatively unchanged in 2023 compared to 2022 as higher catalyst margins and favorable foreign exchange impacts were partially offset by a decline in catalyst volumes.

The following table sets forth selected financial information for the Technology segment.

Millions of U.S. Dollars	Year Ended December 31, 2023	2022
Sales and other operating revenues	$ 663	$ 693
EBITDA	375	366

Revenues—Revenues decreased by $30 million, or 4%, in 2023 compared to 2022. Lower catalyst volumes resulted in an 8% decrease in revenue primarily driven by lower demand. Favorable foreign exchange impact increased revenue by 3%. Higher licensing revenues resulting from more contracts reaching significant milestones drove a 1% increase in revenue.

EBITDA—EBITDA in 2023 increased by $9 million, or 2%, compared to 2022. Higher catalyst margins resulted in a 5% increase in EBITDA. During 2023 and 2022, we recognized a LIFO inventory benefit of $7 million and charge of $13 million, respectively, which resulted in a 5% increase in EBITDA. Lower catalyst volumes resulted in an 11% decrease in EBITDA driven by lower demand. Favorable foreign exchange impacts resulted in an EBITDA increase of 3%.

2.1.2 Financial Condition

Operating, investing and financing activities of continuing operations, which are discussed below, are presented in the following table:

Millions of U.S. Dollars	Year Ended December 31, 2023	2022
Cash provided by (used in):		
Operating activities	$ 5,171	$ 6,433
Investing activities	(1,752)	(1,722)
Financing activities	(2,309)	(3,891)

Operating Activities—Cash provided by operating activities of $5,171 million in 2023 primarily reflects earnings adjusted for non-cash items and cash used by the main components of working capital – Accounts receivable, Inventories and Accounts payable.

In 2023, the main components of working capital provided $584 million of cash driven by a decrease in Accounts receivable and a decrease in Inventories, partially offset by an increase in Accounts payable. The decrease in Accounts receivable was primarily due to lower revenues in our O&P-Americas, O&P-EAI and APS segments, primarily driven by lower average sales prices. The decrease in Inventories was primarily due to a decrease in raw material costs. The increase in Accounts payable was primarily driven by higher feedstock and energy costs in our O&P-Americas segment.

Cash provided by operating activities of $6,433 million in 2022 primarily reflected earnings adjusted for non-cash items and cash provided by the main components of working capital.

In 2022, the main components of working capital used $1,005 million of cash driven by a decrease in Accounts receivable and Inventories, partially offset by a decrease in Accounts payable. The decrease in Accounts receivable was primarily due to lower revenues across most businesses, primarily driven by lower average sales prices. The decrease in Accounts payable was driven by lower production volumes as a result of lower operating rates. The decrease in Inventories was primarily related to a decline in finished goods inventory.

Investing Activities—Capital expenditures in 2023 totaled $1,639 million compared to $1,894 million in 2022. Approximately 30% and 50% of our capital expenditures in 2023 and 2022, respectively, were for profit-generating growth projects, largely for our PO/TBA plant, with the remaining expenditures supporting sustaining maintenance. See Note 31 to the Consolidated Financial Statements for additional information regarding capital spending by segment.

In 2023, foreign currency contracts with an aggregate notional value of €750 million expired. Upon settlement of these foreign currency contracts, we paid €750 million ($820 million at the expiry spot rate) to our counterparties and received $903 million from our counterparties.

In 2022, foreign currency contracts with an aggregate notional value of €500 million expired. Upon settlement of these foreign currency contracts, we paid €500 million ($501 million at the expiry spot rate) to our counterparties and received $614 million from our counterparties.

Financing Activities—We made quarterly dividend payments totaling $1,610 million and $3,246 million in 2023 and 2022, respectively. The 2022 dividend payments includes a special dividend of $5.20 per share totaling $1,704 million. Additionally, in 2023 and 2022, we made payments of $211 million and $420 million to repurchase outstanding ordinary shares, respectively. For additional information related to our share repurchases and dividend payments, see Note 22 to the Consolidated Financial Statements.

In 2023, we issued $500 million of 5.625% guaranteed notes due 2033. Additionally, we repaid the $425 million remaining of outstanding principal on our 4.0% guaranteed notes due 2023. For details see Note 24 to the Consolidated Financial Statements.

In 2023 and 2022, we made net repayments of $200 million and $4 million, respectively, through the issuance and repurchase of commercial paper instruments under our commercial paper program.

In 2022, we received a return of collateral of $238 million related to the positions held with our counterparties for certain forward-starting interest rate swaps. For additional information related to our swaps and currency contracts, see Note 4 to the Consolidated Financial Statements.

Liquidity and Capital Resources

Overview

We plan to fund our working capital, capital expenditures, debt service, dividends and other cash requirements with our current available liquidity and cash from operations, which could be affected by general economic, financial, competitive, legislative, regulatory, business and other factors, many of which are beyond our control. Debt repayment, and the purchase of shares under our share repurchase authorization, may be funded from cash and cash equivalents, cash from our short-term investments, cash from operating activities, proceeds from the issuance of debt, or a combination thereof.

As part of our overall capital allocation strategy, we plan to provide returns to shareholders in the form of dividends and share repurchases. Barring any significant or unforeseen business challenges, mergers or acquisitions, over the long-term, we are targeting shareholder returns of 70% of free cash flow, defined as net cash provided by operating activities less capital expenditures. We intend to continue to declare and pay quarterly dividends, with the goal of increasing the dividend over time, after giving consideration to our cash balances and expected results from operations. Our focus on funding our dividends while remaining committed to a strong investment grade balance sheet continues to be the foundation of our capital allocation strategy.

Cash and Liquid Investments

As of December 31, 2023 we had Cash and cash equivalents totaling $3,533 million, which includes $1,816 million in jurisdictions outside of the U.S., primarily held within the European Union and the United Kingdom. There are currently no legal or economic restrictions that would materially impede our transfers of cash.

Credit Arrangements

At December 31, 2023 we had total debt, including current maturities, of $12,077 million, and $171 million of outstanding letters of credit, bank guarantees and surety bonds issued under uncommitted credit facilities.

We had total unused availability under our credit facilities of $4,150 million at December 31, 2023, which included the following:

- $3,250 million under our $3,250 million Senior Revolving Credit Facility, which backs our $2,500 million commercial paper program. Availability under this facility is net of outstanding borrowings, outstanding letters of credit provided under the facility and notes issued under our commercial paper program. At December 31, 2023 we had no outstanding commercial paper, net of discount, and no borrowings or letters of credit outstanding under this facility; and

- $900 million under our $900 million U.S. Receivables Facility. Availability under this facility is subject to a borrowing base of eligible receivables, which is reduced by outstanding borrowings and letters of credit, if any. At December 31, 2023 we had no borrowings or letters of credit outstanding under this facility.

At any time and from time to time, we may repay or redeem our outstanding debt, including purchases of our outstanding bonds in the open market, through privately negotiated transactions or a combination thereof, in each case using cash and cash equivalents, cash from our short-term investments, cash from operating activities, proceeds from the issuance of debt or proceeds from asset divestitures. Any repayment or redemption of our debt will depend on prevailing market conditions, our liquidity requirements, contractual restrictions and other factors. In connection with such repurchases or redemptions, we may incur cash and non-cash charges, which could be material in the period in which they are incurred.

In accordance with our current interest rate risk management strategy and subject to management's evaluation of market conditions and the availability of favorable interest rates among other factors, we may from time to time enter into interest rate swap agreements to economically convert a portion of our fixed rate debt to variable rate debt or convert a portion of our variable rate debt to fixed rate debt.

Share Repurchases

In May 2023, our shareholders approved a proposal to authorize us to repurchase up to 34.0 million ordinary shares, through November 19, 2024, which superseded any prior repurchase authorizations. Our share repurchase authorization does not have a stated dollar amount, and purchases may be made through open market purchases, private market transactions or other structured transactions. Repurchased shares could be retired or used for general corporate purposes, including for various employee benefit and compensation plans. The maximum number of shares that may yet be purchased is not necessarily an indication of the number of shares that will ultimately be purchased. In 2023, we purchased 2.3 million shares under our share repurchase authorization for $211 million.

As of February 20, 2024 we had approximately 33.1 million shares remaining under the current authorization. The timing and amounts of additional shares repurchased, if any, will be determined based on our evaluation of market conditions and other factors, including any additional authorizations approved by our shareholders. For additional information related to our share repurchase authorizations, see Note 22 to the Consolidated Financial Statements.

Capital Budget

In 2024, we are planning to invest approximately $2.1 billion in capital expenditures. Approximately 60% of the 2024 budget is planned for sustaining maintenance, with the remaining budget supporting profit-generating growth projects. Approximately half of our profit-generating growth project budget, or $400 million, is for projects that support our sustainability goals.

Cash Requirements from Contractual and Other Obligations

As part of our ongoing operations, we enter into contractual arrangements that may require us to make future cash payments under certain circumstances. Our cash requirements related to contractual and other obligations primarily consist of purchase obligations, principal and interest payments on outstanding debt, lease payments, pension and other post-retirement benefits and income taxes. For more information regarding our debt arrangements, lease obligations, pension and other post-retirement benefits and income taxes, see Notes 24, 17, 26 and 13 to the Consolidated Financial Statements, respectively.

We are party to obligations to purchase raw materials, utilities and industrial gases which are designed to ensure sources of supply and are not expected to be in excess of normal requirements. These purchase arrangements include provisions which state minimum purchase quantities; however, in the event we do not take the contractual minimum volumes, we are obligated to compensate the vendor only for any resulting economic losses they suffer. No material fees were paid to vendors for such losses in 2023. Assuming that contractual minimum volumes are purchased at contract prices as of December 31, 2023, these commitments represent approximately 20% of our annual Cost of sales with a weighted average remaining term of 7 years.

We also have purchase obligations under take-or-pay agreements which require us to either buy and take delivery of a minimum quantity of goods or to pay for any shortfall. These arrangements largely relate to product off-take agreements with a joint arrangement located in Poland. No material shortfall was paid for quantities not taken under these contracts in 2023. When valued using a contract price as of December 31, 2023, these commitments represent approximately 5% of our annual Cost of sales with a weighted average remaining term of 14 years.

2.1.3 Outlook

In the first quarter of 2024, seasonally slow demand and economic uncertainty provide headwinds for most businesses. Relatively low ethane raw material costs continue to benefit our O&P-Americas margins while regional demand is showing modest improvement. We expect oxyfuels and refining margins to be within typical winter seasonal ranges. In China, January demand was subdued as buyers managed inventories around the Lunar New Year holidays and growth remained uncertain. Spring and summer seasonal demand improvements are expected across global markets. We are aligning first quarter operating rates with global demand and expect to operate our O&P-Americas assets at 80% and both our O&P-EAI and I&D assets at 75%.

Value Enhancement Program ("VEP")

During 2022, we introduced our VEP, 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. We estimate Net income and recurring annual EBITDA benefits for the VEP based on 2017 through 2019 mid-cycle margins and modest inflation relative to a 2021 baseline year. We believe recurring annual EBITDA is useful to investors because it represents a key measure used by management to assess progress towards our strategy of value creation.

At the end of 2023, we estimated VEP benefits to have a year-end annual 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. We incurred one-time costs of approximately $200 million in 2023 to achieve this milestone.

Given its performance in 2023, we anticipate that our VEP will achieve a 2024 year-end annual run rate of approximately $445 million of Net income, which, after adding back income taxes and depreciation and amortization of approximately $110 million and $45 million, respectively, results in approximately $600 million of recurring annual EBITDA. We estimate incurring one-time costs of $325 million in 2024 to achieve this milestone.

By the end of 2025, the VEP is expected to achieve a 2025 year-end annual run rate of up to $750 million in Net income improvement, which, after adding back income taxes and depreciation and amortization of $185 million and $65 million, respectively, results in up to $1 billion of recurring annual EBITDA.

2.2 Risk Factors

The factors described below represent the principal risks to an investment in LyondellBasell. Any of these factors, taken alone or in combination, could adversely affect our business, operating results and financial condition, as well as the value of an investment in our securities and our ability to execute our strategy.

Risks Related to our Business and Industry

The cyclicality and volatility of the industries in which we participate may cause significant fluctuations in our operating results.

Our business operations are subject to the cyclical and volatile nature of the supply-demand balance in the chemical and refining industries. Our future operating results are expected to continue to be affected by this cyclicality and volatility. The chemical and refining industries historically have experienced alternating periods of capacity shortages, causing prices and profit margins to increase, followed by periods of excess capacity, resulting in oversupply, declining capacity utilization rates and declining prices and profit margins.

In addition to changes in the supply and demand for products, changes in energy prices and other worldwide economic conditions can cause volatility. These factors result in significant fluctuations in profits and cash flow from period to period and over business cycles.

New capacity additions around the world may lead to periods of oversupply and lower profitability. The timing and extent of any changes to currently prevailing market conditions are uncertain and supply and demand may be unbalanced at any time. As a consequence, we are unable to accurately predict the extent or duration of future industry cycles or their effect on our business, financial condition or results of operations.

A sustained decrease in the price of crude oil may adversely impact the results of our operations, primarily in North America.

Energy costs generally follow price trends of crude oil and natural gas. These price trends may be highly volatile and cyclical. In the past, raw material and energy costs have experienced significant fluctuations that adversely affected our business segments' results of operations. For example, we have benefited from the favorable ratio of U.S. crude oil prices to natural gas prices in the past. If the price of crude oil remains lower relative to U.S. natural gas prices or if the demand for natural gas and NGLs increases, this may have a negative impact on our results of operations.

Costs and limitations on the supply of raw materials and energy may result in increased operating expenses.

The costs of raw materials and energy represent a substantial portion of our operating expenses. Due to the significant competition we face and the commodity nature of many of our products we are not always able to pass on raw material and energy cost increases to our customers. When we do have the ability to pass on the cost increases, we are not always able to do so quickly enough to avoid adverse impacts on our results of operations. For example, during 2022, increases in costs for energy and raw materials, and the related decline in demand for our products, resulted in the reduction of operating rates or delayed restart of operations at several of our sites in Europe.

Cost increases for raw materials, energy, or broad-based price inflation also increase working capital needs, which could reduce our liquidity and cash flow. Even if we are able to increase our sales prices to reflect these increases, demand for products may decrease as consumers and customers reduce their consumption or use substitute products, which may have an adverse impact on our results of operations. In addition, producers in natural gas cost-advantaged regions, such as the Middle East and North America, benefit from the lower prices of natural gas and NGLs. Competition from producers in these regions may cause us to reduce exports from Europe and elsewhere. Any such reductions may increase competition for product sales within Europe and other markets, which can result in lower margins in those regions.

For some of our raw materials and utilities there are a limited number of suppliers and, in some cases, the supplies are specific to the particular geographic region in which a facility is located. It is also common in the chemical and refining industries for a facility to have a sole, dedicated source for its utilities, such as steam, electricity and gas. Having a sole or limited number of suppliers may limit our negotiating power, particularly in the case of rising raw material costs. Any new supply agreements we enter into may not have terms as favorable as those contained in our current supply agreements.

Additionally, there is concern over the reliability of water sources, including around the U.S. Gulf Coast where several of our facilities are located. The decreased availability or less favorable pricing for water as a result of population growth, drought or regulation could negatively impact our operations, including by impacting our ability to produce or transport our products.

If our raw material or utility supplies were disrupted, our businesses would likely incur increased costs to procure alternative supplies or incur excessive downtime, which would have a negative impact on plant operations. Disruptions of supplies may occur as a result of transportation issues resulting from natural disasters, water levels, and interruptions in marine water routes, among other causes, that can affect the operations of vessels, barges, rails, trucks and pipeline traffic. These risks are particularly prevalent in the U.S. Gulf Coast area. Additionally, increasing exports of NGLs and crude oil from the U.S. or greater restrictions on hydraulic fracturing could restrict the availability of our raw materials, thereby increasing our costs.

With increased volatility in raw material costs, our suppliers could impose more onerous terms on us, resulting in shorter payment cycles and increasing our working capital requirements.

Our ability to source raw materials or deliver products may be adversely affected by political instability, civil disturbances or other governmental actions.

We obtain a portion of our principal raw materials from sources in the Middle East and Central and South America that may be less politically stable than other areas in which we conduct business. Political instability, civil disturbances and actions by governments in these areas are more likely to substantially increase the price and decrease the supply of raw materials necessary for our operations or impair our ability to deliver products to customers, which could have a material adverse effect on our results of operations.

Incidents of civil unrest, including terrorist attacks and demonstrations that have been marked by violence, have occurred in a number of countries, including in the Middle East and South America. Some political regimes in these countries are threatened or have changed as a result of such unrest. Political instability and civil unrest could continue to spread in the region and involve other areas. Such unrest, if it continues to spread or grow in intensity, could lead to civil wars, regional conflicts or regime changes resulting in governments that are hostile to countries in which we conduct substantial business, such as in the U.S., Europe or their respective trading partners.

Our business is capital intensive and we rely on cash generated from operations and external financing to fund our growth and ongoing capital needs. Limitations on access to external financing could adversely affect our operating results.

We require significant capital to operate our current business and fund our growth strategy. Moreover, interest payments, dividends, capital requirements of our joint ventures, the expansion of our current business or other business opportunities may require significant amounts of capital. If we need external financing, our access to credit markets and pricing of our capital is dependent upon maintaining sufficient credit ratings from credit rating agencies and the state of the capital markets generally. There can be no assurances that we would be able to incur indebtedness on terms we deem acceptable, and it is possible that the cost of any financings could increase significantly, thereby increasing our expenses and decreasing our net income. If we are unable to generate sufficient cash flow or raise adequate external financing, including as a result of significant disruptions in the global credit markets, we could be forced to restrict our operations and growth opportunities, which could adversely affect our operating results.

We may use our $3,250 million revolving credit facility, which backs our commercial paper program, to meet our cash needs, to the extent available. As of December 31, 2023, we had no borrowings or letters of credit outstanding under the facility and no borrowings outstanding under our commercial paper program, leaving an unused and available credit capacity of $3,250 million. We may also meet our cash needs by selling receivables under our $900 million U.S. Receivables Facility. As of December 31, 2023, we had no borrowing or letters of credit outstanding and availability of $900 million under this facility. In the event of a default under our credit facilities or any of our senior notes, we could be required to immediately repay all outstanding borrowings and make cash deposits as collateral for all obligations the facility supports, which we may not be able to do. Any default under any of our credit arrangements could cause a default under many of our other credit agreements and debt instruments. Without waivers from lenders party to those agreements, any such default could have a material adverse effect on our ability to continue to operate.

Risks Related to our Operations

Our operations are subject to risks inherent in the chemical and refining businesses, and we could be subject to liabilities for which we are not fully insured or that are not otherwise mitigated.

We maintain property, business interruption, product, general liability, casualty and other types of insurance that we believe are appropriate for our business and operations as well as in line with industry practices. However, we are not fully insured against all potential hazards incident to our business, including losses resulting from natural disasters or climate-related exposures, wars or terrorist acts. Changes in insurance market conditions have caused, and may in the future cause, premiums and deductibles for certain insurance policies to increase substantially and, in some instances, for certain insurance to become unavailable or available only for reduced amounts of coverage. If we were to incur a significant liability for which we were not fully insured, we might not be able to finance the amount of the uninsured liability on terms acceptable to us or at all, and might be obligated to divert a significant portion of our cash flow from normal business operations.

Our business, including our results of operations and reputation, could be adversely affected by safety or product liability issues.

Failure to appropriately manage occupational safety, process safety, product safety, human health, product liability and environmental risks inherent in the chemical and refining businesses and associated with our products, product life cycles and production processes could result in unexpected incidents including releases, fires, or explosions resulting in personal injury, loss of life, environmental damage, loss of revenue, legal liability, and/or operational disruption. Public perception of the risks associated with our products and production processes could impact product acceptance and influence the regulatory environment in which we operate. While we have management systems, procedures and controls to manage these risks, issues could be created by events outside of our control, including natural disasters, severe weather events and acts of sabotage.

Further, because a part of our business involves licensing polyolefin process technology, our licensees are exposed to similar risks involved in the manufacture and marketing of polyolefins. Hazardous incidents involving our licensees, if they do result or are perceived to result from use of our technologies, may harm our reputation, threaten our relationships with other licensees and/or lead to customer attrition and financial losses. Our policy of covering these risks through contractual limitations of liability and indemnities and through insurance may not always be effective. As a result, our financial condition and results of operation would be adversely affected, and other companies with competing technologies may have the opportunity to secure a competitive advantage.

Interruptions of operations at our facilities may result in increased liabilities or lower operating results.

We own and operate large-scale facilities. Our operating results are dependent on the continued operation of our various production facilities and the ability to complete construction and maintenance projects on schedule. Interruptions at our facilities may materially reduce the productivity and profitability of a particular manufacturing facility, or our business as a whole, during and after the period of such operational difficulties. In recent years, we have had to shut down plants on the U.S. Gulf Coast, including the temporary shutdown of a portion of our Houston refinery, as a result of various hurricanes and cold weather events striking Texas and Louisiana. In addition, because the Houston refinery is our only refining operation, an outage at the refinery could have a particularly negative impact on our operating results as we do not have the ability to increase refining production elsewhere.

Our operations are subject to hazards inherent in chemical manufacturing and refining and the related storage and transportation of raw materials, products and wastes. These potential hazards include:

- pipeline leaks and ruptures;
- explosions;
- fires;
- severe weather and natural disasters;
- mechanical failure;
- unscheduled downtimes;

- supplier disruptions;
- labor shortages or other labor difficulties;
- transportation interruptions;
- remediation complications;
- increased restrictions on, or the unavailability of, water for use at our manufacturing sites or for the transport of our products or raw materials;
- chemical and oil spills;
- discharges or releases of toxic or hazardous substances or gases;
- shipment of incorrect or off-specification product to customers;
- storage tank leaks;
- other environmental risks; and
- cyber-attack or other terrorist acts.

Some of these hazards may cause severe damage to or destruction of property and equipment, personal injury, loss of life, environmental damage, legal liability resulting from government action or litigation, loss of revenue, suspension of operations or the shutdown of affected facilities.

Large capital projects can take many years to complete, and market conditions could deteriorate significantly between the project approval date and the project startup date, negatively impacting project returns. If we are unable to complete capital projects at their expected costs and in a timely manner, or if the market conditions assumed in our project economics deteriorate, our business, financial condition, results of operations and cash flows could be materially and adversely affected.

Delays or cost increases related to capital spending programs involving engineering, procurement and construction of facilities could materially adversely affect our ability to achieve forecasted internal rates of return and operating results, or impair our ability to meet our sustainability or other targets or goals. For example, higher costs arising from delaying construction of our world-scale PO/TBA plant in Houston including more extensive civil construction and unexpected tariffs on materials, increased our costs and impacted our projected rate of return on the project. Delays in making required changes or upgrades to our facilities could subject us to fines or penalties as well as affect our ability to contract with our customers and supply certain products we produce. Such delays or cost increases may arise as a result of unpredictable factors, many of which are beyond our control, including:

- denial of or delay in receiving requisite regulatory approvals and/or permits;
- unplanned increases in the cost of construction materials or labor;
- disruptions in transportation of components or construction materials;
- adverse weather conditions, natural disasters or other events (such as equipment malfunctions, explosions, fires or spills) affecting our facilities, or those of vendors or suppliers;
- shortages of sufficiently skilled labor, or labor disagreements resulting in unplanned work stoppages; and
- nonperformance by, or disputes with, vendors, suppliers, contractors or subcontractors.

Any one or more of these factors could have a significant impact on our ongoing capital projects. If we were unable to make up the delays associated with such factors or to recover the related costs, or if market conditions change, it could materially and adversely affect our business, financial condition, results of operations and cash flows.

Shared control or lack of control of joint ventures or equity investments may delay decisions or actions regarding our joint ventures, or adversely affect our financial results.

A portion of our operations are conducted through joint ventures or equity investments, where control may be exercised by or shared with unaffiliated third parties. We cannot control the actions or ownership of these partners, including any nonperformance, default or bankruptcy of the joint venture or its partners. The joint ventures that we do not control may also lack financial reporting systems to provide adequate and timely information for our reporting purposes.

Our joint venture partners may have different interests or goals than we do and may take actions contrary to our requests, policies or objectives. Differences in views among the joint venture participants also may result in delayed decisions or in failures to agree on major matters, potentially adversely affecting the business and operations of the joint ventures and in turn our business and operations. We may develop a dispute with any of our partners over decisions affecting the venture that may result in litigation, arbitration or some other form of dispute resolution. If a joint venture participant acts contrary to our interest, or is unsuccessful in conducting its business, it could harm our brand, business, results of operations and financial condition.

We may be required to record material charges against our earnings due to any number of events including impairments of our assets.

We may be required to reduce production or idle facilities for extended periods of time or exit certain businesses as a result of the cyclical nature of our industry. Specifically, oversupplies of or lack of demand for particular products or high raw material prices may cause us to reduce production. We may choose to reduce production at certain facilities because we have off-take arrangements at other facilities, which make any reductions or idling unavailable at those facilities. For example, during the fourth quarter of 2023, we identified an impairment trigger related to the adverse financial performance of our European PO Joint Operation which resulted in a non-cash impairment charge of $192 million.

Any decision to permanently close facilities or exit a business may result in impairment and other charges to earnings. For example, in April 2022, the Finance Committee of the Board of Directors of the Company approved a plan to exit the refining business, resulting in the recognition of $341 million and $171 million of expense in 2023 and 2022, respectively.

Temporary outages at our facilities can last for several quarters and sometimes longer. These outages could cause us to incur significant costs, including the expenses of maintaining and restarting these facilities. In addition, we have significant obligations under take-or-pay agreements. Even though we may reduce production at facilities, we may be required to continue to purchase or pay for utilities or raw materials under these arrangements.

Acquisitions or dispositions of assets or businesses could disrupt our business and harm our financial condition and stock price.

We continually evaluate the performance and strategic fit of all of our businesses and evaluate whether our businesses would benefit from acquisitions to enhance growth or dispositions that would align our footprint with our overall business strategy. These transactions pose risks and challenges that could negatively impact our business and financial statements.

Acquisitions involve numerous risks, including meeting our standards for compliance, problems combining the purchased operations, technologies or products, unanticipated costs and liabilities, diversion of management’s attention from our core businesses, and potential loss of key employees. There can be no assurance that we will be able to integrate successfully any businesses, products, technologies, or personnel that we might acquire. The integration of businesses that we may acquire is likely to be a complex, time-consuming, and expensive process and we may not realize the anticipated revenues, synergies, or other benefits associated with our acquisitions if we do not manage and operate the acquired business up to our expectations. If we are unable to efficiently operate as a combined organization utilizing common information and communication systems, operating procedures, financial controls, and human resources practices, our business, financial condition, and results of operations may be adversely affected.

Dispositions of assets or businesses involve risks, including difficulties in the separation of operations, services, products and personnel, the diversion of management's attention from other business concerns, the disruption of our business, the potential loss of key employees and the retention of uncertain environmental or other contingent liabilities related to the divested business. In addition, they may result in significant asset impairment charges, including those related to goodwill and other intangible assets, which could have a material adverse effect on our financial condition and results of operations. In the event we are unable to successfully divest a business or product line, we may be forced to wind down such business or product line, which could materially and adversely affect our results of operations and financial condition.

We cannot assure you that we will be successful in managing these or any other significant risks that we encounter in acquiring or divesting a business or product line, and any transaction we undertake could materially and adversely affect our business, financial condition, results of operations and cash flows, and may also result in a diversion of management attention, operational difficulties and losses.

Risks related to the Global Economy and Multinational Operations

Economic disruptions and downturns in general, and particularly continued global economic uncertainty or economic turmoil in emerging markets, could have a material adverse effect on our business, prospects, operating results, financial condition and cash flows.

Our results of operations can be materially affected by adverse conditions in the financial markets and depressed economic conditions generally. Economic downturns in the businesses and geographic areas in which we sell our products could substantially reduce demand for our products and result in decreased sales volumes and increased credit risk. Recessionary environments adversely affect our business because demand for our products is reduced, particularly from our customers in industrial markets generally and the automotive and housing industries specifically, and may result in higher costs of capital. A significant portion of our revenues and earnings are derived from our business in Europe. In addition, most of our European transactions and assets, including cash and receivables, are denominated in euros.

We also derive significant revenues from our business in emerging markets, particularly the emerging markets in Asia and South America. Any broad-based downturn in these emerging markets, or in a key market such as China, could require us to reduce export volumes into these markets and could also require us to divert product sales to less profitable markets. Any of these conditions could ultimately harm our overall business, prospects, operating results, financial condition and cash flows.

We sell products in highly competitive global markets and face significant price pressures.

We sell our products in highly competitive global markets. Due to the commodity nature of many of our products, competition in these markets is based primarily on price and, to a lesser extent, on product performance, product quality, product deliverability, reliability of supply and customer service. Often, we are not able to protect our market position for these products by product differentiation and may not be able to pass on cost increases to our customers due to the significant competition in our business.

In addition, we face increased competition from companies that may have greater financial resources and different cost structures or strategic goals than us. These include large integrated oil companies (some of which also have chemical businesses), government-owned businesses, and companies that receive subsidies or other government incentives to produce certain products in a specified geographic region. Continuing competition from these companies, especially in our olefin and refining businesses, could limit our ability to increase product sales prices in response to raw material and other cost increases, or could cause us to reduce product sales prices to compete effectively, which would reduce our profitability. Competitors with different cost structures or strategic goals than we have may be able to invest significant capital into their businesses, including expenditures for research and development. In addition, specialty products we produce may become commoditized over time. Increased competition could result in lower prices or lower sales volumes, which would have a negative impact on our results of operations.

We operate internationally and are subject to exchange rate fluctuations, exchange controls, political risks and other risks relating to international operations.

We operate internationally and are subject to the risks of doing business on a global level. These risks include fluctuations in currency exchange rates, economic instability and disruptions, restrictions on the transfer of funds and the imposition of trade restrictions or duties and tariffs, and complex regulations concerning privacy and data security. Additional risks from our multinational business include transportation delays and interruptions, war, terrorist activities, epidemics, pandemics, political instability, import and export controls, sanctions, changes in governmental policies, labor unrest and current and changing regulatory environments.

We generate revenues from export sales and operations that may be denominated in currencies other than the relevant functional currency. Exchange rates between these currencies and functional currencies in recent years have fluctuated significantly and may do so in the future. It is possible that fluctuations in exchange rates will result in reduced operating results. Additionally, we operate with the objective of having our worldwide cash available in the locations where it is needed, including the United Kingdom for our parent company's significant cash obligations as a result of dividend payments. It is possible that we may not always be able to provide cash to other jurisdictions when needed or that such transfers of cash could be subject to additional taxes, including withholding taxes.

Our operating results could be negatively affected by the laws, rules and regulations, as well as political environments, in the jurisdictions in which we operate. There could be reduced demand for our products, decreases in the prices at which we can sell our products and disruptions of production or other operations. Trade protection measures such as quotas, duties, tariffs, safeguard measures or anti-dumping duties imposed in the countries in which we operate could negatively impact our business. Additionally, there may be substantial capital and other costs to comply with regulations and/or increased security costs or insurance premiums, any of which could reduce our operating results.

We obtain a portion of our principal raw materials from international sources that are subject to these same risks. Our compliance with applicable customs, currency exchange control regulations, transfer pricing regulations or any other laws or regulations to which we may be subject could be challenged. Furthermore, these laws may be modified, the result of which may be to prevent or limit subsidiaries from transferring cash to us.

Furthermore, we are subject to certain existing, and may be subject to possible future, laws that limit or may limit our activities while some of our competitors may not be subject to such laws, which may adversely affect our competitiveness.

Changes in tax laws and regulations could affect our tax rate and our results of operations.

The Company operates in multiple jurisdictions with complex legal and tax regulatory environments and is subject to taxes in the U.S. and non-U.S. jurisdictions. Significant changes to tax laws and regulations in these jurisdictions or their interpretation could have a material impact on our effective income tax rate. Our future effective income tax rates could also fluctuate based on, among other factors, changes in pre-tax income in countries with varying statutory tax rates, changes in unrecognized deferred tax assets, changes in foreign exchange gains/losses, the amount of exempt income, and changes in unrecognized tax benefits associated with uncertain tax positions. Our tax returns are periodically audited or subjected to review by tax authorities, and any adverse result of these examinations could also have an impact on our effective income tax rate and our results of operations. We regularly evaluate the likelihood of an adverse result of an examination, however, there is no assurance as to the ultimate outcome and impact.

Risks Related to Health, Safety, and the Environment

We cannot predict with certainty the extent of future costs under environmental, health and safety and other laws and regulations, and cannot guarantee they will not be material.

We may face liability arising out of the normal course of business, including alleged personal injury or property damage due to exposure to chemicals or other hazardous substances at our current or former facilities, or exposure to products or chemicals that we manufacture, handle or own. In addition, because our products are components of a variety of other end-use products, we, along with other members of the chemical industry, are subject to potential claims related to those end-use products. Any substantial increase in the success of these types of claims could negatively affect our operating results.

We are subject to extensive national, regional, state and local environmental laws, regulations, directives, rules and ordinances concerning pollution, protection of the environment, hazardous materials, health and safety, the security of our facilities, and the safety of our products. We generally expect that these requirements are likely to become more stringent over time. Changes to such laws could result in restrictions on our operations, denial of permits, loss of business opportunities, increased operating costs or additional capital expenditures. We could incur significant costs or operational restrictions due to violations of or liabilities under such laws and regulations in the form of fines, penalties, and injunctive relief. Any substantial liability under such laws could have a material adverse effect on our financial condition, results of operations and cash flows. Additionally, we are required to have permits for our businesses and are subject to licensing regulations. These permits and licenses are subject to renewal, modification and in some circumstances, revocation. Further, the permits and licenses are often difficult, time consuming and costly to obtain and could contain conditions that limit our operations.

We may incur substantial costs to comply with climate change legislation and related regulatory initiatives.

There has been a broad range of proposed or promulgated international, national and state laws focusing on greenhouse gas ("GHG") emission reduction and global climate change. These proposed or promulgated laws apply or could apply in countries where we have interests or may have interests in the future. Laws and regulations in this field continue to evolve and, while they are likely to be increasingly widespread and stringent, at this stage it is not possible to accurately estimate either a timetable for implementation or our future compliance costs relating to implementation. Under the 2015 Paris Agreement, parties to the United Nations Framework Convention on Climate Change agreed to undertake ambitious efforts to reduce GHG emissions and strengthen adaptation to the effects of climate change.

Jurisdictions in which we operate, including, in particular, the European Union (EU), are preparing national legislation and protection plans to implement their emission reduction commitments under the Paris Agreement. In June 2021, the European Climate Law set legally binding targets of net zero GHG emissions by 2050, and a 55% reduction in GHG emissions by 2030. Throughout 2023, a series of legislative reforms arising out of the EU's 'Fit for 55' package of proposals have been adopted and are in the process of being implemented, including reforms to the EU Emissions Trading System (ETS), and the introduction of a Carbon Border Adjustment Mechanism. Our operations in Europe participate in the ETS and we meet our obligations through a combination of free and purchased emission allowances. We anticipate that these regulations will result in an accelerated reduction of our free allowances and higher market prices for purchased allowances. These and other future regulations could result in increased costs, additional capital expenditures, and/or restrictions on operations.

In the U.S., addressing climate change is a stated priority of President Biden, and in February 2021, the U.S. recommitted to the Paris Agreement after having withdrawn in August 2017. The U.S. Environmental Protection Agency as well as several state governments have promulgated regulations directed at GHG emissions reductions from certain types of facilities. Additional regulations could be forthcoming at the U.S. federal or state level that could result in increased operating costs for compliance, required acquisition or trading of emission allowances, or compliance costs associated with additional regulatory frameworks for a range of potential carbon reduction projects, including carbon capture, use, and sequestration projects. Additionally, demand for the products we produce may be reduced.

Non-Governmental Organizations have been active in filing lawsuits against governments and private parties in various jurisdictions around the world seeking enforcement of existing laws and new requirements to reduce GHG emissions. In one case decided in the Netherlands in May 2021, plaintiffs obtained a ruling ordering Royal Dutch Shell to reduce its Scope 1, 2 and 3 carbon emissions by 45% by 2030. These types of laws, regulations, and litigation results could increase the cost of purchased energy and increase costs of compliance in various locations.

Compliance with climate regulations may result in increased permitting necessary for the operation of our business or for any of our growth plans. Difficulties in obtaining such permits could have an adverse effect on our future growth. In addition, any future potential climate regulations, legislation, or litigation results could impose additional operating restrictions or delays in implementing growth projects or other capital investments, require us to incur increased costs, and could have a material adverse effect on our business and results of operations.

Legislation and regulatory initiatives could lead to a decrease in demand for our products or reputational harm.

New or revised governmental regulations and independent studies relating to the effect of our products on health, safety and the environment may affect demand for our products and the cost of producing our products. Initiatives by governments and private interest groups will potentially result in increased toxicological testing and risk assessments of a wide variety of chemicals, including chemicals used or produced by us. New or revised legislation or regulations could result in additional use restrictions and/or bans of certain chemicals. For example, in the EU, the European Commission as part of its Green Deal published the Chemicals Strategy for Sustainability Towards a Toxic-Free Environment ("CSS"). The CSS sets forth far-reaching plans for introducing significant changes to the EU regulatory frameworks for chemicals including the Regulation on Registration, Evaluation, Authorization and Restriction of Chemicals ("REACH"), and the Classification, Labelling and Packaging Regulation ("CLP") that could result in increased compliance costs, additional restrictions, and/or bans of chemicals used or produced by us. In the U.S., changes to the U.S. Environmental Protection Agency's risk evaluation process under the Toxic Substances Control Act ("TSCA") could also result in additional restrictions and/or bans of chemicals used or produced by us.

Assessments under TSCA, REACH or similar programs or regulations in other state or national jurisdictions may result in heightened concerns about the chemicals we use or produce and may result in additional requirements or bans being placed on the production, handling, labeling or use of those chemicals. Such concerns and additional requirements could also increase the cost incurred by our customers to use our chemical products and otherwise limit the use of these products, which could lead to a decrease in demand for these products. Such a decrease in demand could have an adverse impact on our business and results of operations.

U.S. state and federal regulators, international regulators, investors, consumers and other stakeholders are focused on environmental, social, and governance ("ESG") considerations. ESG disclosure obligations have required and may continue to require us to implement new practices and reporting processes, and have created and will continue to create additional compliance risk. If we are unable to meet our circularity, greenhouse gas reduction, diversity or other goals, or if we are perceived by regulators, customers, stockholders or employees to have not responded appropriately to the growing concern for these issues, our reputation, and therefore our ability to sell our products, could be negatively impacted. If, as a result of their assessment of our ESG performance, certain investors are unsatisfied with our actions or progress, they may reconsider their investment in our shares or debt securities. Providers of debt and equity financing may also consider our sustainability performance and external ESG ratings, which we have limited ability to influence, which could impact our cost of capital and adversely affect our business.

The physical impacts of climate change can negatively impact our facilities and operations.

Potential physical impacts of climate change include increased frequency and severity of hurricanes and floods as well as freezing conditions, tornadoes, and global sea level rise. Although we have preparedness plans in place designed to minimize impacts and enhance safety, should an event occur, it could have the potential to disrupt our supply chain and operations. A number of our facilities are located on the U.S. Gulf Coast, which has been impacted by hurricanes that have required us to temporarily shut down operations at those sites. Our sites rely on rivers and other waterways for transportation that may experience restrictions in times of drought or other unseasonal weather variation. In addition, scarcity of water and drought conditions due to climate change could reduce the availability of fresh water needed to produce our products which could increase our costs of operations.

Increased regulation or deselection of plastic could lead to a decrease in demand growth for some of our products.

There is a growing concern with the accumulation of plastic, plastic additives, and microplastics in the environment, particularly in waterways and oceans. Additionally, plastics have recently faced increased public backlash and scrutiny, as well as governmental investigations and enforcement, and private litigation. Policy measures to address this concern are being discussed or implemented by governments at all levels. For example, on March 2, 2022, the United Nations Environment Assembly adopted a resolution to develop a new international legally binding instrument on plastic pollution with the ambition to complete the negotiations by the end of 2024. The European Union has been undertaking a series of actions under its Circular Economy Action Plan, including adoption of the Single Use Plastics Directive in 2019, which introduced policy measures for single use plastics including bans, product design requirements, extended producer responsibility obligations, and labeling requirements, and a proposal for a Packaging and Packaging Waste Regulation to replace the Packaging and Packaging Waste Directive. In addition, a host of single-use plastic bans and taxes have been passed by countries around the world and states and municipalities throughout the U.S. Consumer deselection, increased regulation of, or prohibition on, the manufacturing or use of plastic or plastic products could limit the use of these products or increase the costs incurred by our customers to use such products, and could lead to a decrease in demand for PE, PP, and other products we make. Such a decrease in demand could adversely affect our business, operating results, and financial condition.

Failure to effectively and timely achieve our GHG emissions reduction goals could damage our reputation and have an adverse effect on the demand for our products.

We have set GHG emissions reduction targets for 2030, and aim to achieve net zero scope 1 and 2 GHG emissions by 2050. Our ability to achieve these goals depends on many factors, including the availability of technology, our ability to secure permits and emissions credits, evolving regulatory requirements, competitor actions, customer preferences, and our ability to reduce emissions from our operations through modernization and innovation, reduce the emissions intensity of the electricity we buy, and invest in renewables and low carbon energy. We may also not timely adapt to changes or methods in carbon pricing that could increase our costs and reduce our competitiveness. The cost associated with our GHG emissions reduction goals could be significant. Failure to achieve our emissions targets could result in reputational harm, enforcement or litigation, changing investor sentiment regarding investment in LyondellBasell or a negative impact on access to and cost of capital. In addition, if customers increasingly set their own scope 3 GHG emissions reduction targets, this could lead to a decrease in demand for our products.

Failure to achieve our circularity goals could have an adverse effect on the demand for our products.

In September 2020, we announced a circularity goal of producing and marketing at least two million metric tons of recycled and renewable-based polymers annually by 2030. Many of our customers also have goals to increase the recycled and renewable content in their own products and packaging. Our ability to achieve this goal depends on many factors, including the availability of collection and sortation infrastructure, evolving regulations on chemical recycling and recycled content, our ability to grow our circular and low carbon solutions business established in 2022, make investments in new technologies, expand the global footprint of our recycling facilities and joint ventures, secure access to feedstock, and manufacture recycled and low carbon products at commercial scale.

General Risk Factors

Increased IT and cybersecurity threats and more sophisticated and targeted computer crime could pose a risk to our systems, networks, data, products, facilities and services.

Increased global information cybersecurity threats and more sophisticated, targeted computer crime pose a risk to the confidentiality, availability and integrity of our data, operations and infrastructure. While we attempt to mitigate these risks by employing a number of measures, including security measures, employee training, comprehensive monitoring of our networks and systems, and maintenance of backup and protective systems, our employees, systems, networks, products, facilities and services remain potentially vulnerable to ransomware or sophisticated espionage. Depending on their nature and scope, such threats could potentially lead to the compromise of confidential information, improper use of our systems and networks, manipulation and destruction of data, defective products, production downtimes and operational disruptions, which in turn could adversely affect our reputation, competitiveness and results of operations.

Many of our businesses depend on our intellectual property. Our future success will depend in part on our ability to develop new technologies and protect our intellectual property rights, and our inability to do so could reduce our ability to maintain our competitiveness and margins.

We have a significant worldwide patent portfolio of issued and pending patents and our future results could be impacted by our ability to successfully develop and protect new processes and technologies. Our patents and patent applications, together with proprietary technical know-how, are significant to our competitive position, particularly with regard to PO, intermediate chemicals, polyolefins, licensing and catalysts. We rely on the patent, copyright and trade secret laws of the countries in which we operate to protect our investment in research and development, manufacturing and marketing. We operate plants, sell catalysts and products, participate in joint ventures, and license our process technology in many foreign jurisdictions, including those having heightened risks for intellectual property. In some of these instances, we must disclose at least a portion of our technology to third parties or regulatory bodies. In these cases, we rely primarily on contracts and trade secret laws to protect the associated trade secrets. However, we may be unable to prevent third parties from using our intellectual property without authorization. Proceedings to protect these rights could be costly, and we may not prevail.

The failure of our patents or confidentiality agreements to protect our processes, apparatuses, technology, trade secrets or proprietary know-how could result in significantly lower revenues, reduced profit margins and cash flows and/or loss of market share. We also may be subject to claims that our technology, patents or other intellectual property infringes on a third party's intellectual property rights. Unfavorable resolution of these claims could result in restrictions on our ability to deliver the related service or in a settlement that could be material to us.

Adverse results of legal proceedings could materially adversely affect us.

We are subject to and may in the future be subject to a variety of legal proceedings and claims that arise out of the ordinary conduct of our business. Results of legal proceedings cannot be predicted with certainty. Irrespective of its merits, litigation may be both lengthy and disruptive to our operations and may cause significant expenditure and diversion of management attention. We may be faced with significant monetary damages or injunctive relief against us that could have an adverse impact on our business and results of operations should we fail to prevail in certain matters.

If we lose key employees or are unable to attract and retain the employees we need, our business and operating results could be adversely affected.

Our success depends on our ability to attract and retain key personnel, and we rely heavily on our management team. The inability to recruit and retain key personnel or the unexpected loss of key personnel may adversely affect our operations. In addition, because of the reliance on our management team, our future success depends in part on our ability to identify and develop talent to succeed senior management. The retention of key personnel and appropriate senior management succession planning will continue to be critically important to the successful implementation of our strategies.

There is substantial and continuous competition for diverse, talented engineering, manufacturing, and operations employees. We may not be successful in attracting and retaining such personnel, and we may experience increased compensation and training costs that may not be offset by either improved productivity or higher sales. We have from time to time experienced, and we may continue to experience, difficulty in hiring and retaining employees with appropriate qualifications, and may not be able to fill positions in desired geographic areas or at all.

Significant changes in pension fund investment performance or assumptions relating to pension costs may adversely affect the valuation of pension obligations, the funded status of pension plans, and our pension cost.

Our pension cost is materially affected by the discount rates used to measure pension obligations, the level of plan assets available to fund those obligations at the measurement date and the expected long-term rates of return on plan assets. Significant changes in investment performance or a change in the portfolio mix of invested assets may result in corresponding increases and decreases in the value of plan assets, particularly equity securities, or in a change of the expected rate of return on plan assets. Any changes in key actuarial assumptions, such as the discount rate or mortality rate, would impact the valuation of pension obligations, affecting the reported funded status of our pension plans as well as the net periodic pension cost in the following fiscal years.

Many of our current pension plans have projected benefit obligations that exceed the fair value of the plan assets. As of December 31, 2023, the aggregate deficit was $899 million. Any declines in the fair values of the pension plans' assets could require additional payments by us in order to maintain specified funding levels.

Our pension plans are subject to legislative and regulatory requirements of applicable jurisdictions, which could include, under certain circumstances, local governmental authority to terminate the plan.

See Note 26 to the Consolidated Financial Statements for additional information regarding pensions and other post-retirement benefits.

2.3 Our Strategy

In March 2023, we introduced our new strategy to deliver sustainable solutions and profitable long-term growth.

Our strategy aims to drive focus, differential growth and sustainable long-term value creation through three strategic pillars:

Growing and upgrading the core—We expect to reshape our business portfolio to support growth, increase resiliency and drive higher returns. We will leverage our legacy strengths in technology, cost management, operational excellence and our global reach to focus on businesses with leading positions in growing markets with advantaged feedstocks and attractive returns.

During 2023, we entered into an agreement to sell our U.S. Gulf Coast-based ethylene oxide and derivatives ("EO&D") business along with the production facility located in Bayport, TX. The EO&D business had been identified as a non-core business within our Intermediates and Derivatives segment. This transaction is evidence of our disciplined focus on sustainable long-term value creation through growing and upgrading our core.

Building a profitable Circular & Low Carbon Solutions ("CLCS") business—We expect our CLCS business will grow to become a leader in meeting the rapidly growing demand for sustainable solutions at scale. We are building a comprehensive platform for sourcing recycled and renewable feedstocks while leveraging our innovative technologies and our existing asset base to serve our customers' needs for sustainable materials. Our CLCS business is a part of our O&P-Americas and O&P-Europe, Asia, International segments.

Stepping up performance and culture—We aim to unlock significant opportunities by reshaping our culture toward a more comprehensive focus on continuous sustainable long-term value creation, including the transformation of our Advanced Polymer Solutions business.

During 2022, we introduced our Value Enhancement Program ("VEP"), 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. The VEP is transforming the way we work by instilling a culture of continuous improvement and sustainable long-term value creation while maintaining our commitment to cost discipline.

Our strategy is supported by an experienced leadership team, an optimized organizational structure and an ownership mindset; our strong cash generation and an investment-grade balance sheet; our advantaged cost position and global scale; our robust Value Enhancement Program; and our disciplined approach to capital allocation.

Initial strategic actions included the decision to exit the refining business and the sale of the Australian polypropylene business. We made changes to our organizational structure and Executive Committee, which includes a new Circular and Low Carbon Solutions business unit to accelerate our leadership in sustainability and serve growing customer demand for our *Circulen* products. Organizational and cultural initiatives are being implemented to increase focus on agility, accountability and value generation.

2.4 Sustainability

Our sustainability goals center on addressing three global challenges: ending plastic waste, taking climate actions and advancing a thriving society.

Ending Plastic Waste—We have a goal to produce and market at least two million metric tons of recycled and renewable-based polymers annually by 2030, which represents approximately 20% of our 2023 global sales of polyethylene and polypropylene.

We have invested upstream to secure plastic waste material needed to deliver on our ambition. In 2023, we expanded our mechanical and advanced recycling capacity globally through investments and commercial agreements in Europe, Asia, and North America. We also made the final investment decision to build our first industrial-scale advanced recycling plant at our site in Wesseling, Germany, using our proprietary *MoReTec* technology to convert post-consumer plastic waste into feedstock for production of new plastic materials.

These activities will enable us to deliver our customer's and society's increasing demand for more sustainable solutions and help ending plastic waste going to landfills and incineration.

Taking Climate Action—We are dedicated to providing solutions to the market to help enable the transition towards a low carbon world. Our 2030 goal is to reduce scope 1 and 2 greenhouse gas ("GHG") emissions reduction by 42% by 2030 and reduce our scope 3 emissions by 30% relative to a 2020 baseline. Our previously announced goal to achieve net zero scope 1 and 2 GHG emissions from global operations by 2050 remains unchanged.

Certain GHG emissions reduction initiatives planned for implementation by 2030 are expected to begin in the near-term as we plan to leverage existing asset turnaround schedules for our largest sites. In 2024, our Wesseling site in Germany is planning implementation of process heat recovery projects, electrification of a large process turbine and optimization of steam demand, including phasing out the use of coal, reducing scope 1 emissions by 150 thousand metric tons annually when compared to the average for 2019 and 2020. In 2025, we plan to optimize heat equipment at our Channelview site in Texas through advanced digitization, efficiency improvements and fuel management.

We also aim to secure at least 50% of our global electricity from renewable sources by 2030. As of December 2023, we have executed power purchase agreements achieving almost 90% of our 2030 target. These agreements will generate an estimated 3.7 million megawatt hours of renewable electricity annually and reduce our scope 2 emissions by more than 1.3 million metric tons of carbon emissions.

Our plans to close the Houston refinery no later than the end of the first quarter 2025 is expected to reduce our scope 1 and scope 2 GHG emissions by more than 3 million metric tons annually and scope 3 emissions by approximately 40 million metric tons annually. We are evaluating multiple options to transform the site for future growth, including recycled and renewable-based feedstocks and green and blue hydrogen.

As we progress in our efforts to achieve our goal to produce and market at least two million metric tons of recycled and renewable based products, the corresponding increases in recycling rates will positively impact scope 3 emissions. We expect the emissions reductions from accomplishing this goal to be incremental to plans we currently have to reduce our scope 3 emissions by 30% by 2030. We estimate approximately 1 million metric tons of scope 3 reductions from achieving our circularity ambition.

Our ambition to achieve net zero by 2050 will need to be enabled by the development and deployment of new technology, including those related to cracker electrification, the use of hydrogen, carbon capture and storage, carbon utilization and other technologies, across our manufacturing footprint.

Advancing a Thriving Society—By working to advance a thriving society, we make a positive impact far beyond our company and create long-term value for our stakeholders. We are creating solutions for everyday sustainable living, working to ensure the safety and well-being of our colleagues by holding ourselves to the highest standards, embracing different backgrounds and perspectives, promoting equity and respect among our global colleagues and in our communities, and aligning our suppliers' values with our own.

Capital Budget—We estimate capital spending to support our sustainability goals will represent approximately 20% of our total capital expenditures over the next two years. We also anticipate incurring costs for environmental compliance, including compliance with potential legislation and potential regulation related to climate change in subsequent periods.

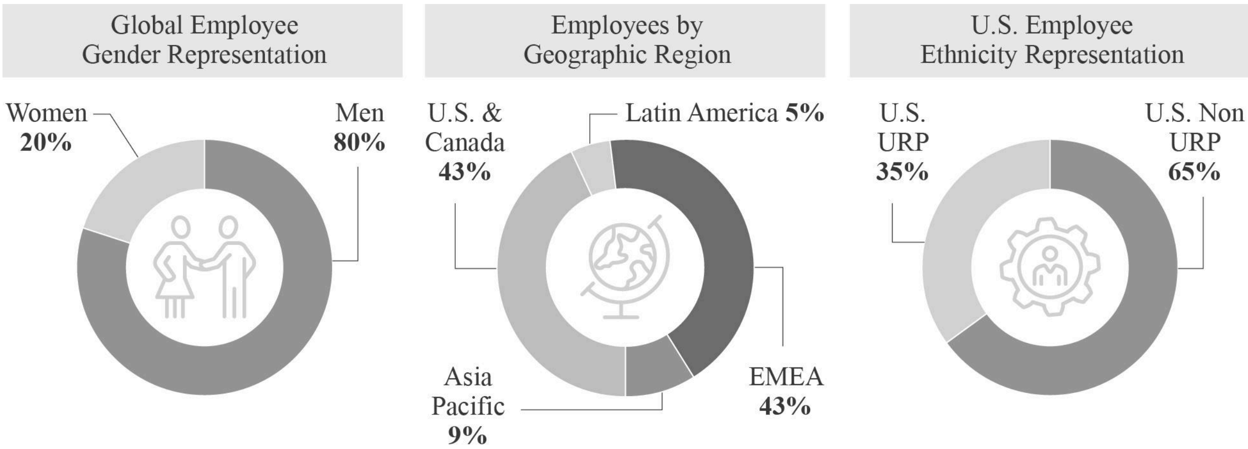
2.5 Human Capital

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. Key areas of focus for 2023 include Stepping up Performance and Culture, Diversity, Equity and Inclusion ("DEI") and Global Talent Development.

Stepping up Performance and Culture—In 2023, we introduced a new long-term strategy and began the transformation of our company culture, including shifting to a more comprehensive view of sustainable long-term value creation and customer centricity. Our culture emphasizes the role we seek to play in the world, what we uniquely deliver, and how we behave.

Diversity, Equity, Inclusion—DEI remained a key focus area in 2023. Our efforts reflect a holistic, multi-year strategy to improve representation, ensure fairness, and increase visibility and accountability to leadership.

Demographics—As of December 31, 2023 we had approximately 20 thousand employees. Our employee demographics, excluding temporary employees, consisted of:



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. Employees who self-identify as White or Caucasian are considered U.S. Non-Underrepresented.

Diversity (Representation)— In 2022, we set five-year aspirational goals to increase the number of female senior leaders globally to at least 33% and the number of underrepresented senior leaders in the U.S. to 29%, a 50% increase in both groups relative to 2022. By 2032, we have committed to achieving gender parity in senior leadership globally and URP parity in U.S. senior leadership. These ambitious goals demonstrate our commitment to having a diverse group of leaders.

In 2023, women represented 25% of global senior leadership roles, an increase from 22% in 2022. The increase in representation is the result of increased external hiring and improved attrition. In the U.S., 19% of senior leaders were from underrepresented groups. For URP, hiring, promotions, and attrition all improved. Job growth in the U.S. senior leader population, however, resulted in flat overall representation when compared to 2022.

Equity (Fairness)—Our efforts on equity are focused on ensuring that our systems and processes are fair to all employees. Our goal in this area is for all employees to believe they are being treated fairly. In 2023, we completed a pay equity review and performance analysis that involved approximately 13,500 employees, comparing pay for like jobs and focusing on base pay for gender (globally) and ethnicity (U.S. only). Consistent with 2022 findings, the review reflected that pay is generally administered fairly. In 2023, our analysis led to a pay review for approximately 380 employees. Ultimately, after additional review, we adjusted the base salary of approximately 50 employees, half of whom are female and/or underrepresented.

Inclusion (Belonging)—Like equity, we desire a culture where all of our employees feel they are included and belong. To drive change, we introduced new competencies, including one dedicated to promoting inclusion. We focus our inclusion efforts on learning and education, outreach, and our six global employee networks. In 2023, we achieved 18% participation, an increase from 15% in 2022. Network programming is strongly tied to career development and business and community impact. Our engagement survey indicates that participants in our employee networks are 20% more engaged than employees who are not members of a network.

Code of Conduct and Human Rights Policy—Our Code of Conduct establishes our expectations on topics such as respect in the workplace, anti-corruption, conflicts of interest, trade compliance, anti-trust and competition law, insider trading, sanctions, misconduct and political donations. It is available in seventeen languages on our company website. New employees are trained on the Code of Conduct, and all employees receive annual refresher training. We also have a human rights policy that establishes our standards for workforce health and safety; prevention of discrimination, harassment and retaliation; diversity and inclusion; workplace security; working conditions and fair wages; freedom of association; freely chosen employment; and child labor protections.

Global Talent Development and Engagement—We provide opportunities for growth through training and other development programs. In 2023, we expanded our LYB University, which includes formal learning and development resources to empower our employees to grow their capabilities. Through our leadership development framework, we had approximately 400 leaders participate in a structured leadership development program tailored to different stages in their career.

Safety, Employee Health and Well-Being—We are committed to providing a safe workplace, free from recognized hazards, and we comply with all applicable health and safety laws and recognized standards to achieve a goal of zero incidents, zero injuries and zero accidents. We cultivate a GoalZERO mindset with clear standards, regular communication, training, and targeted campaigns and events, including our annual Global Safety Day.

2.6 Research and Development

Our research and development ("R&D") activities are designed to improve our existing products and processes, and discover and commercialize new materials, catalysts and processes. These activities focus on product and application development, process development, catalyst development and fundamental polyolefin-focused research.

In 2023 and 2022, our R&D expenditures were $114 million and $108 million, respectively. A portion of these expenses are related to technical support and customer service and are allocated to the other business segments. In both 2023 and 2022, approximately 45% of all R&D costs were allocated to business segments other than Technology.

2.7 Governance Report of the Board of Directors

Our Board of Directors is responsible for overseeing the overall course of our business and strategy. Members of the Board are annually elected by shareholders and include our CEO and independent non-executives. Our Board and its committees oversee:

- Management’s identification, measurement, monitoring, and control of our Company's material risks, including operational, credit, market, liquidity, compliance, strategic, and reputational risks;
- The Company’s maintenance of high ethical standards and effective policies and practices to protect our reputation, assets, and business;
- Management’s development and implementation of an annual financial operating plan and a multi-year strategic business plan, and our progress meeting these financial and strategic plans;
- The assessment of operational performance, the importance of environmental health and safety programs and the Company’s performance with respect to key technologies;
- The corporate audit function, our independent registered public accounting firm, and the integrity of our consolidated financial statements; and
- The establishment, maintenance, and administration of appropriately designed compensation programs and plans.

The Board is also responsible for:

- Reviewing, monitoring, and approving succession plans for the Board, our CEO and other key executives to promote senior management continuity;
- Conducting an annual self-evaluation of the Board and its committees;
- Identifying and evaluating director candidates and nominating qualified individuals for election to serve on our Board; and
- Reviewing our CEO’s performance and approving the compensation for our CEO and other executive officers.

Our Board currently has eleven members. Our Articles of Association provide that the Board will consist of at least nine members, including at least one executive director who will be the CEO. The Rules for the Board provide that the Board, in its sole discretion, will determine the size of the Board in accordance with our Articles of Association, our nomination agreement with Access Industries and applicable law or regulation, including the listing standards of the New York Stock Exchange (“NYSE”), provided that the Board will have no more than twelve members. All directors are elected annually in accordance with our Articles of Association.

The members of the Board are elected by the general meeting of shareholders from a list of nominees that is selected and approved by the Board. Pursuant to our Articles of Association, the nominations are binding but may be overridden by two-thirds of the votes cast at the meeting if those two-thirds votes constitute more than one-half of the issued share capital of the Company.

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. Director candidates also must be willing and able to devote the time and attention necessary to engage in relevant, informed discussion and decision-making. Our Nominating and Governance Committee focuses on Board succession planning and refreshment and is responsible for recruiting and recommending nominees to the full Board for election. The Committee considers the qualifications, contributions, and outside commitments of each current director, as well as the results of annual Board Self-assessments and management assessments, in determining whether he or she should be nominated for reelection. Many of our directors serve on the boards and board committees of other companies, and the Committee believes this service provides additional experience and knowledge that improve the functioning of our own Board. Our Board Profile, which is available on our website, provides general principles for the composition, expertise, background, diversity and independence of the Board and guides our Nominating and Governance Committee on the nomination and appointment of directors.

Our Board considers diversity a priority and seeks representation across a range of attributes, including race, gender, ethnicity, and nationality. In accordance with our Corporate Governance Guidelines, the Committee and any outside search firms engaged to assist in identifying potential director candidates include women and candidates from underrepresented populations in each pool from which a director candidate is selected. These recruitment efforts are evidenced by our current Board composition and the qualities and qualifications of our nominees. If each of our twelve director nominees for 2024 are elected, we will meet our goal of appointing at least one-third female directors.

Below shows information for each member of our Board as of April 4, 2024.

Jacques Aigrain, French-Swiss, 69, Chair of the Board of Directors, Non-Executive Director since 2011, Chair since 2018

Mr. Aigrain is our Chair of the Board and a retired Senior Advisor and Partner of Warburg Pincus, a global private equity firm. Prior to joining Warburg Pincus in 2013, Mr. Aigrain spent nine years at SwissRe AG, a publicly traded insurance company, including as Chief Executive Officer, and 20 years in global leadership roles at J.P. Morgan in New York, London and Paris. He also has many years of experience as a director of public and multinational organizations, including The London Stock Exchange Group plc, WPP plc, a multinational advertising and public relations company, and currently, Clearwater Analytics Holdings Inc., a maker of financial software products, and TradeWeb Markets Inc., an international financial services company. He holds a doctorate in economics from Université Paris-Sorbonne and a master's in economics from Université Paris Dauphine – PSL. Mr. Aigrain's more than 30 years of financial services and management background, including extensive executive and board experience, provide him with expertise in strategy development and implementation, mergers and acquisitions, finance, and capital markets. Additionally, he brings substantial knowledge of board and governance matters to the Board.

Lincoln Benet, American-British, 60, Non-Executive Director since 2015

Mr. Benet has served as Chief Executive Officer of Access Industries, a privately held industrial group with world-wide holdings, since 2006. Prior to joining Access, he spent 17 years at Morgan Stanley, including as Managing Director. Mr. Benet also has experience serving on the boards of several privately held and publicly traded companies, including those in the investment, music and publishing, oil and gas pipes and tubing, cement, sports media, and petrochemicals industries. As a result of this background, he brings to our Board a working knowledge of global markets, mergers and acquisitions, executive management, strategic planning, and corporate strategy, as well as extensive experience with international finance and corporate finance matters, including treasury, insurance, and tax. Mr. Benet received his M.B.A. from Harvard Business School and his B.A. in Economics from Yale University. Mr. Benet possesses significant experience advising and managing publicly traded and privately held enterprises and brings substantial knowledge of corporate finance and strategic business planning activities to the Board.

Robin Buchanan, British, 72, Non-Executive Director since 2011

Mr. Buchanan has previously served as Dean and President of London Business School, the Chairman of PageGroup plc, a global specialist recruitment company, a director of Schroders plc, a global asset management firm, a director of Cicap Ltd, a global private equity firm, and a director of Bain & Company Inc., a global business consulting firm. As the former Managing Partner of Bain in the UK and Senior Partner for the UK and South Africa, he continues to serve in an advisory role to Bain. Until August 2023, Mr. Buchanan also served as an advisor to Access Industries and Non-Executive Chairman of its Advisory Board. Mr. Buchanan's experience as a board member of publicly traded, private, and charitable companies, Dean of a leading Business School, and long tenure with Bain provide him with deep experience in strategy, leadership, board effectiveness, business development, and acquisitions across most industry sectors, including considerable involvement with chemicals and energy in Europe. He also brings a wealth of experience in board and governance matters, particularly as related to multi-national companies. Mr. Buchanan is a Chartered Accountant and a published author on strategy, acquisitions, leadership, board effectiveness, corporate governance, and compensation. Mr. Buchanan received his FCA from the Institute of Chartered Accountants in England & Wales and his M.B.A. with High Distinction from Harvard Business School.

Anthony (Tony) Chase, American, 69, Non-Executive Director since 2021

Mr. Chase is the Chairman and Chief Executive Officer of ChaseSource, L.P., a staffing, facilities management, and real estate development firm founded by him in 2006 and recognized as one of the nation's largest minority-owned businesses by Black Enterprise Magazine. Prior to ChaseSource, Mr. Chase founded and sold three successful ventures: Chase Radio Partners, Cricket Wireless and ChaseCom. He is also a principal owner of the Marriott Hotel at George Bush Intercontinental Airport in Houston and the Principle Toyota dealership in greater Memphis. He currently serves as a director of Cullen/Frost Bankers, Inc., a financial holding company, Nabors Industries, an operator of drilling rig fleets and provider of offshore platform rigs, and Par Pacific Holdings, Inc., an oil and gas exploration and production company. Mr. Chase is a Professor of Law Emeritus at the University of Houston Law Center, a member of the Council on Foreign Relations, and serves on the board of numerous Houston-based non-profits including the Houston Endowment, the Greater Houston Partnership, the Greater Houston Community Foundation, the M.D. Anderson Board of Visitors, and the Texas Medical Center. He previously served as Deputy Chairman of the Federal Reserve Bank of Dallas. Mr. Chase is an honors graduate of Harvard College, Harvard Law School and Harvard Business School. He has received many awards, including the American Jewish Committee's 2016 Human Relations Award, Houston Technology Center's 2015 Entrepreneur of the Year, NAACP 2013 Mickey Leland Humanitarian Award, GHP 2013 Bob Onstead Leadership Award, the 2012 Whitney M. Young Jr. Service Award, Ernst & Young's Entrepreneur of the Year Award, Bank of America's Pinnacle Award and UH Law Center's Baker Faculty Award.

Robert (Bob) Dudley, American-British, 68, Non-Executive Director since 2021

Mr. Dudley is Chairman of the international industry-led Oil and Gas Climate Initiative, which aims to accelerate the oil and gas industry's response to climate change, and Chair of the Accenture Global Energy Board. He served as the Group Chief Executive of BP plc, a global energy provider, from 2010 to 2020. He was appointed to the board of BP in 2009, and previous executive roles with BP include Alternative and Renewable Energy activities and responsibility for BP's upstream business in Russia, the Caspian region, and Africa. Mr. Dudley is a Fellow of the Royal Academy of Engineering, and received an M.B.A. from Southern Methodist University and a B.S. in Chemical Engineering from the University of Illinois. As the former CEO of a multinational oil and gas company, he has acquired extensive executive management experience and knowledge of the energy industry, including a leadership role in advancing decarbonization plans and other key sustainability initiatives. He also serves as chairman of the board of Axio, a leading SaaS provider of cyber risk management and quantification solutions, and director of 8 Rivers Capital LLC, a private firm leading the invention and commercialization of technologies for the global energy transition. Mr. Dudley has over 40 years of experience in strategic planning, risk management (including risks related to climate change), international operations, and health, safety, environmental and operational matters. Mr. Dudley currently serves as a director of Freeport-McMoRan Inc.

Claire Farley, American, 65, Non-Executive Director since 2014

Ms. Farley was a partner at KKR Management, LLC, a global investment firm, from 2013 until her retirement in 2016, and subsequently served as Vice Chair of the Energy business from 2016 to 2017 and Senior Advisor from 2017 to 2022. Prior to joining KKR, Ms. Farley co-founded RPM Energy, a privately-owned oil and natural gas exploration and development company. Before that, she served as Chief Executive Officer of Randall & Dewey, an oil and gas asset transaction advisory firm, from 2002 to 2005, when Randall & Dewey became the oil and gas investment banking group of Jeffries & Company, where she served as Co-President and Senior Advisor from 2005 to 2008. Previously, she served as chief executive officer of Intelligent Diagnostics Corp. from 1999 to 2001, and of Trade-Ranger Inc. from 2001 to 2002. Her oil and gas exploration experience includes positions at Texaco from 1981 to 1999, including as president of worldwide exploration and new ventures, as president of North American production, and as chief executive officer of Hydro-Texaco Inc. Ms. Farley earned a bachelor's degree from Emory University. She brings to the Board experience in business development, finance, mergers, acquisitions, and divestitures, as well as knowledge of the chemical industry's feedstocks and their markets. She also has experience in all matters of executive management and a deep understanding of public company and governance matters due to her current and prior service on the boards of companies including Anadarko Petroleum Corporation, Crescent Energy Company, and TechnipFMC.

Rita Griffin, 61, Non-Executive Director since 2023

Ms. Griffin served as the Chief Operating Officer of Global Petrochemicals at BP plc, one of three main divisions of BP's downstream business, from 2015 to 2020. Previously, she served in a number of leadership positions within BP plc's manufacturing, logistics, retail and functional organizations. Ms. Griffin began her career at Amoco and Standard Oil (Indiana), which was acquired by BP plc in 1998. She is a Certified Public Accountant and Certified Managerial Accountant, and received her Master of Management from Northwestern University and Bachelor of Business Administration in accounting from Northern Illinois University. With over 30 years of experience in global oil and gas and chemicals businesses, Ms. Griffin has considerable experience in developing and implementing strategies and leading substantial transformation programs. She has previously served on the board of directors of Royal Mail Group PLC, an international postal service and courier company, where she provided oversight for environment strategy and implementation, health, safety and security, ethics and compliance, culture and employee engagement, diversity and inclusion, governance and community stakeholder engagement, and customer satisfaction.

Michael Hanley, Canadian, 58, Non-Executive Director since 2018

Mr. Hanley has more than 30 years of experience in senior management and finance roles, including as Chief Financial Officer of Alcan, a Canadian mining company and aluminum manufacturer, President and CEO of Alcan's Global Bauxite and Alumina business group, and Senior Vice President, Operations & Strategy of the National Bank of Canada. He brings strong financial and operational experience, deep knowledge of capital-intensive and process industries, experience with U.S. and international accounting standards, and a broad understanding of international markets. Mr. Hanley also has significant experience on public company boards, including in the roles of lead director, chair of the board, and audit committee chair, and has an appreciation for corporate governance matters and the board's role in financial oversight. He currently serves as chair of the board of EQB Inc., which provides personal and commercial banking services, and previously served as lead director and audit committee chair of Nuvei Corporation and BRP Inc. He is also a member of the Quebec Order of Chartered Professional Accountants. Mr. Hanley received his bachelor of business administration from HEC Montreal.

Virginia Kamsky, American, 70, Non-Executive Director since 2022

Ms. Kamsky is the Chair and Chief Executive Officer of Kamsky Associates, Inc., a firm she founded in 1980 and the first U.S. advisory firm approved to provide strategic advisory services in China. Ms. Kamsky began her career at Chase Manhattan Bank (now JPMorgan Chase Bank) and served in various capacities of increasing seniority, including as Second Vice President of Chase and head of Chase's Corporate China Division. She has also served as a member of the US Secretary of the Navy Advisory Panel from 2009 to 2017 and as Chairman and CEO of China Institute in America from 2003 to 2013. She has been awarded the Navy Distinguished Civilian Service Award, the highest honorary award the Secretary of the Navy can confer on a civilian employee, selected as one of America's 25 Top Asia Hands by Newsweek Magazine, and recognized as an Outstanding Public Company Director by the Financial Times. Ms. Kamsky received a B.A. from Princeton University. She brings to the Board a strong background in strategy and deep knowledge of the Asia-Pacific market. She also has extensive public company board experience, including at W.R. Grace & Co., Sealed Air Corporation, Olin Corporation, Tecumseh Products Company, Foamex International, Tate & Lyle PLC, Shorewood Packaging, Spectrum Brands, Kadem Sustainable Impact Corp. and, currently, at Dana Incorporated.

Albert Manifold, Irish, 61, Non-Executive Director since 2019

Mr. Manifold has been the Group Chief Executive and a director of CRH plc, an international group of diversified building materials businesses supplying the construction industry, since 2014. Mr. Manifold joined CRH in 1998 and advanced to increasingly senior roles, including Finance Director of the Europe Materials Division, Group Development Director, Managing Director of Europe Materials, and Chief Operating Officer (2009 to 2014). Prior to joining CRH, Mr. Manifold was Chief Operating Officer of Allen McGuire & Partners, a private equity group. As a sitting chief executive officer with a background in other senior management roles, Mr. Manifold has acquired extensive leadership experience in competitive industries. With over 25 years in the building materials industry and 10 years of chief executive experience, Mr. Manifold brings significant knowledge of corporate finance, capital markets, strategic planning, acquisitions and divestitures, and international operations. Mr. Manifold is also a Fellow of the Institute of Certified Public Accountants in Ireland and received his M.B.A. and M.B.S. from Dublin City University.

Peter Vanacker, Belgian-German, 58, Executive Director since 2022

Mr. Vanacker has served as our Chief Executive Officer since May 2022. Mr. Vanacker previously served as the President, Chief Executive Officer and Chair of the Executive Committee of Neste Corporation, a renewable products company, from 2018 to 2022. Prior to his role at Neste, he served as Chief Executive Officer and Managing Director of CABB Group GmbH, a fine chemicals producer, from 2015 to 2018 and as Chief Executive Officer and Managing Director of Treofan Group, a manufacturer of polypropylene films, from 2012 to 2015. He previously served as Executive Vice President and Member of the Executive Board of Covestro AG (formerly known as Bayer Material Science), a polymers and plastics producer, with responsibility for the global polyurethanes business and as Chief Marketing and Innovation Officer. He received his MSc in chemical engineering from Ghent University. Mr. Vanacker's extensive experience in the oil and gas and chemicals industries, including chief executive officer and senior leadership experience, provide him with a deep understanding of the Company's industry, operations, and feedstocks. In addition, he brings a strong understanding of circularity and sustainability issues, and extensive experience leading strategic transformations at large multinational companies. Mr. Vanacker also serves as a member of the Supervisory Board of Symrise AG, a chemicals company that is a major producer of flavors and fragrances.

Independence of Board Members

Our Board annually reviews the independence of its members. In February 2024, the Board affirmatively determined that all of our non-executive directors and director nominees are independent under the rules of the New York Stock Exchange (the "NYSE").

The Board has adopted categorical standards of independence that meet, and in some instances exceed, the requirements of the NYSE. In order to qualify as independent under our categorical standards, a director must be determined to have no material relationship with LyondellBasell other than as a director. The categorical standards include strict guidelines for non-executive directors and their immediate families regarding employment or affiliation with LyondellBasell and its independent registered public accounting firm. Our categorical independence standards are included in our Corporate Governance Guidelines and can be found on our website at www.LyondellBasell.com website by clicking "Investors," then "Corporate Governance."

The Board has determined that there are no relationships or transactions that prohibit any of our non-executive directors or nominees from being deemed independent under the categorical standards and that each of our non-executive directors and nominees is independent. In addition to the relationships and transactions that would bar an independence finding under the categorical standards, the Board considered all other known relationships and transactions in making its determination. In determining that no known transactions or relationships affect the independence of any of the non-executive directors, the Board considered that all of the identified transactions are ordinary course and none of the dollar amounts involved were material to the Company or the relevant counterparty.

The Board was also made aware of, and considered the fairness of, certain transactions and relationships between the Company and other organizations where our directors and director nominees have relationships. These transactions and relationships were also considered in evaluating the independence of our directors and director nominees.

In particular, Mr. Buchanan and Ms. Kamsky each served as directors or advisors of companies with which LyondellBasell had commercial transactions in 2023. Each of these transactions was entered into on an arm's-length basis in the ordinary course of business, and no director initiated or participated in negotiation of the relevant purchases or sales or had any material interest in, or received any compensation in connection with, these transactions. In each case, the payments made or received by LyondellBasell fell below the greater of $1 million or 2% of the other company's annual gross revenue.

Additionally, the Board determined that notwithstanding the relationships between certain directors and the Company's largest shareholder, Access Industries, these directors are independent for purposes of NYSE listing standards and the Company's categorical standards. However, under the Dutch Corporate Governance Code, a director is not considered to be independent if he is a representative in some way of an entity which holds at least 10% of the Company's shares. The Dutch Corporate Governance Code further provides that there should be no more than one director at any time who can be considered to be affiliated with or representing such a 10% shareholder. Although our Board has determined that each of Messrs. Benet and Buchanan and Ms. Kamsky is independent for the purposes of the NYSE listing standards and the Company's categorical standards, their nomination by Access Industries renders them not independent under the Dutch Corporate Governance Code, and the Company does not meet the requirement that there be no more than one director representing Access Industries as described above. Our Board believes that application of the NYSE independence standards is more appropriate for LyondellBasell, which is listed only on the NYSE and not on any exchange in the Netherlands. Our Board further believes that the service of Access nominees on the Company's key independent committees provides those committees with shareholder perspective and the significant skills, experience and qualifications of these directors, to the benefit of the Board, the Company, and our stakeholders more generally. In the opinion of the Board, each of the other independence requirements set forth in sections 2.1.7 through 2.1.9 of the Dutch Corporate Governance Code has been fulfilled.

Meetings and Board Committees

The Board currently has five standing committees, each consisting entirely of independent directors: (1) Audit Committee, (2) Compensation and Talent Development ("C&TD") Committee, (3) Nominating and Governance Committee, (4) Health, Safety, Environmental, and Sustainability ("HSE&S") Committee, and (5) Finance Committee.

Our Audit Committee meets at least five times each year in alignment with our financial reporting and audit cycle, and our C&TD Committee, Nominating and Governance Committee, and HSE&S Committee each meet at least four times each year in connection with regularly scheduled Board meetings (other than the Board's strategy session held in July), and hold additional meetings as needed. Our Finance Committee meets as needed to oversee the matters it is responsible for. Committees regularly receive reports from LyondellBasell management, report on committee actions to the Board, and may retain outside advisors.

In 2023, the Board held six regularly scheduled meetings. Our directors' average attendance rate at Board and committee meetings was 97%, and each of our current directors attended at least 93% of the meetings of the Board and committees of which he or she was a member. Our Chair is a member of the Audit Committee, Nominating and Governance Committee and Finance Committee, and regularly attends meetings of the C&TD Committee. Although the Company does not maintain a policy regarding directors' attendance at its general meetings of shareholders, both our Chair and CEO attend the Company's annual general meeting each year and will attend the 2024 annual general meeting.

The table below provides membership and meeting information for each of the Board's standing committees as of April 4, 2024.

Name	Audit	Compensation & Talent Development	Nominating & Governance	HSE&S	Finance
Jacques Aigrain	●		●		●
Lincoln Benet			●		Chair
Robin Buchanan			●	●	
Tony Chase	●	●			
Bob Dudley				●	●
Claire Farley	●		Chair		
Rita Griffin		●		Chair	
Michael Hanley	Chair				●
Virginia Kamsky		●		●	
Albert Manifold		Chair		●	
Peter Vanacker					
2023 Meetings	**5**	**4**	**4**	**5**	**3**

Each of our committees has a written charter, approved by the Board. The charters can be found on our website at www.LyondellBasell.com by clicking on "Investors," then "Corporate Governance," then "Board of Directors." Each committee annually reviews and recommends any changes to its charter and conducts an evaluation of committee performance with respect to delegated duties and responsibilities.

Audit Committee

The Audit Committee is responsible for overseeing all matters relating to our financial statements and reporting, our internal audit function and independent auditors, and our compliance function. Listed below are the general responsibilities of the Audit Committee.

- *Independent Auditor*—Engage external auditor, review performance and approve compensation; review independence and establish policies relating to the hiring of auditor employees; and pre-approve audit and non-audit services;
- *Internal Audit*—Review plans, staffing and activities of the internal audit function and its effectiveness;
- *Financial Statements*—Review financial statements and earnings releases; discuss and review accounting policies and practices and external auditor reviews; and discuss and review the effectiveness of internal controls;
- *Risk Managemen*t—Monitor the Company's major financial and other risk exposures, including oversight of the Company's policies and guidelines with respect to risk assessment and management, information technology and cybersecurity risks; and
- *Compliance*—Review plans, staffing and activities of the compliance function and its effectiveness; establish and review procedures for complaints, including anonymous complaints regarding accounting, controls and auditing; and review the Company's Code of Conduct and system for monitoring compliance therewith.

Our Board has determined that all Audit Committee members are independent under the NYSE listing standards, our categorical standards, and the heightened independence requirements applicable to audit committee members under U.S. Securities and Exchange Commission ("SEC") rules. Our Board has also determined that all Audit Committee members are financially literate in accordance with the NYSE listing standards and that Messrs. Hanley, Aigrain, and Chase qualify as audit committee financial experts under SEC rules.

Compensation and Talent Development Committee ("C&TD")

The C&TD Committee is responsible for overseeing our executive compensation, talent management and diversity, equity and inclusion ("DEI") programs and developing the Company's compensation philosophy.

In fulfilling its responsibility for the oversight of compensation matters, the C&TD Committee may delegate authority for day-to-day administration and interpretation of the Company's compensation plans to Company employees, including responsibility for the selection of participants, determination of award levels within plan parameters, and approval of award documents. The C&TD Committee may not, however, delegate authority for matters affecting the compensation and benefits of the Company's executive officers.

The C&TD Committee's responsibilities include the following:

- *Executive Compensation*—Approve the compensation and benefits of executive officers; review executive compensation practices to ensure consistency with corporate objectives; review and approve CEO goals and objectives and evaluate CEO performance; and make recommendations to the Board regarding CEO and other executive officer compensation;
- *Company Compensation and Benefits*—Review the Company's compensation philosophy, programs and practices; review and approve pension and benefit arrangements as well as funding of pension and benefit plans; review pay equity for the Company; and make recommendations to the Board on these subjects; and
- *Talent Management*—Review the Company’s organizational leadership structure and oversee leadership development, talent management, DEI initiatives, and succession and continuity planning for the CEO and other executive officers.

Our Board has determined that all C&TD Committee members are independent under the NYSE listing standards, our categorical standards and independence requirements applicable to compensation committee members under NYSE rules.

Compensation Committee Interlocks and Insider Participation—No member of the C&TD Committee serves or has served as an officer or employee of the Company or any of our subsidiaries and, during 2023, no executive officer served on the compensation committee or board of any entity that employed any member of our C&TD Committee or Board.

Nominating and Governance Committee

The Nominating and Governance Committee is primarily responsible for identifying nominees for election to the Board and overseeing matters regarding corporate governance.

To fulfill those duties, the Nominating and Governance Committee has the responsibilities summarized below:

- *Directors and Director Nominees*—Identify and recommend candidates for membership on the Board and recommend committee memberships;
- *Director Compensation*—Evaluate and recommend director compensation;
- *Environmental, Social and Corporate Governance Matters*—Review the Company's environmental, social and governance (“ESG”) profile and make necessary recommendations; review and propose modifications to the Company's corporate governance documents and policies; review strategy and ratings; and review and comment on shareholder proposals; and
- *Administrative*—Coordinate evaluations by committees and the full Board.

Health, Safety, Environmental & Sustainability Committee

The HSE&S Committee assists the Board in its oversight responsibilities by assessing the effectiveness of health, safety, environmental, and sustainability programs and initiatives that support Company policies.

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

- *HSE*—Review and monitor the Company's health, safety and environmental 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; and
- *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.

Finance Committee

The Finance Committee is responsible for monitoring and assessing such matters as the Company's capital structure and allocation, strategic transactions, debt portfolio, and tax and derivative strategies. In fulfilling its duties, the Finance Committee has the responsibilities summarized below:

- *Strategy*—Review analyses and provide guidance and advice regarding acquisitions and divestments and discuss and review the Company's tax strategies, planning and related structures;
- *Capital*—Review the Company's capital structure and capital allocation, including organic and inorganic investments; review and discuss the Company's dividend policy; and review and discuss share repurchase activities and plans; and
- *Securities and Financing*—Review and discuss the Company's debt portfolio, credit facilities, compliance with financial covenants, commodity, interest rate and currency derivative strategies, and proposed securities offerings.

2.7.1 Evaluation of the Board of Directors and its Individual Members

Our Board and its committees evaluate their own effectiveness by participating in a robust annual self-assessment process overseen by the Nominating and Governance Committee. Each year, directors respond to survey questions soliciting information used to improve the effectiveness of the Board and its committees and individual directors. The Nominating and Governance Committee periodically engages independent outside consultants, including most recently in 2020, to conduct interviews with the Board and facilitate the evaluation process. The Nominating and Governance Committee has engaged an independent outside consultant to begin work in 2024 in order to refresh and bring an outside perspective to the evaluation process.

For 2023, the Board conducted its evaluation process as described below.

Development and Approval of Evaluation Process and Topics

In September 2023, the Nominating and Governance Committee discussed and approved the overall process and timeline for the 2023 evaluation cycle and identified an independent consultant for the 2024 evaluation cycle. The Nominating and Governance Committee approved the topics and questions for distribution to the individual Board members. Questions were largely consistent with those used in prior cycles, with the addition of questions to cover director expertise and succession. As in prior cycles, the Committee approved an individual evaluation process for the Chair, to be facilitated through survey questions specific to his role.

Distribution and Completion of Surveys

Board members provided responses to the surveys, including separate assessments for each Board committee and for the Chair. In parallel, senior executives provided their views of Board effectiveness and interactions with management through confidential survey responses provided to the Corporate Secretary.

Key areas covered in the Board and committee surveys include membership; responsibilities; functionality; meetings; strategy; senior management (including succession planning); focus on performance; ensuring financial robustness; monitoring risk; compliance; and building corporate reputation. Committee members are also asked to consider whether each committee is functioning in compliance with its charter and keeping the Board adequately informed, and to review the committee's member skill sets and leadership. Survey questions for the individual Chair assessment focused on effective management of meetings and facilitation of constructive relationships and communication among Board members and with management.

Board Review and Implementation of Results

The Corporate Secretary compiled feedback from the self-evaluation process, including feedback from senior executives, which was discussed during the February 2024 Committee and Board meetings in executive sessions.

Policies and practices were evaluated based on the self-assessment results and the board considered potential enhancements to the Board processes. The Nominating and Governance Committee also considered director feedback in recommending the nomination of continuing directors for reelection.

Feedback from the process has also been provided to the independent outside consultant as a part of the 2024 evaluation process, and may be used to refresh the evaluation process and adjust areas of focus for surveys beyond 2024.

2.7.2 Compensation of the Board of Directors

Non-Executive Members of the Board

Our Nominating and Governance Committee reviews director compensation on an annual basis and recommends any changes in compensation determined advisable. The Board seeks to award compensation that fairly compensates directors for the work required by membership on our Board and aligns director interests with those of our shareholders, including with respect to the creation of sustainable long-term value. The Nominating and Governance Committee periodically receives advice from Pearl Meyer & Partners, LLC, the Board's independent compensation consultant, on director compensation practices and gives consideration to the qualifications and caliber of the Company's directors and significant commitment required for service on our Board, including the additional time and effort required by overseas travel for many of our Board meetings. Our Board does not consider scenario analysis in setting non-executive director compensation, and non-executive directors do not receive variable remuneration.

Following its annual review in November 2023, the Nominating and Governance Committee recommended increasing the annual retainer for the Chair of the HSE&S Committee from $20,000 to $27,500, commensurate with the annual retainer for the Chairs of Audit Committee and C&TD Committee. No other changes to director compensation were recommended, and the Board approved the updated director compensation policy effective January 1, 2024. No other increases to board retainers have been approved since 2014, apart from an increase in the annual retainer for the Board Chair in 2018.

Our non-executive directors receive cash compensation and equity compensation, in the form of restricted stock units ("RSUs"), for their service on the Board and its committees. Members of the Board have the option to elect to receive all or a portion of the cash component of their compensation in Company shares. Our CEO does not receive any additional compensation for his service as a director.

Board Retainer	Cash	RSUs
Chair of the Board	$325,000	$325,000
Members	$115,000	$170,000

Committee Retainers	Chairs	Members
Audit	$27,500	$15,000
Compensation & Talent Development	$27,500	$10,000
Nominating & Governance	$20,000	$10,000
Health, Safety, Environmental & Sustainability	$27,500	$10,000
Finance	$20,000	$10,000

In addition to the retainers shown above, we provide members of the Board with a cash payment of $5,000 for each intercontinental trip taken in performing board service.

Share Ownership Guidelines

Members of our Board are subject to Share Ownership Guidelines. Under the Share Ownership Guidelines, non-executive directors are prohibited from selling any shares of the Company until they own shares that are valued at no less than six times their annual cash retainer for Board service, or $690,0000 for all directors other than our Chair, whose ownership requirement is $1,950,000. Under the guidelines, only shares beneficially owned and RSUs (net of the anticipated tax obligation on vesting, estimated for these purposes at 50%) count towards meeting the ownership thresholds. Once a director has reached his or her required ownership level, he or she may not sell shares that would bring ownership below the threshold level.

Prohibition on Hedging and Pledging Shares

Pursuant to our Policy Prohibiting Insider Trading, directors are prohibited from purchasing, selling, or writing options on the Company's shares, engaging in short sales, participating in other derivative or short-term purchase or sale transactions, or otherwise engaging in transactions that would enable them to hedge against any decrease in our share price. Directors are also prohibited from pledging Company shares as collateral for personal loans or other obligations, including holding shares in a brokerage margin account. These restrictions extend to directors' immediate family members and certain related entities and are intended to keep the interests of our directors aligned with the long-term interests of the Company and our shareholders.

Executive Director

We believe that our executive compensation program supports our executive compensation philosophy and goals, drives performance, encourages an appropriate sensitivity to risk, and increases shareholder value. Our philosophy, which is set by the Compensation and Talent Development Committee, is intended to align each executive's compensation with the Company's short-term and long-term performance and to provide the compensation and incentives needed to attract, motivate, and retain high-caliber executives who are crucial to our long-term success. A significant portion of the total compensation opportunity for each of our executives, including our executive director, is directly tied to the Company's progress against our strategic, operating, sustainability and safety goals.

The compensation that was paid to our executive director, Mr. Vanacker, during 2023 was based on his duties as CEO of the Company and determined in accordance with the compensation program for the Company's executive officers.

Our executive compensation program is designed to:

- Take into account the realities of a cyclical, commodity industry and reward differential performance;
- Align the interests of management with those of our shareholders;
- Encourage both short-term and long-term results;
- Attract, retain, and incentivize the highest caliber team possible;
- Enable us to pay high achievers above-market median compensation based on individual performance, potential, and impact to the Company's results;
- Recognize and maintain the Company's market-leading position in health and safety;
- Reflect scenario analyses to take into account the performance of the company and financial performance;
- Emphasize the Company's deep commitment to sustainability and increase focus on sustainable long-term value creation.

Our compensation program for our executive officers, including our executive director, is structured to incorporate the following compensation components:

Component	Objective	Key Features	Performance-Based
Base Salaries	Provide a regular fixed income in recognition of job responsibilities	Determined when executives are hired or promoted into their position and reviewed annually	Individual performance is a key driver of any annual base salary adjustment. Increases are not guaranteed and must be approved by the Compensation and Talent Development Committee
Short-Term Incentives ("STI")	Incentivize executives by aligning their compensation with key annual objectives and the results that are achieved	Target value of annual bonus is determined as a percentage of base salary. Executives earn from 0 to 200% of target based on Company results and (for executives other than CEO) individual performance.	Payout is determined by the Compensation and Talent Development Committee based on corporate performance and achievement of individual goals
Long-Term Incentives ("LTI")	Encourage executives to increase shareholder value over the long term and support talent retention	Target value of LTI awards at grant is determined as a percentage of base salary PSUs – three-year performance period, vest from 0 to 200% of target; PSUs will consist 60% of the executive's target award in 2024 and beyond RSUs – for RSUs granted in 2023 and earlier, cliff vest after three years; RSUs granted in 2024 and beyond will consist 40% of the executive's target award and vest ratably over three years Options – for options granted in 2023 and earlier, vest ratably over three years, expire ten years from grant, exercise price is fair market value at date of grant; options will no longer be part of the LTI program in 2024 and beyond.	Value of all LTI awards varies in relationship to changes in share price PSUs pay out based on Company performance, as determined by the C&TD Committee.

Perquisites and Other Benefits: Our executive director receives the same benefits generally provided to all of our employees, which include vacation allowances, Company matching under our 401(k) plan, Company contributions to our defined benefit pension plan, and health and welfare benefits. The perquisites received by our executive director that are not offered to all employees include:

- Annual executive physical;
- Financial, tax, and estate planning—the Company will reimburse up to $15,000 of expenses; and
- Matching under the U.S. Deferral Plan—the Company makes contributions to the U.S. Deferral Plan for amounts that exceed the IRS base salary limits on matching under our 401(k) plan and contributions to our defined benefit pension plan. The value of the matching contributions is 11% for all base salary compensation in excess of the IRS limits.

From time to time, the Company provides other benefits to our executive director that are intended for business purposes, including tax equalization payments, limited personal use of private aircraft or payment for accompanying spouse travel, relocation benefits, and the payment of business club memberships or dues.

Tax equalization payments are designed to make the executive director whole if he incurs income tax in jurisdictions other than his country and/or state of residence. For example, executives may travel to other jurisdictions on Company business and may be taxed based on days worked in those jurisdictions. If, and only to the extent, those additional taxes cannot be offset against the executive's regular income tax liability (such as in the form of credits), the Company will reimburse an amount sufficient to make the executive's tax liability equal to the full income tax for his jurisdiction of residence only.

The Company has agreements with Flexjet LLC for a fractional ownership interest in and use of private aircraft. The primary use of the Flexjet aircraft is for business purposes, with limited personal use when adjacent to business purposes. From time to time the executive director's spouse, family members or personal guests may accompany our executive officers on Flexjet aircraft. The Company may also pay or reimburse the cost of occasional spouse travel related to business trips. When approved travel of a family member or guest is imputed as income to the executive director, we reimburse the additional income tax incurred. During 2023, Mr. Vanacker and Mr. Lane had flights that were considered taxable. The imputed income will be reported and taxed in 2024 with no tax reimbursements for these specific flights.

Competitive Positioning and our Peer Group: Annually, the C&TD Committee reviews the total target direct compensation for each of our executive officers, including our executive director, which includes base salaries, target bonuses, and the grant date value of long-term incentive awards. The Committee strives to set total target direct compensation and each individual component of compensation near the median compensation levels of our peer group companies, while considering other factors described below. A large portion of the total target direct compensation opportunity is directly tied to the achievement of financial and operational metrics that measure our performance in both absolute terms and relative to peers.

The Committee reviews publicly available financial and compensation information reported by our peer group companies and general survey data. The survey data used to inform the Committee's 2023 compensation decisions was collected from the 2022 Willis Towers Watson Executive Compensation Database. This survey data reflects a combination of general industry and chemical industry compensation for executives with responsibilities similar to those of our executives.

The Committee reviews the peer group and survey data to determine the median compensation for each executive's position and then sets each executive's base salary and compensation targets for the current year. This generally involves establishing an annual bonus target and the target value of long-term incentive awards as a percentage of base salary. Median compensation is used as a reference point for pay recommendations. Actual pay and targets vary from median based on the executive's industry experience; experience and performance in his or her role and at the Company; value of the role to the Company; internal pay parity among our executives; and any other factors the Committee deems relevant.

The compensation peer group is also used more generally when the Committee reviews our compensation program design, including the types of compensation awarded and the terms and conditions of compensation components.

CEO Pay Ratio: With respect to fiscal 2023, the annual total compensation of the global median employee of our company (other than Mr. Vanacker, our CEO), was $106,365. The annual total compensation of Mr. Vanacker, our CEO, was $16,546,194. The ratio of the annual total compensation of our CEO to the annual total compensation of the global median employee was 156:1, 187:1, 179:1, 169:1 and 184:1 for the year 2023, 2022, 2021, 2020 and 2019, respectively. We identified global median employee based compensation and the employee population in accordance with SEC rules.

2.8 Corporate Governance and Risk Management

2.8.1 Corporate Governance Statement

We monitor and assess applicable Dutch, U.S., and other relevant corporate governance codes, rules, and regulations. We are subject to the Dutch Corporate Governance Code (the "Code"), as we are a listed company with its statutory seat in the Netherlands. As a NYSE-listed company, we also are required to comply with the U.S. Sarbanes-Oxley Act of 2002, as well as NYSE listing rules, and the rules and regulations promulgated by the SEC. As an overseas company, with executive offices in the United Kingdom, we are also required to comply with certain requirements of U.K. company law, including the Companies Act 2006.

Our corporate governance structure is based on the requirements of the Dutch Civil Code, the company's Articles of Association and the rules and regulations applicable to companies listed on the NYSE, complemented by several internal procedures including the Rules for the Board, Board Profile, and Corporate Governance Guidelines, which are available on our website at www.LyondellBasell.com by clicking "Investors," then "Corporate Governance" and also by further clicking "Board of Directors." These procedures include a risk management and control system, as well as a system of assurance of compliance with laws and regulations.

For the full text of the Code, please refer to the website at www.mccg.nl/english. For the full text of the U.S. Sarbanes-Oxley Act of 2002, as well as NYSE listing rules and the rules and regulations promulgated by the SEC, see www.sec.gov/about/laws/soa2002.pdf, http://nyse.com/, and www.sec.gov/about.shtml, respectively.

The Code contains principles and best practices for Dutch companies with listed shares. We agree with both the general approach and the vast majority of its principles and best practice provisions. Any deviations from the Code are explained, in accordance with the Code's "comply or explain" principle.

The Board is of the opinion that the company's corporate governance structure, as described here, is the most appropriate for LyondellBasell. With the exception of those aspects of our governance structure which can only be amended with the approval of shareholders, the Board may make adjustments to the way the Code is applied, if this is considered to be in the interest of the Company. If adjustments are made, they will be published and reported in the Financial Report for the relevant year.

2.8.2 Code of Conduct

Part of LyondellBasell's risk management and control system is the Company's Code of Conduct. The Code of Conduct covers such topics as fair an accurate business dealings, corruption, health and safety, discrimination, and environmental protection.

LyondellBasell upholds high ethical standards and is committed to complying with applicable laws and regulations. In addition to a Code of Conduct for all employees and directors, the Company has a Financial Code of Ethics specifically for our CEO, CFO, Chief Accounting Officer and persons performing similar functions. Copies of these codes can be found on our website at www.LyondellBasell.com by clicking on "Investors," then "Corporate Governance." Any waivers of the codes must be approved, in advance, by our Board, and any amendments to or waivers from the codes that apply to our executive officers and directors will be posted on the "Corporate Governance" section of our website.

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 LyondellBasell 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. 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.

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 in 17 languages. We take steps to ensure it is fully explained through annual trainings and other internal communications. 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.

All employees are required to complete training on the Code of Conduct each year 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 continuously reviewed and updated as necessary and made available to all employees in multiple languages. Excluding Code of Conduct training, in 2023, approximately 25% of the 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.

Our Human Rights Policy is guided by common principles found within the United Nations Universal Declaration on Human Rights and Guiding Principles for Business and Human Rights, and the International Labor Organization's Declaration on Fundamental Principles and Rights at Work, among others, and it sets forth our commitment to respecting human rights throughout our global operations. Each year we issue a Human Trafficking and Anti-Slavery Statement. In accordance with the requirements of the United Kingdom's Modern Slavery Act of 2015 and The California Transparency in Supply Chains Act of 2010, LyondellBasell makes information publicly available with respect to our efforts to ensure that slavery and human trafficking is not taking place in any of our supply chains an in any part of our business.

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 SEC.

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, human resources 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. 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, LyondellBasell 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. The Compliance Department also meets quarterly with the Human Resources, Internal Audit, and Global Security departments to discuss ongoing investigations and trends.

2.8.3 Conflicts of Interest

The Company has a Related Party Transaction Approval Policy, described, below, which requires disinterested members of the Audit Committee to review and approve certain transactions we may enter into with related parties, including members of the Board, executive officers, and certain shareholders. During 2023, all transactions requiring approval under the Policy were reviewed and approved by the Committee consistent with the Policy requirements. 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. Best practice provisions 2.7.3 through 2.7.5 of the Dutch Corporate Governance Code have been complied with.

In 2023, approximately 2,000 employees were required to certify compliance with 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 and antitrust policy and related competition laws. Responses to the questions were reviewed on a case-by-case basis and investigations were conducted into any alleged non-compliance. No violations were identified.

2.8.4 Related Party Transactions

We have adopted a written Related Party Transaction Approval Policy, which requires the disinterested members of the Audit Committee to review and approve certain transactions that we may enter into with related parties, including members of the Board, executive officers, and certain shareholders. The policy applies to any transaction:

- In the ordinary course of business with an aggregate value of $25 million or more,
- Not in the ordinary course of business, regardless of value, or
- With a value of $120,000 or more and in which an executive officer or non-executive director has a direct or indirect material interest.

Related party relationships are identified and disclosed on an ongoing basis, as well as through responses to annual questionnaires completed by all directors, director nominees, and executive officers.

We also indemnify members of our Board to the fullest extent permitted by law so that they will be free from undue concern about personal liability in connection with their service to the Company. Our Articles of Association establish this indemnification right, and we have also entered into agreements with each of our directors contractually obligating us to indemnify them.

The Audit Committee reviews all the relevant facts of each related party transaction, including the nature of the related person's interest in the transaction, and determines whether to approve the transaction by considering, among other factors, (i) whether the terms of the transaction are fair to the Company and on the same basis as those which could be obtained from non-related parties, (ii) the business reasons for the Company to enter into the transaction, (iii) whether the related party transaction would impair the independence of any independent Board member, and (iv) whether the transaction would present an improper conflict of interest for any director or executive officer of the Company. No director votes on approval or, unless requested by the Audit Committee, participates in the discussion of a related party transaction in which he or she has an interest. The Audit Committee also conducts an annual review of all transactions with related parties, including those that do not meet the thresholds for related party transactions described above.

The following is a description of related party transactions in existence since the beginning of fiscal year 2023.

Access Industries

In 2010, we entered into certain agreements with affiliates of Access Industries, including a registration rights agreement, which obligates us to register and bear the costs for the resale of equity securities owned by Access Industries or its affiliates, and a nomination agreement. Pursuant to the nomination agreement, Access Industries has the right to nominate individuals for appointment to the Board if certain ownership thresholds are met. Access Industries currently owns more than 18% of our outstanding shares and has nominated Mr. Benet, Mr. Buchanan and Ms. Kamsky pursuant to the nomination agreement. The Company entered into these agreements with Access Industries before it became publicly traded and the Related Party Transaction Approval Policy was adopted. Amendments to the nomination agreement are approved by disinterested directors.

Calpine Corporation

Calpine Corporation, the owner and operator of power plants across the United States and Canada, supplies power and steam to the Company's Houston refinery and is owned by a group of investors including a minority investment by Access Industries. The Audit Committee has approved, most recently in October 2020, the Company's contracts with Calpine, which were determined to be on terms fair to the Company and more advantageous than those offered by other parties. In 2023, the Company purchased approximately $67.3 million of power, steam, and water from Calpine and sold approximately $18.7 million of excess gas and raw water to Calpine.

Other Transactions & Relationships

The Board was also made aware of, and considered the fairness of, certain transactions and relationships between the Company and other organizations where our directors and director nominees have relationships. These transactions and relationships were also considered in evaluating the independence of our directors and director nominees. In particular, Mr. Buchanan, Ms. Kamsky each served as directors or advisors of companies with which LyondellBasell had commercial transactions in 2023. Each of these transactions was entered into on an arm’s length basis in the ordinary course of business, and no director initiated or participated in negotiation of the relevant purchases or sales or had any material interest in, or received any compensation in connection with, these transactions. In each case, the payments made or received by LyondellBasell fell below the greater of $1 million or 2% of the other company’s annual gross revenue.

2.8.5 Stakeholder Engagement

We recognize the value of regular and consistent communication with our stakeholders, and engage with our investors and other stakeholders on strategy, risk management, sustainability, corporate governance, executive compensation, and other matters. 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. We regularly review general governance trends and emerging best practices and welcome feedback from our shareholders and other stakeholders, which is brought to our Board and helps inform its decision-making process. 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, including through investor events, telephone and in-person conversations, employee discussions and surveys, customer discussions and surveys, community and local engagements, and social media interactions. 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. We recognize that different stakeholder groups have unique needs and expectations, and we tailor our engagement practices to ensure effective communication and collaboration with each group.

Customers—We regularly speak with customers to improve our products, respond to their needs and support sustainability commitments along the value chain. Customer surveys help us find ways to improve our products and customer service. Our sales representatives and technical experts work closely with customers to address concerns and provide product stewardship information. Customers regularly 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. 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 employees, including specific employee groups and young leader, diversity, inclusion and collaboration initiative leaders. Our Employee & Labor Relations group within People and Culture also receives employee feedback or concerns. And, 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 collaborate with industry and value chain partners to advance sustainable solutions. 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, business and civic leaders. We also participate in multiple industry associations across the U.S. including economic development corporations, chemical associations, environmental councils, local emergency planning committees and mutual aid organizations.

Non-governmental organizations—We regularly engage with NGOs. These engagements take place through one-on-one 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.

2.8.6 Dutch Corporate Governance Code

As a Dutch company, our governance practices are governed by the Code, a copy of which is available at www.mccg.nl/english. The Code contains a number of principles and best practices. The Code, in contrast to U.S. laws, rules and regulations, contains a "comply or explain" principle, offering the possibility to deviate from the Code and still be in compliance as long as any such deviations are explained. In certain cases, we have not applied the Code's practices and provisions and in those instances explain the non-application.

We conduct our operations in accordance with internationally accepted principles of good governance and best practice, while ensuring compliance with the corporate governance requirements applicable in the countries in which we operate. There is considerable overlap between the requirements we must meet under U.S. rules and regulations and the provisions of the Code and we comply with almost all of the provisions of the Code. For clarity purposes, we have listed below deviations from the Code and our reasons for deviating.

Code Section 2.1.6

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. Director candidates also must be willing and able to devote the time and attention necessary to engage in relevant, informed discussion and decision-making. Our Nominating and Governance Committee focuses on Board succession planning and refreshment and is responsible for recruiting and recommending nominees to the full Board for election. The Committee considers the qualifications, contributions, and outside commitments of each current director in determining whether he or she should be nominated for reelection. Many of our directors serve on the boards and board committees of other companies, and the Committee believes this service provides additional experience and knowledge that improve the functioning of our own Board. Our Board Profile provides general principles for the composition, expertise, background, diversity and independence of the Board and guides our Nominating and Governance Committee on the nomination and appointment of directors.

Our Board considers diversity a priority and seeks representation across a range of attributes, including race, gender, ethnicity, and nationality. Our Board remains committed to increasing the representation of women in its membership and targets at least one-third female directors and one-third-male directors, alongside continued focus on increasing the racial and ethnic diversity of the Board and provided no current director is required to resign to achieve these targets. While we did not achieve our goal of at least one-third female directors during 2023, we nominated Ms. Rita Griffin to fill a vacancy and be elected as director at our 2023 annual general meeting of shareholders. Thus, three of our eleven directors are female. In accordance with our Corporate Governance Guidelines, the Committee and any outside search firms engaged to assist in identifying potential director candidates include women and candidates from underrepresented populations in each pool from which a director candidate is selected. These recruitment efforts are evidenced by our current Board composition and the qualities and qualifications of our nominees. If each of our twelve director nominees for 2024 is elected, we will meet our goal of appointing at least one-third female directors.

Of the ten members on our Executive Committee, comprised of senior executives who lead LyondellBasell's businesses and functions, four are women, and together, our CEO and Executive Committee represent six different nationalities. This brings us closer to our long-term goals of achieving gender parity (approximately 50% women and 50% men) in global senior leadership. In addition, our Board remains committed to increasing the representation of women in its membership and targets at least one-third female directors and one-third male directors.

We are also committed to increasing the number of underrepresented senior leaders ("URP") in the U.S. to reflect the general population ratio by 2032. To meet these targets, we have set short-term goals to increase the number of female senior leaders globally and the number of underrepresented senior leaders in the U.S. by 50% by 2027, relative to a 2022 baseline, to at least 30% women and 30% URP. These ambitious goals demonstrate our commitment to having a diverse group of company leaders. Senior leaders, for the purposes of our diversity goals, refers to the approximately 400 employees that represent the top six job bands/categories of our employees and executives, excluding our CEO.

In 2023, we made progress towards our goals. As of December 31, 2023, women served in 25% of global senior leadership roles, 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.

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 from a 21% increase in senior leadership headcount.

Code Section 2.1.7

Our Board currently consists of eleven directors, three of whom (Mr. Benet, Mr. Buchanan, and Ms. Kamsky) were nominated by a shareholder pursuant to a nomination agreement. Under the provisions of the Code, but not under the NYSE listing standards, those three directors are not considered independent as a result of their affiliation with the shareholder that nominated them, which owns more than 10% of our shares. Under the Code, for each shareholder holding 10% or more of the Company's shares, at most one director may be on the Board. This deviation from the Code is a result of our obligation under the nomination agreement with an affiliate of Access Industries to nominate individuals to our Board. The Company entered into the nomination agreement before it became publicly traded; however, subsequent amendments to the nomination agreement have been approved by our Board members. The Board believes that each of the Access-nominated directors brings with him or her a level of skill, experience and qualifications that benefit the workings of the Board and therefore the Company's stakeholders generally. Please refer to our discussion of "Independence of Board Members" contained in Section 2.7 of this report.

Code Section 2.2.2

Members of the Board are elected for one-year terms; however, there is no limit on the number of terms a Board member may serve.

Currently, the Board does not believe there is a driving interest in limiting members to the “maximum of two four-year terms plus two two-year terms” provision of the Code. In 2023, Messrs. Aigrain, Benet and Buchanan, as well as Ms. Farley, were nominated and elected to serve on the Board, each having served as director for eight years or more as of the end of their elected term. The Board believes that a depth of history and knowledge of the Company, which can be developed through long-term service, continues to be key to an effective oversight of the Company, and that the Company's mandatory retirement age (as described below) and annual evaluation process for re-nominations are currently more effective means of ensuring Board refreshment and renewal, while also allowing for continuity of service. The Board revisits the provisions in its governing documents on at least an annual basis and may determine that limitations of the number of terms for Board members is appropriate. Notwithstanding any such determinations, under the nomination rights described above, as long as certain shareholders maintain their share ownership at required levels, they will be able to nominate individuals of their choosing; the result of which may be for individuals nominated by them to serve for longer than any Board-determined terms.

Code Section 2.2.4

We do not maintain a schedule of retirement for our directors, however. our Corporate Governance Guidelines, which are available on our website at www.LyondellBasell.com by clicking on “Investors,” then “Corporate Governance,” and our Rules for the Board of Directors, and Board Profile, which are available which are available by clicking further through “Board of Directors,” provide that directors will not be re-nominated for election to the Board after they reach the age of 75, which acts effectively as a retirement schedule. While the Board does not believe there is a specific age after which directors should no longer serve on boards, it does believe mandatory retirement ages are useful for promoting board refreshment. No waivers or exceptions to the rules have been granted and two directors retired in 2023. The Board believes that the mandatory retirement age and an annual evaluation process for deciding whether to re-nominate individuals for election are currently more effective means of ensuring board refreshment and renewal, while also allowing for continuity of service.

Code Section 3.1.2.v

The number of options and restricted stock units that we granted to our executives were determined based on an overall target of equity-based compensation, calculated as a percentage of base salary, rather than on the achievement of specified targets as is considered best practice under the Code. The targeted values of options and restricted stock units granted are determined based on peer group analyses to ensure competitive compensation for attracting and retaining our executives. No stock options were granted to our executive officers in 2024.

Code Section 3.1.2.vi

In contrast to best practices under provisions of the Code, we do not require all shares granted as compensation to be held for five years or until the end of employment. Instead, our C&TD Committee implemented share ownership requirements that restrict selling of shares by executives unless certain levels of equity are held. We believe that the share ownership guidelines appropriately ensure executives retain substantial equity to make certain their interests are aligned with shareholders while also allowing flexibility for diversification of personal wealth.

Code Section 3.1.2.vii

The stock options we have granted to our executive officers are exercisable before the third anniversary of the date of grant, as they vest ratably over three years, which is contrary to best practices provisions of the Code. We believe our vesting schedules are in line with the practices of our peer group used for executive compensation purposes. No stock options were granted to our executive officers in 2024.

Code Sections 3.2.3

Mr. Vanacker, our CEO and executive director, is a party to an employment agreement that provides for severance payments that are in excess of one year's base salary. Additional executives are participants in our Executive Severance Plan. The severance plan provides for severance payments in an amount equal to the executive's base salary plus target annual bonus (two times such amount in the event of certain termination circumstances within one year of a change in control) or, in the case of Mr. Vanacker, two times such amount (three times such amount in the event of certain termination circumstances within one year of a change in control). We believe that these severance arrangements are consistent with market practices and our peer group severance arrangements and are necessary to attract and retain qualified leaders.

Code Sections 3.3.2 and 3.3.3

Members of the Board have been granted restricted stock units as a portion of their annual remuneration. The restricted stock units entitle the recipient to an equal number of the Company's shares after certain time-based vesting requirements have been met. Additionally, Board members are allowed to receive shares of our common stock in lieu of their cash retainers. This is a deviation from the Code, which states that board members shall not be granted shares and/or rights to shares by remuneration.

The Company believes that granting shares and rights to acquire shares aligns the Board members' interests with those of shareholders, thereby increasing the incentives to make decisions that create long-term value for the Company.

Additionally, as part of their review of director compensation, the Nominating & Governance Committee and the Board consider, among other factors, the practices at a comparative group of public companies, based on market comparison studies. The companies in the comparative group offer some form of equity compensation. For that reason, among others, the Company believes that equity awards are reflective of the market and are necessary to attract and retain highly skilled individuals with relevant experience and to reflect the time and talent required to serve on the board of directors of a complex, multinational corporation.

Code Section 4.2.2

In February 2024, we adopted a Stakeholder Engagement Policy that includes provisions related to bilateral contacts with shareholders. The policy is available on our website at www.lyondellbasell.com by clicking on “Investors” and then “Corporate Governance.”

2.8.7 Shareholders and General Meeting of Shareholders

Powers

A general meeting of shareholders will be held at least once a year in the Netherlands. In this meeting, the following items are expected to be discussed and/or approved:

- The written report of the Board containing the course of affairs in LyondellBasell and the conduct of the management during the past financial year as disclosed in this Financial Report;
- The adoption of the annual accounts;
- The Company's reserves and dividend policy and justification thereof;
- The discharge of the members of the Board in respect of their duties during the previous financial year;
- Each material change in the Company's corporate governance structure (if any occurred); and
- Any other item the Board determines to place on the agenda.

The approval of the general meeting of shareholders and the Board is also required for resolutions regarding a significant change in the identity or character of LyondellBasell or its business, including in any event:

- A transfer of the business or virtually all of the business to a third party;
- Entry into or termination of long-term cooperation by the Company or a subsidiary with another legal entity or partnership or as a general partner with full liability in a limited or general partnership if such cooperation or the termination thereof is of far-reaching significance for the Company; and
- An acquisition or disposal by the Company or a subsidiary of a participation in the capital of another company, the value of which equals at least one-third of the amount of the assets according to the consolidated statement of financial position with explanatory notes attached to the annual accounts as most recently adopted.

Proposals placed on the agenda by the Board, or at the request of shareholders, provided that they have submitted the proposals in accordance with the provisions of LyondellBasell’s Articles of Association, will be discussed and decided. Shareholders are entitled to request items for the annual general meeting agenda no less than sixty days before the meeting, and provided that they represent at least one percent of LyondellBasell's issued share capital.

The Board may convene extraordinary general meetings as often as it deems necessary. Such meetings must be held if one or more shareholders and others entitled to attend the meetings jointly representing at least one-tenth of the issued share capital make a written request to that effect to the Board, specifying in detail the items to be discussed.

Information to shareholders

To ensure fair disclosure, LyondellBasell distributes Company information that may influence the share price to shareholders and other parties in the financial markets simultaneously and through means that are public to all interested parties.

When LyondellBasell's annual and quarterly results are published by means of a press release, interested parties, including shareholders, can participate through conference calls and view the presentation of the results on LyondellBasell's website. The schedule for communicating the annual financial results is in general published through a press release and is posted on LyondellBasell's website.

It is LyondellBasell's practice to post the presentations given to analysts and investors at investor conferences on its website. Information regarding presentations to investors and analysts and conference calls are announced in advance on LyondellBasell's website. Meetings and discussions with investors and analysts shall, in principle, not take place shortly before publication of regular financial information. LyondellBasell does not assess, comment upon, or correct analysts’ reports and valuations in advance, other than to comment on factual errors. LyondellBasell does not pay any fees to parties carrying out research for analysts’ reports, or for the production or publication of analysts’ reports, and takes no responsibility for the content of such reports.

At the annual general meetings of shareholders, shareholders will be provided with all requested information, unless this is contrary to an overriding interest of the Company. If this should be the case, the Board will provide its reasons for not providing the requested information.

Furthermore, the Investor Relations section on LyondellBasell's website provides links to information about LyondellBasell published or filed by LyondellBasell in accordance with applicable rules and regulations.

Relationship with Institutional Investors

LyondellBasell finds it important that its institutional investors participate in LyondellBasell's general meetings of shareholders. The Company believes that providing internet proxy voting achieves high levels of participation at the meeting.

2.8.8 Takeover Directive; Anti-Takeover Provisions and Control

General

The EU Takeover Directive requires that certain listed companies publish information providing insight into defensive structures and mechanisms which they apply. The relevant provision has been implemented into Dutch law by means of a decree of April 5, 2006. Pursuant to this decree, Dutch companies whose securities have been admitted to trading on an EU regulated market have to include information in their Financial Report which could be of importance for persons who are considering taking an interest in the company. The Company's shares are admitted to trading on the NYSE and not on any EU regulated markets.

According to provision 4.2.6 of the Code, we are required to provide a survey of our actual or potential anti-takeover measures, and to indicate in what circumstances it is expected that they may be used.

Accordingly, we have set out below a number of provisions in the Articles of Association that in a Dutch context technically are not necessarily considered to be anti-takeover measures, but which could restrict the ability of a controlling shareholder to effectively exercise control over the Company:

- As per article 12.3 of the Articles of Association, and subject to article 12.4, the appointment of a member of the Board shall take place by way of a binding nomination prepared by the Board. The general meeting of shareholders may render such nomination non-binding by means of a resolution adopted by at least two-thirds of the valid votes cast, such two-third majority representing more than one-half of the issued capital. In case of such a vote, the general meeting of shareholders will be free in its selection and appointment of a Board member to fill the vacancy by means of a resolution adopted by at least two-thirds of the valid votes cast, such two-third majority representing more than one-half of the issued capital. If the proportion of the share capital of at least one-half as referred to in the preceding sentence is not represented at the meeting, then no new meeting may be convened without such proportion of the share capital being represented; and

- As per article 22.1 of the Articles of Association, the Articles of Association may only be amended by the general meeting of shareholders on the proposal of the Board.

In the event of a hostile takeover bid, in general the Board reserves the right to use all powers available to it in the interests of the Company and its affiliated enterprise, taking into consideration the relevant interests of the Company's stakeholders.

2.8.9 Risk Management

A certain degree of risk is inherent in our business (see Section 2.2, “Risk Factors,” generally, as well as Section 2.1.3 “Outlook” with respect to risks to our business). Additionally, pursuing business strategies and objectives inevitably leads to taking risks. Risks can jeopardize strategies and objectives in various ways. Each type of risk we encounter is addressed in a manner and with the intensity that matches the nature and size of the risk in relation to the Company's risk appetite. The risk appetite is the total residual impact of risks that we are willing to accept in the pursuit of our objectives.

Effective risk management is a key factor for the Company in realizing its business and strategic objectives. Risk areas where we have low-risk appetite and thus accept a low residual risk require strong risk management and strong internal controls. The risk areas where we have a low-risk appetite include those relating to the safety of our employees, our assets, the environment and the communities in which we operate and those relating to legal and regulatory compliance.

Management and the Board are responsible for ensuring that LyondellBasell complies with applicable legislation and regulations. They are also responsible for the financing of LyondellBasell and for managing the internal and external risks related to its business activities.

The establishment of our internal risk management and control system is based on the identification of external and internal risk factors that could influence the operational and financial objectives of the Company, and contains a system of monitoring, reporting, and operational reviews.

To help identify risks, we use a formal enterprise risk management approach, consisting of a set of risks categories which are discussed amongst senior management at least annually, as described below. Based on this risk assessment, actions are initiated to further enhance the Company's risk mitigation.

The disclosure of the risks that potentially could have a significant impact on the Company's strategy execution, operations or financial position is derived in part from our internal risk assessment, comprising elements of the risk assessment model as mentioned in the Committee of Sponsoring Organizations of the Treadway Commission (“COSO”) report.

The Company publishes two Financial Reports in respect of the financial year (“2023 Financial Reports”): (i) a Statutory Financial Report in accordance with Dutch legal requirements in accordance with IFRS and International Financial Reporting Interpretation Committee (“IFRIC”) interpretations as adopted by the European Union and (ii) an Financial Report on Form 10-K in accordance with U.S. securities laws, based on the United States of America Generally Accepted Accounting Principles (“U.S. GAAP”). Both 2023 Financial Reports include risk factors that are specific to the petrochemical industry, LyondellBasell, and ownership of its shares. We also provide sensitivity analyses by including:

- A narrative explanation of its financial statements;
- The context within which financial information should be analyzed; and
- Information about the quality, and potential variability, of LyondellBasell's earnings and cash flow.

In the “Statements of the Board of Directors” (included in Section 2.8.11), the Board addresses the Company's internal risk management and control systems.

We are required to conduct an evaluation, under the supervision and with the participation of our CEO and CFO, of the effectiveness of the Company's internal control over financial reporting and, based on that evaluation, conclude whether the Company's internal control over financial reporting was effective as of December 31, 2023, providing reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with U.S. GAAP. PricewaterhouseCoopers LLP, the Company's independent registered accounting firm under U.S. securities rules and regulations, also reports on the effectiveness of the Company's internal control over financial reporting in its Consent of Independent Registered Public Accounting Firm as included in our 2023 Financial Report on Form 10-K for the year ended December 31, 2023.

For the Statutory Financial Report, the Company follows the requirements of Dutch law and regulations, including preparation of the consolidated financial statements in accordance with IFRS and IFRIC interpretations as adopted by the European Union. For the Financial Report on Form 10-K, the Company applies the requirements of the U.S. Securities and Exchange Act of 1934, and prepares the financial statements included therein in accordance with U.S. GAAP.

Our Disclosure Committee, consisting of various members of management from different business and functional areas within the Company. The Disclosure Committee reports to and assists the CEO and CFO in the maintenance, review and evaluation of disclosure controls and procedures. The Disclosure Committee's main responsibilities are to ensure compliance with applicable disclosure requirements arising under United States and applicable stock exchange rules.

Board's Role in Risk Oversight

Senior leadership is responsible for assessing and managing the Company’s day-to-day risks and related control systems. Our CEO manages the Company’s risk profile through his Executive Committee, comprised of senior executives who lead our business segments and key functions. Our CEO and his Executive Committee meet regularly to identify, monitor, assess, mitigate, and report risks. The members of the Executive Committee play an important role in managing risks, and they include, among others: our Chief Financial Officer, who oversees our tax, treasury, internal audit, financial, M&A and strategic planning functions; our General Counsel, who oversees our Enterprise Risk Management organization and our compliance and legal functions; our Chief Innovation Officer, who oversees information technology, cybersecurity, and data privacy; our Executive Vice President, Sustainability and Corporate Affairs, who is responsible for our sustainability strategy and reporting; our Executive Vice President, People and Culture, who is responsible for talent management and DEI initiatives; and our Executive Vice President, Operational Excellence and HSE, who oversees health, safety, and environmental risks. Senior leadership is supported by the Company’s Enterprise Risk Management organization, composed of employees dedicated to deploying our enterprise-wide risk management framework, and the standing Risk Management Committee, which is led by our CEO, CFO and General Counsel and reviews certain financial and strategic transactions for compliance with risk management policies and procedures. In addition, through a variety of policies and procedures, senior management is assisted by their respective leadership teams and organizations in identifying, monitoring, mitigating, and reporting risks and developing risk management plans aligned with the Company’s enterprise risk management framework. The results of the risk management processes and updates on material risks are reported to the Board and its committees on a regular basis.

Our Board is responsible for providing governance and oversight over the strategy, operations, and management of our Company. The primary means by which our Board oversees the Company’s short-, intermediate-, and long-term risks is through regular communication with management. At each Board meeting, members of management are asked to report to the Board and, when appropriate, specific committees. These presentations provide members of the Board with direct communication with management and the information necessary for a full understanding of the Company’s risk profile, including information regarding the Company’s strategy, specific risk environment, exposures potentially affecting our operations, and the Company’s plans to address such risks. In addition to providing general updates on the Company’s operational and financial condition, members of management report to the Board about the Company’s outlook, forecasts, and any impediments to meeting them or to successfully pursuing the Company’s strategy more generally. In 2023, management and the Board reviewed progress on the Company’s strategy at three of its regularly-scheduled meetings and discussed progress, challenges and lessons learned at its annual strategy meeting in July, including a deep dive review of the Value Enhancement Program.

Our Board leads our commitment to sustainability and maintains oversight of the Company’s ESG profile. Management reports on key sustainability topics and initiatives at each regularly scheduled Board meeting, and directors participate in a deep dive on sustainability strategy and actions at least annually. The Board’s Committees provide guidance regarding specific ESG issues in accordance with their charters and responsibilities, as also described below.

Environmental, Social, and Governance Matters—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 workshop 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, and 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 regularly-scheduled meetings.

Our C&TD Committee oversees our talent management practices, including compensation policies and practices, succession planning, and our DEI strategy, initiatives, and progress. The C&TD Committee monitors the Company’s compensation policies and practices to determine whether its risk management objectives are being met with respect to incentivizing its employees. The Company believes that its compensation arrangements do not encourage excessive risk taking and that its compensation programs and policies are not reasonably likely to have a material adverse effect on the Company. We recognize the importance of diversity at all levels of our organization, and our C&TD Committee reviews our progress on our DEI and talent development goals with management regularly to improve transparency and outcomes. DEI remained one of the four primary goal areas for our human resources department in 2023, and our EVP of People and Culture routinely updates the C&TD Committee on progress. In 2023, the Board reviewed succession planning, talent development and progress towards DEI goals at two of its regularly-scheduled meetings. The Board conducted a detailed discussion on DEI as part of its annual strategy session in July, reviewing details on initiatives to accelerate the attraction and development of diverse talent, close experience gaps, advance high potential and diverse leaders, and identify weaknesses in the talent pipeline.

Our Nominating and Governance Committee oversees the Company's corporate governance practices and related risks. The Nominating and Governance Committee reviews our corporate governance policies and Board committee charters annually and approves amendments as needed to align with evolving U.S. and Dutch governance best practices and regulatory developments. In 2023, our Nominating and Governance Committee reviewed updates to the Dutch Corporate Governance Code, approved amendments to various committee charters, and adopted a new Board profile establishing guidelines for the selection of director candidates. Our Nominating and Governance Committee is also responsible for Board succession planning, Board refreshment, and recruiting and recommending nominees to the full Board for election. In 2023, our Nominating and Governance Committee evaluated numerous candidates and successfully recruited our new director nominee.

Cybersecurity—We recognize the risk posed by global cybersecurity threats, and our Board is regularly updated on emerging risks and maintains oversight of the Company's cybersecurity program implemented to address them.

In 2023, management provided a detailed cybersecurity update to the Board and led discussions on specific cybersecurity and process control topics at its September meeting. The Audit Committee also reviewed updates to the Company's cybersecurity dashboard, which summarizes key security metrics and activities, at each of its regularly-scheduled meetings and participated in a detailed workshop at its August meeting, including a discussion led by members of PricewaterhouseCoopers' Cyber and Privacy Innovation Institute. The Company is not aware of any material incidents relating to the Company or third-party information systems security affecting the safety of our operations or ability to serve customers or significant breaches of personal information in the past three years. The Company had no fines from data protection authorities in the past three years and maintains a cybersecurity insurance policy.

In carrying out its oversight responsibility, the Board has delegated to individual Board committees certain elements of its oversight function.

Audit Committee

- Responsible for ensuring that an effective risk assessment process is in place, and reports are made by management to the Audit Committee in accordance with NYSE requirements.
- Oversees enterprise-wide financial risks and reviews cybersecurity performance and risk.
- Oversees financial statements, independent accountants, internal audit function, related party transactions, internal controls.
- Oversees compliance programs and EthicsPoint reporting helpline.

HSE&S Committee

- Reviews and monitors health and safety risks, programs, statistics and incidents (including major health, safety, environment and security events).
- Reviews and monitors environmental and sustainability risks, goals, trends and impacts, including climate initiatives and risk.
- Oversees sustainability reporting.

Finance Committee

- Oversees strategic transactions, including those that may impact our capital position.
- Reviews our tax strategy and planning.
- Reviews our capital structure, capital allocation, dividend policy, share repurchase programs, debt profile, and hedging strategies.

C&TD Committee

- Responsible for the Company's executive compensation programs, and evaluates risks in connection with such programs.
- Oversees talent management and related risks, including our DEI initiatives.
- Monitors talent management and responsible for management retention, recruitment, and succession planning.

Nominating & Governance Committee

- Oversees the Company's overall ESG profile and strategy.
- Reviews corporate governance practices and develops, reviews, and recommends corporate governance guidelines and policies.
- Responsible for director succession planning.

Management Oversight of ESG

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 LyondellBasell's 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, Circular and Low Carbon Solutions, who is building and leading a scalable, circular and low-carbon solutions business, and our Executive Vice President, People and Culture, who is responsible for the Company's vision and culture to enhance the employee experience, talent management, employee relations, reward and compensation, and diversity, equity and inclusion. Our Executive Committee meets regularly to review strategies, policies and risks related to sustainability and ESG topics.

In 2022, we promoted our Director, Global Sustainability to the role of Vice President and Chief Sustainability Officer ("CSO"). The 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 team that leads our GHG emissions reduction efforts, to bring together the functional expertise and skills needed to achieve our sustainability and ESG objectives.

In 2023, we formed our Sustainability Council which supports our Executive Committee in implementation of our sustainability strategy and facilitates information sharing and alignment of leaders responsible for delivering on sustainability goals.

Enterprise Risk Management Function

LYB's 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.

Enterprise Level Risks—Enterprise level risks are threats and opportunities that have the potential to impact LYB's overarching objectives, operations, and reputation. Our CEO and the Executive Committee play a key role in identifying, reviewing, and managing enterprise level risks. Each year, our ERM team leads a risk workshop with the CEO and his Executive Committee and senior leaders to refresh our enterprise risk profile. Together, the participants validate existing enterprise risks (both opportunities and threats), select new and emerging risks to add to the risk register, and ensure risk ownership is appropriately assigned across the organization. The updated enterprise risk profile is reviewed and approved by the Board annually at its September meeting. The direct line of communication between the Board, members of management, and the ERM function fosters a culture of accountability and collaboration throughout the organization, and allows the Board and its committees to better assess the management of the Company's day-to-day risks.

Departmental Risks—Departmental risks are specific to a particular business unit, project, or operational area within the organization, and are identified through surveys, workshops, and interviews facilitated by the ERM team. Workshops are conducted periodically to validate existing risks, identify new and emerging risks, and assign individual risk ownership. Common risks across multiple departments are elevated to the Executive Committee. This dual approach blends both top-down and bottom-up perspectives and cultivates a culture where risk considerations are intrinsic to decision-making processes. Climate Change Risk Management

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. Our Executive Vice President, Operational Excellence and HSE orsees climate-related risk exposures throughout LYB and our extended supply chain, supported by our Operational Excellence, Sustainability, and ERM organizations and cross-functional sterring commitees. We address specific climate-related risks through structured response plans, which are implemented through our Sustainability Council and NetZero Transition Steering 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.

Building Risk Management Capabilities—The ERM function spearheads various initiatives focused on cultivating skills, processes, and tools essential for robust risk identification, assessment, and mitigation across all organizational tiers. One such initiative is the Global Risk Champions Network, a diverse group of LYB employees who serve as a bridge between the ERM function and the broader business. Our Risk Champions facilitate cross-functional communication, integrate risk considerations across different business functions, and foster collaboration and a unified approach to risk management throughout LYB.

Risk Management and Control Systems

The management of the Company is primarily responsible for the design, implementation and integration of the Company's internal risk management and control systems. The purpose of these systems is to effectively respond to and manage the significant risks to which the Company is exposed. Such systems can never provide absolute assurance regarding achievement of corporate objectives, nor can they provide an absolute assurance that material errors, losses, fraud and the violation of laws or regulations will not occur.

To adhere to our duties in the area of internal risk management and control systems, the Company has designed and implemented an enterprise risk management process.

Enterprise risks are threats and opportunities identified by our management which may have significant consequences or benefits impacting key objectives and the ability to deliver the strategy. The identification and assessment of enterprise risks is conducted in accordance with the LyondellBasell ERM framework which is based on the COSO Enterprise Risk Management model and ISO 31000 International Standard for Risk Management.

Updates concerning the significant business risks identified during the annual enterprise risk assessment are reported to the Board for review. A profile of our enterprise risks is provided to the Board at least annually, with some risks incorporated into key decision-making processes outside of the formal enterprise risk management process.

The Company's enterprise risks, as identified in accordance with the described process, are each assigned to a member of the senior management team as a risk owner. The identified owner is responsible for utilizing the ERM framework to assess the impact and develop actions to effectively manage his or her assigned risks. In addition, the Audit Committee of the Board is responsible for ensuring that an effective risk assessment process is in place, and reports are made regularly to the Audit Committee on financial and compliance risks in accordance with requirements of the NYSE.

In addition, department risks, that are not reportable to the Board are assessed and managed at the business/functional level with executive leadership. These department-focused enterprise risk assessments utilize the ERM framework and are an evergreen process conducted on a regular cadence incorporating the business segments, manufacturing operations and the critical business support functions.

We use various other measures to ensure adherence to our duties in the area of internal risk management and control systems, including:

- Operational review meetings of the Board with LyondellBasell's senior management on financial performance and realization of operational objectives and responses to emerging issues;
- Monthly meetings with LyondellBasell's CEO, CFO and senior finance management focusing on monthly financial figures and internal control evaluations;
- Monthly and quarterly financial reporting, primarily to LyondellBasell's senior management;
- Letters of representation that are signed by LyondellBasell's key personnel on a quarterly basis in which they confirm that for their responsible area and based upon their knowledge (i) an effective system of internal controls and procedures is maintained and (ii) the financial reports fairly present the financial position, results of operations and cash flows;
- Assessments by LyondellBasell's Disclosure Committee with respect to the timely review, disclosure, and evaluation of periodic (financial) reports;
- Discussions on process safety, product safety, environmental and security matters within the HSE&S Committee of the Board;
- Discussions on management letters and audit reports provided by the Company's internal and external auditors to the Audit Committee of the Board;
- Corporate policies assigning responsibility for identification and management of risks;
- LyondellBasell's Code of Conduct;
- LyondellBasell's Financial Code of Ethics applicable to the CEO, CFO and Chief Accounting Officer;
- LyondellBasell's Ethics Hotline and whistleblower procedures; and
- LyondellBasell's Compliance programs and training, which facilitate the development of controls which will aid in prevention, deterrence and detection of fraud against LyondellBasell.

2.8.10 Audit of Financial Reporting

Financial Reporting

LyondellBasell has comprehensive internal procedures in place for the preparation and publication of Financial Reports, annual accounts, quarterly figures, and all other financial information. These internal procedures are frequently discussed in the Audit Committee and the Board of Directors. The Company's Disclosure Committee assists the Company's management in overseeing LyondellBasell's disclosure activities and ensures compliance with applicable disclosure requirements arising under U.S. and Dutch law and regulatory requirements.

The Audit Committee reviews and approves the external auditor's audit plan for the audits planned during the financial year. The audit plan also includes the activities of the external auditor with respect to their reviews of the quarterly results other than the annual accounts. These reviews are based on agreed upon procedures and are approved by the Audit Committee. The external auditor regularly updates the Audit Committee on the progress of the audits and other activities.

Appointment, Role, Assessment of the Functioning of the External Auditor, and the Auditor's Fee

In accordance with Dutch law, LyondellBasell's external auditor is appointed by the general meeting of shareholders and is nominated for appointment by the Board upon advice from the Audit Committee. LyondellBasell's current external auditor for its Dutch statutory accounts is PricewaterhouseCoopers Accountants N.V. ("PwC"), and the Board, on the recommendation of the Audit Committee, is proposing shareholders appoint PwC as its auditor to audit the 2024 Dutch statutory accounts at the 2024 annual general meeting.

The Audit Committee reports annually to the Board on the functioning of, and the developments in, the relationship with of the external auditor as required by the Dutch Corporate Governance Code.

The external auditor has functioned to the satisfaction of the Audit Committee.

Annually, the Audit Committee provides the Board with a report on the relationship with the external auditor, including the required auditor independence. To determine the external auditor's independence, the relationship between the audit services and the non-audit services provided by the external auditor is important, as well as the rotation of the responsible lead audit partner every five years. Non-audit services (including tax fees and non-audit-related fees) performed by the external auditor comprised less than ten percent of the external auditor's services in 2023. Based on the proportion audit fees versus non-audit related fees, it was concluded and confirmed by the external auditor that the external auditor acts independently.

The external auditor will be present at the 2024 annual general meeting to respond to questions, if any, from the shareholders about the auditor's report on the financial statements.

The Audit Committee, on behalf of the Board, approves the remuneration of the external auditor as well as the non-audit services to be performed, after consultation with the CFO. It has been agreed among the members of the Board that the Audit Committee has the most relevant insight and experience to be able to approve both items, and therefore the Board has delegated these responsibilities to the Audit Committee.

The external auditor attends all meetings of the Audit Committee, unless this is deemed not necessary by the Audit Committee. The findings of the external auditor are discussed at these meetings.

The Audit Committee reports on all issues discussed with the external auditor to the Board, including the external auditor's report with regard to the audit of the annual accounts as well as the content of the annual accounts. In the audit report, the external auditor refers to the financial reporting risks and issues that were identified during the audit, internal control matters, and any other matters requiring communication under the auditing standards generally accepted in the Netherlands and in the United States.

Internal Audit Function

The internal audit function of LyondellBasell forms one of the key elements to address the topics of risk management and internal control over financial reporting as required under the Code and the Sarbanes-Oxley Act, respectively. To ensure the independence of this function, the Company's head of internal audit reports to the Audit Committee and the Chief Financial Officer. The external auditor and the Audit Committee are involved in formulating the work schedule and audit scope of the audit department. The head of internal audit regularly provides updates on their findings to the Audit Committee.

2.8.11 Statements of the Board of Directors

The management of the Company is responsible for the preparation of the Annual Accounts and the Financial Report of LyondellBasell Industries N.V. ("LyondellBasell N.V.") for the year ended December 31, 2023 in accordance with applicable Dutch law and IFRS as adopted by the European Union and with Part 9 of Book 2 of the Dutch Civil Code. As required by Section 5:25C(2)(c) of the Dutch Financial Markets Supervision Act ("Wet op het financieel toezicht") and on the basis of the foregoing and the explanations contained in Section 2.8.9 "Risk Management," the Board confirms that to the best of its knowledge:

- The LyondellBasell N.V. 2023 Annual Accounts give a true and fair view of the assets, liabilities, financial position and profit or loss of LyondellBasell N.V. and the entities included in the consolidation taken as a whole; and
- The LyondellBasell N.V. 2023 Financial Report gives a true and fair view of the development and performance of LyondellBasell N.V. and the entities included in the consolidation taken as a whole as at December 31, 2023 and the state of the affairs during the financial year to which the report relates and describes the principal risks facing LyondellBasell N.V. and a discussion of the principal risks and uncertainties.

Based on the outcome of the measures described under Section 2.8.9, "Risk Management" and to the best of its knowledge and belief, the Board states that:

Risk Management and Control Systems, Reporting on Going-concern Basis

Based on the current state of affairs, it is justified that the financial reporting is prepared on a going concern basis, and the Financial Report disclose all material risks and uncertainties that are relevant regarding the expectation as to the continuity of LyondellBasell N.V. for the 12-month period after the date of issue of this Financial Report. The Financial Report provides sufficient insights into any important deficiencies in the effectiveness of the internal risk management and control systems that were detected during the 2023 fiscal year. The aforementioned systems provide reasonable assurance that the Annual Accounts do not contain any material errors.

Evaluation of Disclosure Controls and Procedures

Employees within the Company, with the participation of our CEO and our CFO have evaluated the effectiveness of our disclosure controls and procedures in ensuring that the information required to be disclosed in reports in accordance with International Financial Reporting Standards as adopted by the European Union that we file or submit to the Chamber of Commerce in The Netherlands, as amended, is recorded, processed, summarized and reported within the time periods specified in the Dutch Law, including ensuring that such information is accumulated and communicated to management as appropriate to allow timely decisions regarding required disclosure. Based on such evaluation, our CEO and CFO have concluded that such disclosure controls and procedures were effective as of December 31, 2023, the end of the period covered by this Financial report.

Internal Control over Financial Reporting

The establishment of LyondellBasell's internal control and risk management systems is based on the identification of external and internal risk factors that could influence the operational and financial objectives of the Company and contains a system of monitoring, reporting and operational reviews. All material risk management activities have been discussed with the Audit Committee and the Board.

Financial Statements

The Report of the Independent Auditor, PricewaterhouseCoopers Accountants N.V., is included in the "Other Information." The financial statements are being presented for adoption by shareholders at the 2024 annual general meeting. The Board recommends that shareholders adopt these financial statements.

April 4, 2024

The Board of Directors

/s/ Peter Vanacker	/s/ Jacques Aigrain
Peter Vanacker	Jacques Aigrain
/s/ Lincoln Benet	/s/ Robin W.T. Buchanan
Lincoln Benet	Robin W.T. Buchanan
/s/ Anthony R. Chase	/s/ Robert W. Dudley
Anthony R. Chase	Robert W. Dudley
/s/ Claire S. Farley	/s/ Rita Griffin
Claire S. Farley	Rita Griffin
/s/ Michael S. Hanley	/s/ Virginia A. Kamsky
Michael S. Hanley	Virginia A. Kamsky
/s Albert J. Manifold	
Albert J. Manifold	

CONSOLIDATED FINANCIAL STATEMENTS

LYONDELLBASELL INDUSTRIES N.V.
CONSOLIDATED STATEMENT OF INCOME

Millions of U.S. Dollars, except per share data	Note	Year Ended December 31, 2023	2022
Revenue	6	$ 41,139	$ 51,739
Cost of sales	7	36,251	45,344
Gross profit		4,888	6,395
Selling costs	7	482	421
Administrative expenses	7	1,189	1,005
Impairments	15, 16, 17, 31	616	69
Other (income) expense, net	4, 11	45	(65)
Operating profit		2,556	4,965
Finance income - Interest income		134	32
Finance costs	12	(617)	(430)
Share of profit of investments accounted for using the equity method	18	68	16
Profit before income tax		2,141	4,583
Income tax expense	13	(347)	(785)
Profit for the year		1,794	3,798
Attributable to:			
Profit attributable to			
Owners of the Company		1,794	3,798
Non-controlling interests		—	—
		$ 1,794	$ 3,798
Earnings per share:			
Basic	14	$ 5.48	$ 11.56
Diluted	14	5.46	11.54

See Notes to the Consolidated Financial Statements.

LYONDELLBASELL INDUSTRIES N.V.
CONSOLIDATED STATEMENT OF COMPREHENSIVE INCOME

Millions of U.S. Dollars	Note	Year Ended December 31, 2023	2022
Profit for the year		$ 1,794	$ 3,798
Other comprehensive income/ (loss), net of tax—			
Items that will not be reclassified subsequently to profit or loss:			
Remeasurements of post-employment benefits obligations	26	(103)	386
Income tax benefit (expense) from re-measurements of post-employment benefits obligations	13	28	(107)
		(75)	279
Items that may be reclassified subsequently to profit or loss:			
Net movement on cash flow hedges	4	(141)	307
Amount reclassed out of other comprehensive income to net income	4	39	(53)
Income tax benefit (expense) on cash flow hedges	13	27	(55)
		(75)	199
Cost of net investment hedges		2	(4)
Income tax benefit (expense) on net investment hedges	13	—	1
		2	(3)
Currency translation of foreign operations		151	(321)
Net movement in net investment hedges		(110)	237
Income tax benefit (expense) on net investment hedges	13	31	(60)
		72	(144)
Other comprehensive income (loss), net of tax		(76)	331
Total comprehensive income		$ 1,718	$ 4,129
Attributable to:			
Owners of the Company		1,718	4,129
Non-controlling interest		—	—
		$ 1,718	$ 4,129

See Notes to the Consolidated Financial Statements.

LYONDELLBASELL INDUSTRIES N.V.
CONSOLIDATED STATEMENT OF FINANCIAL POSITION

		December 31,	
Millions of U.S. Dollars	**Note**	**2023**	**2022**
ASSETS			
Non-current assets:			
Intangible assets	15	$ 2,079	$ 2,342
Property, plant and equipment, net	16	18,973	19,160
Right-of-use assets	17	1,671	1,867
Investments in associates and joint ventures	18	1,160	1,138
Deferred income tax assets	25	329	235
Derivative financial instruments	4	79	179
Other	20	285	223
Total non-current assets		24,576	25,144
Current assets:			
Inventories	19	5,501	5,790
Trade and other receivables	20	4,297	4,877
Derivative financial instruments	4	190	153
Income tax receivable		290	296
Assets classified as held for sale	5	407	—
Cash and cash equivalents	21	3,533	2,389
Total current assets		14,218	13,505
Total assets		$ 38,794	$ 38,649

See Notes to the Consolidated Financial Statements.

LYONDELLBASELL INDUSTRIES N.V.
CONSOLIDATED STATEMENT OF FINANCIAL POSITION

		December 31,	
Millions of U.S. Dollars	**Note**	**2023**	**2022**
EQUITY AND LIABILITIES			
Equity attributable to the owners of the Company:	22		
Share capital		$ 19	$ 19
Share premium		194	169
Other reserves		(1,323)	(1,247)
Retained earnings		15,469	15,294
Treasury shares		(1,450)	(1,346)
Total Company share of shareholders’ equity		12,909	12,889
Non-controlling interests	23	14	14
Total equity		12,923	12,903
Non-current liabilities:			
Borrowings	24	10,962	11,190
Lease liabilities	17	1,575	1,654
Deferred income tax liability	25	2,940	3,005
Retirement benefit obligations	26	1,175	1,025
Derivative financial instruments	4	300	252
Provisions	28	514	494
Accruals and deferred income		336	381
Total non-current liabilities		17,802	18,001
Current liabilities:			
Trade and other payables	27	5,856	5,994
Income tax payable		272	367
Borrowings	24	1,115	918
Lease liabilities	17	389	372
Derivative financial instruments	4	243	68
Provisions	28	73	26
Liabilities related to assets classified as held for sale	5	121	—
Total current liabilities		8,069	7,745
Total liabilities		25,871	25,746
Total equity and liabilities		$ 38,794	$ 38,649

See Notes to the Consolidated Financial Statements.

LYONDELLBASELL INDUSTRIES N.V.
CONSOLIDATED STATEMENT OF CHANGES IN EQUITY

Millions of U.S. Dollars	Note	Share Capital	Share Premium	Treasury Shares	Other Reserves	Retained Earnings	Equity attributable to the owners of the Company	Non-Controlling Interest	Total Equity
Balance at January 1, 2022		$ 19	$ 94	$ (965)	$ (1,578)	$ 14,749	$ 12,319	$ 14	$ 12,333
Transactions with owners:									
Shares purchased	22	—	—	—	—	—	—	—	—
Common Stock dividends paid relating to 2022	22	—	—	—	—	(3,246)	(3,246)	—	(3,246)
Preferred stock dividends paid		—	—	—	—	(7)	(7)	—	(7)
Employees share-based payments:									
Issuance of shares		—	75	25	—	(4)	96	—	96
Excess deferred tax on shares		—	—	—	—	4	4	—	4
Purchase of Ordinary Company Shares		—	—	(406)	—	—	(406)	—	(406)
		19	169	(1,346)	(1,578)	11,496	8,760	14	8,774
Comprehensive income for the period:									
Profit for the year		—	—	—	—	3,798	3,798	—	3,798
Other comprehensive income (loss):									
Financial derivatives		—	—	—	196	—	196	—	196
Remeasurements of post-employment benefit obligation	13/26	—	—	—	279	—	279	—	279
Currency translation differences		—	—	—	(144)	—	(144)	—	(144)
Total Comprehensive income (loss) for the period		—	—	—	331	3,798	4,129	—	4,129
Balance at December 31, 2022		$ 19	$ 169	$ (1,346)	$ (1,247)	$ 15,294	$ 12,889	$ 14	$ 12,903

See Notes to the Consolidated Financial Statements.

LYONDELLBASELL INDUSTRIES N.V.
CONSOLIDATED STATEMENT OF CHANGES IN EQUITY

Millions of U.S. Dollars	Note	Share Capital	Share Premium	Treasury Shares	Other Reserves	Retained Earnings	Equity attributable to the owners of the Company	Non-Controlling Interest	Total Equity
Balance at January 1, 2023		$ 19	$ 169	$ (1,346)	$ (1,247)	$ 15,294	$ 12,889	$ 14	$ 12,903
Transactions with owners:									
Shares purchased	22	—	—	—	—	—	—	—	—
Common Stock dividends paid relating to 2023	22	—	—	—	—	(1,610)	(1,610)	—	(1,610)
Preferred stock dividends paid		—	—	—	—	(7)	(7)	—	(7)
Employees share-based payments:									
Issuance of shares		—	25	107	—	(6)	126	—	126
Excess deferred tax on shares		—	—	—	—	4	4	—	4
Purchase of Ordinary Company Shares		—	—	(211)	—	—	(211)	—	(211)
		19	194	(1,450)	(1,247)	13,675	11,191	14	11,205
Comprehensive income for the period:									
Profit for the year		—	—	—	—	1,794	1,794	—	1,794
Other comprehensive income (loss):									
Financial derivatives		—	—	—	(73)	—	(73)	—	(73)
Remeasurements of post employment benefit obligation	13/26	—	—	—	(75)	—	(75)	—	(75)
Currency translation differences		—	—	—	72	—	72	—	72
Total Comprehensive income (loss) for the period		—	—	—	(76)	1,794	1,718	—	1,718
Balance at December 31, 2023		$ 19	$ 194	$ (1,450)	$ (1,323)	$ 15,469	$ 12,909	$ 14	$ 12,923

See Notes to the Consolidated Financial Statements.

LYONDELLBASELL INDUSTRIES N.V.
CONSOLIDATED STATEMENT OF CASH FLOWS

		Year Ended December 31,	
Millions of U.S. Dollars	Note	2023	2022
Cash flows from operating activities:			
Profit before income tax		$ 2,141	$ 4,583
Adjustments for:			
Depreciation and amortization	7	2,140	1,784
Impairments	15, 16, 17, 18, 31	616	69
Share-based compensation	9	91	70
Finance cost, net		617	430
Other expense, net	11	45	(65)
Share of profit of investments accounted for using the equity method	18	(68)	(16)
Changes in working capital relating to:			
(Increase) decrease in trade receivables		321	940
(Increase) decrease in inventories		311	142
Increase (decrease) in trade payables		(48)	(77)
Other, net		(94)	(353)
Cash generated from operations		6,072	7,507
Interest paid		(436)	(328)
Net income taxes paid		(465)	(746)
Net cash from operating activities		5,171	6,433
Cash flows from investing activities:			
Purchase of property, plant and equipment		(1,639)	(1,894)
Proceeds from the sale of equity securities at fair value through profit and loss (FVTPL)		—	8
Purchases of business, associates and joint ventures	18	(231)	(19)
Net proceeds from sale of business, associates and joint ventures		—	15
Proceeds from settlement of net investment hedges		903	614
Payments for settlement of net investment hedges		(820)	(501)
Interest received		20	32
Dividends received from associates and joint ventures	18	127	258
Other, net		(112)	(235)
Net cash used in investing activities		(1,752)	(1,722)

See Notes to the Consolidated Financial Statements.

LYONDELLBASELL INDUSTRIES N.V.
CONSOLIDATED STATEMENT OF CASH FLOWS

Millions of U.S. Dollars	Note	Year Ended December 31, 2023	2022
Cash flows from financing activities:			
Repurchase of Company ordinary shares	22	$ (211)	(420)
Repayments of borrowings	24	(425)	(103)
Proceeds from borrowings	24	551	—
Repayments of short-term debt		—	—
Costs Related to Repayment of long-term debt		—	—
Net repayments from commercial paper	24	(200)	(4)
Dividends paid	22	(1,610)	(3,246)
Preferred stock dividend paid		(7)	(7)
Purchase of non-controlling interest		—	—
Principal elements of lease payments		(416)	(382)
Payments on forward starting interest rate swaps that include financing elements		—	(48)
Proceeds from forward starting interest rate swaps		20	286
Settlement of cross currency swaps		—	—
Proceeds from settlement of hedge derivative contract		—	—
Payments for settlement of hedge derivative contract		—	—
Other, net		(11)	33
Net cash used in financing activities		(2,309)	(3,891)
Net (decrease) increase in cash and cash equivalents		$ 1,110	$ 820
Cash and cash equivalents at beginning of period		2,389	1,626
Exchange rate differences		34	(57)
Cash and cash equivalents at end of the period	21	$ 3,533	$ 2,389

See Notes to the Consolidated Financial Statements.

1. General

LyondellBasell Industries N.V. is a limited liability company (*Naamloze Vennootschap*) incorporated under Dutch law by deed of incorporation dated October 15, 2009. Unless otherwise indicated, the "Company," "we," "us," "our" or similar words are used to refer to LyondellBasell Industries N.V. together with its consolidated subsidiaries ("LyondellBasell N.V.").

LyondellBasell N.V. is a worldwide manufacturer of chemicals and polymers, a refiner of crude oil, a significant producer of gasoline blending components and a developer and licensor of technologies for the production of polymers.

LyondellBasell Industries N.V.'s shares are listed on the New York Stock Exchange ("NYSE"). The address of our principal executive offices is 4th Floor, One Vine Street, London, W1J0AH, The United Kingdom. Our registered office address is Delftseplein 27E, 3013 AA Rotterdam, The Netherlands and is registered at the chamber of commerce under number 24473890. Our other principal office is 1221 McKinney St., Suite 300 Houston, Texas, USA 77010.

The Consolidated Financial Statements for the year ended December 31, 2023 of LyondellBasell N.V. were approved for issue by the Board of Directors on April 4, 2024.

The Consolidated Financial Statements are subject to adoption by the Annual General Meeting of Shareholders on May 24, 2024.

2. Summary of Material Accounting Policies

Basis of Preparation and Consolidation

The Consolidated Financial Statements of LyondellBasell N.V. and its subsidiaries have been prepared in accordance with International Financial Reporting Standards ("IFRS") and International Financial Reporting Interpretation Committee ("IFRIC") interpretations as issued by the International Accounting Standards Board ("IASB") and as adopted by the European Union.

Subsidiaries are entities over which the Company has control. The Company controls an entity when the Company is exposed to, or has rights to, variable returns from its involvement with the entity and has the ability to affect those returns through its power over the entity. Subsidiaries are fully consolidated from the date on which control is transferred to the Company. They are deconsolidated from the date that control ceases. All intercompany transactions and balances have been eliminated in consolidation.

As the corporate financial information of LyondellBasell Industries N.V. is included in the Consolidated Financial Statements, the Corporate Statement of Income is presented in abbreviated format in accordance with Section 402, Book 2 of Dutch Civil Code.

The Consolidated Financial Statements have been prepared under the historical cost convention, except as noted for the use of fair value. Accounting policies of subsidiaries, associates and joint arrangements have been changed as needed to ensure consistency with the accounting policies adopted by the Company.

New and Amended Standards Adopted

The following amendments were effective January 1, 2023 and did not result in a material impact on our Consolidated Financial Statements.

Amendments to IAS 1 and IFRS Practice Statement 2—The amendments require entities to disclose their material rather than their significant accounting policies. The amendments define what is 'material accounting policy information' and explain how to identify when accounting policy information is material.

Amendments to IAS 8, Definition of Accounting Estimates—The amendment clarifies how companies should distinguish changes in accounting policies from changes in accounting estimates. The distinction is important, because changes in accounting estimates are applied prospectively to future transactions and other future events, but changes in accounting policies are generally applied retrospectively to past transactions and other past events as well as the current period.

Amendments to IAS 12 Income taxes—The amendments introduce a temporary mandatory relief from accounting for deferred taxes that arise from Pillar Two legislation. We have applied the exception to recognizing and disclosing information about deferred tax assets or liabilities related to Pillar Two as required by the amendments to IAS 12.

Accounting Guidance Issued But Not Adopted as of December 31, 2023

Amendments to IAS 7, Statement of Cash Flows and IFRS 7, Financial Instruments—The new disclosure requires an entity to disclose certain qualitative and quantitative information about supplier financing arrangements including the key terms and conditions, payment terms, the amount of liabilities outstanding under the arrangements and the portion for which the supplier received payment from the finance provider. Early adoption is permitted. We are currently assessing the impact of the guidance on our Consolidated Financial Statements.

Amendments to IAS 1, Classification of Liabilities as Current or Non-current—The amendments clarify that liabilities should be classified as either current or non-current, depending on the rights and obligations that exist at the end of the reporting period and should be unaffected by the expectations of the entity or events after the reporting date. The amendments are effective from January 1, 2024 and must be applied retrospectively. Early adoption is permitted. We are currently assessing the impact of the guidance on our Consolidated Financial Statements.

Other—The Corporate Sustainability Reporting Directive ("CSRD") was adopted by the European Parliament in November 2022 and published in the Official Journal in December 2022. Its purpose is to increase transparency in environment, social affairs and governance matters across companies through enhanced disclosure. The reporting directive will be effective for us for the fiscal year ended 2025.

Summary of material accounting policies

Investments in Associates and Joint Arrangements—Investments in entities over which we have the right to exercise significant influence but not control are classified as investments in associates. Significant influence generally exists if we have an ownership interest representing between 20% and 50% of the voting rights. Arrangements under which we have contractually agreed to share control with another party or parties are joint arrangements, and classified either as joint operations or joint ventures depending on the contractual rights and obligations that each investor has rather than the legal structure of the joint arrangement. The Company has assessed the nature of its joint arrangements and determined that it has both joint operations and joint ventures.

The Company recognizes its share of the assets, liabilities, revenue and expenses of joint operations on a line by line basis in the Consolidated Financial Statements. Interests in associates and joint ventures are accounted for using the equity method, are initially recognized at cost and subsequently adjusted for our share of profit or loss, other comprehensive income ("OCI") and distributed dividends. Where our share of the losses in an equity method investment equals or exceeds our interest in the entity, including any other unsecured long-term receivables, we do not recognize further losses unless we have incurred legal or constructive obligations on behalf of the other entity. Unrealized gains and losses on other transactions with the associates and joint arrangements are eliminated to the extent of our interest in them.

At each reporting date, we determine whether there is any objective evidence of impairment of our investments in associates or joint ventures. If an impairment is indicated, we calculate the amount of impairment as the difference between the recoverable amount of the associate or joint venture and its carrying value and recognize the amount as a component of our Share of profit/(loss) of investments accounted for using the equity method in the Consolidated Statement of Income.

Foreign Currency Translation and Remeasurement—Functional and Reporting Currency—The consolidated financial statements are presented in U.S. dollars which is the functional currency of LyondellBasell N.V. Items included in the financial statements of each of LyondellBasell N.V.'s entities are measured using the respective functional currency which is the currency used in the primary economic environment in which the entity operates ("the functional currency") and then translated to the U.S. dollar ("the reporting currency") as follows:

- Assets and liabilities are translated at the closing rate at the reporting date;
- Income and expenses are translated at average exchange rates for the period presented; and
- All resulting exchange differences are recognized as a separate component within Other comprehensive income (currency translation of foreign operations).

Foreign Currency Transactions and Balances—Foreign currency transactions are recorded in their respective functional currency using exchange rates prevailing at the transaction date. Foreign exchange gains and losses resulting from the settlement of such transactions and from the remeasurement of monetary assets and liabilities denominated in foreign currencies at year-end exchange rates are recognized in our Consolidated Statements of Income.

Foreign exchange gains and losses that relate to borrowings and cash and cash equivalents are presented in the Consolidated Statement of Income within Finance costs. All other foreign exchange gains and losses are presented in the Consolidated Statement of Income within Other expense, net.

Segment Reporting—Our operations are managed through six operating segments managed by senior executives who report to our Chief Executive Officer, the chief operating decision maker. Discrete financial information is available for each of the segments. Our chief operating decision maker uses earnings from continuing operations before interest, income taxes, and depreciation and amortization ("EBITDA") as our measure of profitability for segment reporting purposes. This measure of segment results is used by our chief operating decision maker to assess the performance of, and allocate resources to, our operating segments.

Effective January 1, 2023, our *Catalloy* and polybutene-1 businesses were moved from our Advanced Polymer Solutions segment and reintegrated into our Olefins and Polyolefins-Americas and Olefins and Polyolefins-Europe, Asia, International segments. Segment information provided within has been revised for all periods presented to reflect these changes.

Revenue Recognition—Substantially all our revenues are derived from contracts with customers. We account for contracts when both parties have approved the contract and are committed to perform, the rights of the parties and payment terms have been identified, the contract has commercial substance, and collectability is probable.

Revenue is recognized when obligations under the terms of a contract with our customer are satisfied. This generally occurs at the point in time when performance obligations are fulfilled and control transfers to the customer. In most instances, control transfers upon transfer of risk of loss and title to the customer, which usually occurs when we ship products to the customer from our manufacturing facility. Revenue is measured as the amount of consideration we expect to receive in exchange for transferring goods. Customer incentives are generally based on volumes purchased and recognized over the period earned. Sales, value added, and other taxes that we collect concurrent with revenue-producing activities are excluded from the transaction price as they represent amounts collected on behalf of third parties. We apply the practical expedient to recognize the incremental costs of obtaining a contract as an expense when incurred if the amortization period of the asset that we otherwise would have recognized is one year or less. Shipping and handling costs are treated as fulfillment costs and not separate performance obligations.

We have marketing arrangements to off-take and sell the production of some of our investments in associates and joint ventures in return for a percentage of the price realized on the sales to the end customer. In such arrangements, when we obtain control of the product, revenue and cost of sales are presented on a gross basis. Otherwise, we recognize revenue, net of amounts due to the joint venture, which represents commissions earned. In our joint operations, where all the output is purchased by the joint operators, we recognize revenues only for our share of the output, when it is sold to third party customers.

Payments are typically required within a short period following the transfer of control of the product to the customer. We occasionally require customers to prepay purchases to ensure collectability. Such prepayments do not represent financing arrangements, since payment of the consideration and satisfaction of the performance obligation occur within a short time frame. We apply the practical expedient which permits us not to adjust the promised amount of consideration for the effects of a significant financing component when, at contract inception, we expect that payment will occur in one year or less.

Contract balances typically arise when a difference in timing between the transfer of control to the customer and receipt of consideration occurs. Our contract liabilities, which are reflected in our Consolidated Financial Statements as Trade and other payables, consist primarily of customer payments for products or services received before the transfer of control to the customer occurs.

Share-Based Compensation—We grant restricted stock units ("RSUs"), stock option awards ("Stock options"), performance share units ("PSUs"), and other cash and stock awards to employees as a form of compensation. Our share-based compensation awards are accounted for as equity-classified awards with compensation expense based on the grant date fair value and recognized over the vesting period in the income statement. We use a straight-line vesting method for cliff-vested awards and a graded vesting method for ratable-vested awards. When options are exercised and awards are paid out, shares are issued from our treasury shares. The holders of unvested RSUs are entitled to nonforfeitable dividend equivalents settled in the form of cash payments, which are recognized as dividends in Retained earnings. Outstanding PSUs accrue dividend equivalent units, which will be converted to shares upon payment at the end of the performance period and are classified as trade and other payables on the Consolidated statement of financial position. Dividend equivalents for PSUs are also recorded in Retained earnings. See Note 9 to the Consolidated Financial Statements for additional information.

Leases—The Company leases storage tanks, terminal facilities, land, office facilities, railcars, pipelines, barges, plant equipment and other equipment. Substantially all of our leases have remaining lease terms of 20 years or less and have a weighted-average remaining lease term of 9 years. Certain leases include options to renew the lease, at our discretion, for approximately 1 to 20 years and do not materially impact our operating lease assets or operating lease liabilities. Contracts may contain both lease and non-lease components. We elected the practical expedient to account for lease and associated non-lease components as a single component for all asset classes with the exception of utilities and pipeline assets within major manufacturing equipment.

Assets and liabilities arising from leases are initially measured on the present value of the lease payments over the lease terms discounted using our incremental borrowing rate, unless an implicit rate is readily determined. Lease payments include fixed payments, variable payments which are derived from usage or market-based indices such as the consumer price index, and the exercise price of options to extend or terminate the lease, when it is reasonably certain that we will exercise those options. Right-of-use assets are measured at cost comprising of the amount of initial measurement of lease liability, initial direct costs, and restoration costs. The lease liability is remeasured with a corresponding adjustment to the related right-of-use asset whenever the lease payments change due to changes in an index or rate. The lease liability is remeasured by discounting the revised lease payments using an unchanged discount rate.

Leases that have an initial term of 12 months or less and do not contain a purchase option are low-value assets not recorded on the Consolidated Statement of Financial Position and recognized on a straight line basis in profit or loss.

Each lease payment is allocated between the liability and finance cost. The finance cost is charged to profit or loss over the lease period so as to produce a constant periodic rate of interest on the remaining balance of the liability for each period. Right-of-use assets are generally depreciated over the shorter of the asset's useful life and the lease term on a straight-line basis.

Intangible Assets—Intangible assets primarily consist of customer relationships, trade names, know-how, emission allowances, various contracts (favorable utility contracts and licensing contracts), research and development costs and software costs. These assets are amortized using the straight-line method over the shorter of their estimated useful lives or the expected term of the contractual agreement and generally as follows:

- 5 years for technology patents and licenses
- 10 to 20 years for emission allowances
- 15 years for customer relationships
- 1 to 16 years for various contracts
- 3 to 10 years for software

Research and development—Costs incurred on development projects are recognized as intangible assets when it is probable that we will achieve economic benefits in the future, considering its commercial and technological feasibility, and costs can be measured reliably. Development expenditures that do not meet the aforementioned criteria are expensed when incurred, while all research costs are always charged to expense. When capitalized, development expenditures are amortized over the period of expected future benefit. Amortization starts when development is complete and the asset is available for use.

Property, Plant and Equipment—Property, plant and equipment are recorded at historical cost. Historical cost includes expenditures that are directly attributable to the acquisition of the items. Costs may also include borrowing costs incurred on debt during construction of major projects exceeding one year, costs of major maintenance arising from turnarounds of major units when it is probable that there is an associated future economic benefit, and committed decommissioning costs. Routine maintenance and repair costs are expensed as incurred. Land is not depreciated.

Depreciation is computed using the straight-line method over the estimated useful lives of the assets to their residual values, generally as follows:

- 25 years for major manufacturing equipment
- 30 years for buildings
- 5 to 20 years for light equipment and instrumentation
- 15 years for office furniture
- 2 to 7 years for turnarounds of major units, and
- 3 to 5 years for information system equipment.

The residual values and useful lives of assets are reviewed, and adjusted if appropriate, whenever events or circumstances indicate that a revision is warranted.

Business Combination—We recognize and measure the assets acquired and liabilities assumed in a business combination based on their estimated fair values at the acquisition date, with any remaining difference versus the purchase consideration recorded as goodwill or gain from a bargain purchase. Subsequent to the acquisition, and no later than one year from the acquisition date, we may record adjustments to the assets acquired and liabilities assumed, with the corresponding offset to goodwill or gain from a bargain purchase on a retrospective basis and comparative information is restated. Upon the conclusion of the measurement period, any subsequent adjustments are recorded to earnings. Acquisition-related costs are expensed as incurred.

Goodwill—Goodwill is allocated to the cash-generating units ("CGU") which represents the lowest level at which the goodwill is monitored for internal management purposes which is in most cases the operating segment level. The cash generating units to which goodwill has been allocated are tested for impairment annually during the fourth quarter and when there is an indication that the unit may be impaired. If the recoverable amount of the cash-generating unit is less than the carrying amount of the unit, the impairment loss is allocated first to reduce the carrying amount of any goodwill allocated to the unit and then to the other assets of the unit pro-rata on the basis of the carrying amount of each asset in the unit. An impairment loss recognized for goodwill is not reversed in a subsequent period.

Effective January 1, 2023, our *Catalloy* and polybutene-1 businesses were moved from our Advanced Polymer Solutions segment and reintegrated into our Olefins and Polyolefins-Americas and Olefins and Polyolefins-Europe, Asia, International segments. As a result of this reorganization, goodwill carried at the Advanced Polymer Solutions level in 2022 was reallocated to the underlying groups of cash generating units, Engineering Composites (“EC”), Performance Materials (“PM”) and Custom Concentrates and Solutions (“CCS”), based on their relative fair values. See Note 15 to the Consolidated Financial Statements.

Impairments of Non-Financial Assets—Non-financial assets are reviewed for impairment whenever events or changes in circumstances indicate that their carrying amount may not be recoverable. An impairment loss is recognized for the amount by which the carrying amount of the asset exceeds its recoverable amount. The recoverable amount is the higher of an asset’s fair value less costs to sell and value in use. For the purposes of assessing impairment, assets are grouped at the lowest level for which there are separately identifiable cash flows, the cash-generating unit, which for the Company is generally at the plant group level. Non-financial assets other than goodwill that have been impaired are reviewed for possible reversal of the impairment at each reporting date.

Financial Instruments and Hedging Activities—Pursuant to our risk management policies, we selectively enter into derivative transactions to manage market risk volatility associated with changes in commodity pricing, currency exchange rates and interest rates. Certain derivatives used for this purpose are designated as net investment hedges, cash flow hedges or fair value hedges. Derivative instruments are recorded at fair value on the Statement of Financial Position. Gains and losses related to changes in the fair value of derivative instruments not designated as hedges are recorded in profit and loss.

Cash flows from derivatives designated as hedges are reported in our Consolidated Statements of Cash Flows under the same category as the cash flows from the hedged items unless the derivative contract contains a significant financing element. Cash flows for derivatives with a significant financing element are classified as Cash flows from financing activities. Cash flows related to economic hedges are classified consistent with the cash flows of the economic hedged items.

At the inception of the transaction, all relationships between hedging instruments and hedged items are documented, as well as risk management objectives and strategies for undertaking hedge transactions. The effectiveness of hedges is also assessed at inception and periodically thereafter and hedge accounting is discontinued when there is a change in the risk management objective.

Net Investment Hedges—We enter into foreign currency derivatives and foreign currency denominated debt to reduce the volatility in shareholders' equity resulting from changes in currency exchange rates of our foreign subsidiaries with respect to the U.S. dollar. Our foreign currency derivatives consist of cross currency contracts and forward exchange contracts.

We use the critical terms approach through the application of the spot method to assess hedge effectiveness at least quarterly. For derivatives designated as net investment hedges, gains or losses attributable to changes in spot foreign exchange rates over the designation period are reflected in foreign currency translation adjustments within Other comprehensive income (loss). Recognition in earnings is delayed until the net investment is sold or liquidated. At that time, the amount recognized is reported in the same line item as the gain or loss on the liquidation of the hedged foreign operations. For our cross-currency swaps, the associated interest receipts and payments are recorded in interest expense. For our foreign currency forward contracts, we amortize initial forward point values on a straight-line basis to interest expense over the life of the hedging instrument. We monitor on a quarterly basis for any over-hedged positions requiring re-designation and re-designation of the hedge to remove such over-hedged condition.

Cash Flow Hedges—We enter into cash flow hedges to manage the variability in cash flows of a future transaction. Our cash flow hedges include forward starting interest rate swaps, and commodity futures, options, and swaps. For derivatives designated as cash flow hedges, the effective portion of the change in the fair value of a derivative contract is recognized in other comprehensive income (loss) and released to earnings in the same line item and in the same period during which the hedged item affects earnings; any ineffective portion is recognized in profit and loss.

We use the critical terms and the quantitative long-haul methods to assess hedge effectiveness and monitor, at least quarterly, any change in effectiveness. We use the dollar offset method under the hypothetical derivative method to measure ineffectiveness.

From time-to-time we have entered into pre-issuance hedges to manage a portion of our exposure to movements in benchmark rates on future debt issuances.

We also execute commodity futures, options and swaps to manage the volatility of the commodity price related to anticipated purchases of raw materials and product sales. We enter into over-the-counter commodity swaps and options with one or more counterparties whereby we pay a predetermined fixed price and receive a price based on the average monthly rate of a specified index for the specified nominated volumes.

Fair Value Hedges—We use interest rate swaps as part of our current interest rate risk management strategy to achieve a desired proportion of variable versus fixed rate debt. Under these arrangements, we exchange fixed-rate for floating-rate interest payments to effectively convert our fixed-rate debt to floating-rate debt. For derivatives that have been designated as fair value hedges, the gains and losses of the derivatives and hedged items are recorded in profit and loss.

We use the long-haul method to assess hedge effectiveness using a regression analysis approach at least quarterly. We perform the regression analysis over an observation period of three years, utilizing data that is relevant to the hedge duration. We use the dollar offset method to measure ineffectiveness.

Classification and Measurement of Financial Assets—All financial instruments are initially recognized at fair value on the date of initial recognition and subsequently remeasured depending on classification.

Financial instruments are carried at amortized cost using the effective interest rate method, unless they are required to be measured at fair value or where the Company has opted to measure them at FVTPL.

Offsetting Financial Instruments—When there is a legally enforceable right to offset and the intention to net settle, the financial assets and financial liabilities are reported on a net basis in the Consolidated Statement of Financial Position.

Fair Value Measurement—We categorize assets and liabilities, measured at fair value, into one of three different levels depending on the observability of the inputs employed in the measurement. Level 1 inputs are quoted prices in active markets for identical assets or liabilities. Level 2 inputs are observable inputs other than quoted prices included within Level 1 for the asset or liability, either directly or indirectly through market corroborated inputs. Level 3 inputs are unobservable inputs for the asset or liability reflecting significant modifications to observable related market data or our assumptions about pricing by market participants.

Fair value measurements are classified according to the lowest level input or value-driver that is significant to the valuation. A measurement may therefore be classified within Level 3 even though there may be significant inputs that are readily observable.

Changes in Fair Value Levels—Management reviews the disclosures regarding fair value measurements annually at year end. If an instrument classified as Level 1 subsequently ceases to be actively traded, it is transferred out of Level 1. In such cases, instruments are reclassified as Level 2, unless the measurement of its fair value requires the use of significant unobservable inputs, in which case it is reclassified as Level 3.

We use the following inputs and valuation techniques to estimate the fair value of our financial instruments disclosed in Note 4 to the Consolidated Financial Statements:

Cross-Currency Swaps—The fair value of our cross-currency swaps is calculated using the present value of future cash flows discounted using observable inputs such as known notional value amounts, yield curves, basis curves, as applicable, and with the foreign currency leg revalued using published spot and forward exchange rates on the valuation date.

Forward-Starting and Fixed-for-Floating Interest Rate Swaps—The fair value of our forward-starting and fixed for floating interest rate swaps is calculated using the present value of future cash flows using observable inputs such as benchmark interest rates and market yield curves.

Commodity Derivatives—The fair values of our commodity derivatives are measured using closing market prices of public exchanges and from third-party broker quotes and pricing providers.

The fair value of our commodity swaps classified as Level 2 is determined using a combination of observable and unobservable inputs. The observable inputs consist of future market values of various crude and heavy fuel oils, which are readily available through public data sources. The unobservable input, which is the estimated discount or premium used in the market pricing, is calculated using an internally-developed, multi-linear regression model based on the observable prices of the known components and their relationships to historical prices. A significant change in this unobservable input would not have a material impact on the fair value measurement of our Level 2 commodity swaps.

Forward Exchange Contracts—The fair value of our forward exchange contracts is based on forward market rates.

Financial Assets at FVOCI/FVTPL—The fair values of our investments in debt securities are calculated using observable market data for similar securities and broker quotes from recognized purveyors of market data. The fair values of our equity interests in limited partnership investments are based on the net asset values provided by the fund administrator and are classified as Level 2 in the fair value hierarchy on the basis of their redemption features.

Short-Term Debt—The fair values of short-term borrowings related to precious metal financing arrangements accounted for as embedded derivatives are determined based on the forward market price of the associated precious metal.

Long-Term Debt—The fair values of our senior and guaranteed notes are calculated using pricing data obtained from well-established and recognized vendors of market data for debt valuations. The fair value of our term loan was determined based on a discounted cash flow model using observable inputs such as benchmark interest rates and public information regarding our credit risk.

Impairment of Financial Assets—We measure the allowance for trade receivables losses at an amount equal to lifetime expected credit loss ("ECL") using historical loss rates for the respective risk categories and incorporating forward-looking estimates. The allowance is recorded in Selling costs in the Consolidated Statement of Income.

We measure the allowance for debt security instruments losses at an amount equal to the lifetime ECL if the credit risk on that financial instrument has increased significantly since initial recognition. However, if the credit risk on a financial instrument has not increased significantly since initial recognition, we measure the loss allowance for that financial instrument at an amount equal to 12-month ECL. The change in the allowance for credit losses is recorded in the Consolidated Statement of Income and is updated at each reporting date to reflect the changes in credit risk.

Inventories—Inventories are stated at the lower of cost and net realizable value. Cost is determined using the first in, first out ("FIFO") method and comprises direct purchase costs and other directly attributable costs including related production overheads (based on normal operating capacity). Net realizable value is the estimated selling price in the ordinary course of business, less the estimated cost of completion and the estimated costs necessary to make the sale.

Trade Receivables—Trade receivables are amounts due from customers for merchandise sold or services performed in the ordinary course of business and are carried at transaction price net of allowance for credit losses.

Cash Equivalents—Cash equivalents consist of highly liquid debt instruments such as certificates of deposit, commercial paper and money market accounts placed with major international banks and financial institutions. Cash equivalents include instruments with maturities of three months or less when acquired. Bank overdrafts are shown within Borrowings in current liabilities on the consolidated statement of financial position. Cash and cash equivalents exclude restricted cash.

Income Tax—The income tax for the period comprises current and deferred tax. Income tax is recognized in the Consolidated Statement of Income, except to the extent that it relates to items recognized in Other comprehensive income or directly in equity. In these cases, the applicable tax amount is recognized in Other comprehensive income or directly in equity, respectively.

The current income tax charge is calculated on the basis of the tax laws enacted or substantively enacted at the Consolidated statement of financial position, and any adjustment to tax payable in respect to previous years. Management evaluates positions with respect to applicable tax regulation which is subject to interpretation. The Company establishes provisions where appropriate on the basis of amounts expected to be paid to the tax authorities. Where it is not considered probable that a particular tax treatment will be accepted, the effect of the uncertainty is reflected in the tax provision by estimating the tax payable (or receivable) using either the most likely amount method or the expected value method.

Deferred income taxes reflect the tax net effects of temporary differences between the carrying amounts of assets and liabilities for financial reporting purposes and the amounts used for income tax purposes, as well as the net tax effects of net operating loss carryforwards, using the liability method. Deferred income taxes are measured at the tax rates and under the tax laws that have been enacted or substantially enacted at the Consolidated statement of financial position and are expected to apply when the related deferred tax assets are realized or the deferred tax liabilities are settled. The carrying amount of deferred tax assets is reviewed at each consolidated statements of financial position date and reduced to the extent that it is no longer probable that sufficient taxable profits will be available to enable all or part of the asset to be recovered.

Employee Benefits:

Pension Plans—We have both funded and unfunded defined benefit plans and defined contribution plans. For the defined benefit plans, a defined benefit obligation is calculated annually by independent actuaries using the projected unit credit method. When the calculation results in a potential asset, the recognized asset is limited to the present value of economic benefits available in the form of any future refunds from the plan or reductions in future contributions to the plan.

Pension costs primarily represent the increase in the actuarial present value of the obligation for pension benefits based on employee service during the year. Pension costs also include the net interest expense (income) that is calculated as the product of the net defined benefit liability (asset) and the discount rate determined at the end of the year and employees past-service costs.

Remeasurement gains and losses arising from experience adjustments, changes in actuarial assumptions and the return on plan assets (excluding interest) are charged or credited to Equity and are reflected in OCI in the period in which they arise. Remeasurements recognized in OCI are not reclassified. For defined contribution plans, we pay contributions to publicly or privately administered pension insurance plans on a mandatory, contractual or voluntary basis. The contributions are recognized as employee benefit expense when they are due.

Other Post-employment Obligations—Certain employees are entitled to post-retirement medical benefits upon retirement. The entitlement to these benefits is usually conditional on the employee remaining in service up to retirement age and the completion of a minimum service period. The expected costs of these benefits are accrued over the period of employment applying the same accounting methodology used for defined benefit plans.

Termination Benefits—Termination benefits are payable when employment is terminated before the normal retirement date, or whenever an employee accepts voluntary termination benefits. We recognize termination benefits when we are committed to terminating the employment of employees according to a detailed formal plan without possibility of withdrawal. In the case of an offer for voluntary termination benefits, the termination benefits are measured based on the number of employees expected to accept the offer. Benefits due more than 12 months after the end of the reporting period are discounted to present value.

Trade and Other Payables—Trade and other payables are presented as current liabilities unless payment is not due within 12 months after the reporting period. Trade and other payables are initially recognized at fair value and subsequently measured at amortized cost.

Other Provisions—Provisions are recognized when the Company has a present legal or constructive obligation as a result of past events, it is probable that an outflow of resources will be required to settle the obligation, and the amount can be reliably estimated. Provisions are not recognized for future operating losses.

Environmental Remediation Costs—Environmental remediation liabilities include liabilities related to sites we currently own, sites we no longer own, as well as sites where we have operated that belong to other parties. Liabilities for anticipated expenditures related to investigation and remediation of contaminated sites are accrued when it is probable a liability has been incurred and the amount of the liability can be reasonably estimated.

Asset Retirement Obligation—At some sites, we are contractually obligated to decommission our plants upon site exit. The asset retirement obligation is generally recognized when the construction of the asset is complete. Upon initial recognition, the present value of the estimated costs is capitalized to the cost of the related long-lived asset and depreciated on a straight-line basis over the useful life of the asset. Accretion expense relating to the liability is recognized over the useful life of the related asset and included in Finance costs. Decommissioning provisions associated with most of our plants are generally not recognized, as the potential obligations cannot be measured, given their indeterminate settlement dates. Obligations may arise if such plants cease manufacturing operations and any such obligations would be recognized in the period when sufficient information becomes available to determine potential settlement dates.

Share capital—Ordinary shares are classified as equity. The consideration paid, including any directly attributable incremental costs (net of income taxes) for the shares repurchased by the Company (treasury shares), is deducted from equity attributable to the Company's equity holders until the shares are cancelled or reissued. Where such ordinary shares are subsequently reissued, any consideration received, net of any directly attributable incremental transaction cost and the related income tax effects, is included in equity attributable to the Company’s equity holders.

3. Critical Accounting Estimates and Judgments

The preparation of financial statements in conformity with IFRS requires management to make estimates and judgments that affect the reported amounts of assets and liabilities and the reported amounts of revenue and expenses during the period as well as the information disclosed.

Critical Accounting Estimates and Assumptions

For our critical accounting estimates and assumptions, reference is made to the notes to these Consolidated Financial Statements, including the determination of deferred tax assets for loss carry forwards and the provision for tax contingencies (see Notes 13 and 25), the determination of the recoverable amounts in our goodwill impairment testing (see Note 15), the depreciation rates for property, plant and equipment (see Note 16) and intangible assets (see Note 15), the discount rate used to determine the provision for retirement benefit obligations and periodic pension cost (see Note 26) and the more likely than not assessment required to determine if a provision should be recognized and measured (see Notes 28 and 29).

Also, reference is made to Note 4 Financial Risk Management, which discusses our exposure to credit risk and financial market risks.

Actual results in the future may differ from these estimates. Management estimates and judgments are continually evaluated based on historic experience and other factors, including expectations of future events believed to be reasonable under the circumstances.

Critical Accounting Estimates or Judgments in Applying LyondellBasell N.V.'s Accounting Policies

Property, Plant and Equipment and Intangible Assets—With respect to property, plant and equipment and intangible assets, key assumptions include estimates of useful lives and the recoverability of carrying values of fixed assets and other intangible assets. Such estimates could be significantly modified and/or the carrying values of the assets could be impaired by such factors as projected changes in supply and demand fundamentals (including industry-wide capacity, our planned utilization rate and end-user demand), new technological developments, capital expenditures, new competitors with significant raw material or other cost advantages, changes associated with world economies, the cyclical nature of the chemical and refining industries, uncertainties associated with governmental actions and other economic conditions.

European PO Joint Operation Impairment—In the fourth quarter of 2023, we identified an impairment trigger relating to our European PO Joint Operation, due to a trend of negative financial performance and the unfavorable long-term economic outlook for our joint operation. As a result, we recognized a non-cash impairment charge of $192 million, including $182 million on property, plant and equipment and $10 million on right-of-use asset. The fair values of our joint operation assets were determined using an income approach and the significant inputs used in our fair value determination, including projected cash flows and the discount rate, are considered Level 3. The charge is reflected as Impairments in our Consolidated Statements of Income.

These estimates required considerable judgment and are sensitive to changes in underlying assumptions such as future commodity prices, margins on refined products, operating rates and capital expenditures including repairs and maintenance. As a result, there can be no assurance that the estimates and assumptions made for purposes of our impairment determination will prove to be an accurate prediction of the future. Should our estimates and assumptions significantly change in future periods, it is possible that we may determine future impairment charges.

Advanced Polymer Solutions Impairment—Effective January 1, 2023, our *Catalloy* and polybutene-1 businesses were moved from our Advanced Polymer Solutions segment and reintegrated into our Olefins and Polyolefins-Americas and Olefins and Polyolefins-Europe, Asia, International segments. As a result of the reallocation and the change in both fair value and carrying value among reporting units, we recognized a non-cash impairment charge of $352 million in our APS segment, including $228 million on goodwill, $35 million on property plant and equipment, and $89 million on customer relationship and other intangible assets. See Notes 15 and 16 to the Consolidated Financial Statements. Fair values were determined utilizing a discounted cash flow method under the income approach and assumptions including management's view on long-term growth rates in our industry, discount rates (ranging between 12% and 13.5%) and other assumptions based on a market participant perspective, which are inherently subjective. The fair value of the reporting unit is Level 3 within the fair value hierarchy. The charge is reflected as Impairments in our Consolidated Statements of Income.

The carrying amount of goodwill at December 31, 2023 is reflected net of accumulated impairment charges of $228 million related to our Advanced Polymer Solutions segment. There was no impairment charge recognized on goodwill at December 31, 2022. The recoverable amount of the cash-generating units to which goodwill has been allocated was determined based on the fair value less cost of disposal model which utilized our financial budgets and extrapolated growth models, and discounted using the weighted average cost of capital of the Company.

Joint Arrangements—We are a party to several joint arrangements. The Company has joint control over these arrangements as unanimous consent is required from all parties to the agreements to direct the activities that significantly affect the returns of the arrangement, such as annual production budgets, capital expenditures, indebtedness, election of key management team members, approval of pricing policies and admission of new parties.

The classification of these joint arrangements as either a joint operation or a joint venture is driven by the rights and obligations of the parties particularly as it relates to transfer of marketing rights, off-take obligations, and credit risks relating to the activities of the arrangement to the parties rather than the legal form of the arrangement.

The joint ventures of the Company are structured as legal entities and provide the parties to the agreements with rights to the net assets of the entities under the arrangements. The parties are not substantially the only source of cash flows contributing to the continuity of the operations of the joint venture.

The output of the joint operations of the Company is for the sole use of the parties to the joint arrangement. The parties are substantially the only source of cash flows contributing to the continuity of the operations of the joint operation.

Employee Benefits—Our costs for long-term employee benefits, particularly pension and other postretirement medical and life insurance benefits, are incurred over long periods of time, and involve many uncertainties over those periods.

The current benefit service costs, as well as the existing liabilities, for pensions and other postretirement benefits are measured on a discounted present value basis. The discount rate is a current rate, related to the rate at which the liabilities could be settled. Our assumed discount rate is based on yield information for high-quality corporate bonds.

The benefit obligation and the periodic cost of other postretirement medical benefits are measured based on assumed rates of future increase in the per capita cost of covered health care benefits.

Accruals for Taxes Based on Income—The determination of our provision for income taxes and the calculation of our tax benefits and liabilities is subject to management's estimates and judgments due to the complexity of the tax laws and regulations in the tax jurisdictions in which we operate. Uncertainties exist with respect to interpretation of these complex laws and regulations.

4. Financial Risk Management

We are exposed to market risks, such as changes in commodity pricing, currency exchange rates and interest rates.

Commodity Price Risk—Prices for our products and raw materials are subject to changes in supply and demand. Natural gas, crude oil, utilities, and refined products, along with feedstocks for ethylene and propylene production, constitute the main commodity exposures. Pricing terms in our raw material contracts are generally indexed to market prices. Changes in market prices for raw materials generally correlate with market prices for our products. In certain sales contracts, we may negotiate pricing terms to better align with changes in raw material costs. We also selectively enter commodity swap, option and futures contracts to manage commodity price risk. A 10% change in our commodity prices at December 31, 2023 and 2022 would have resulted in an additional impact to earnings of approximately $106 million and $52 million, respectively.

Foreign Exchange Risk—We manufacture and market our products in many countries throughout the world and, as a result, are exposed to changes in foreign currency exchange rates. Our reporting currency is the U.S. dollar. Many of our operating entities use the euro as their functional currency. Translation adjustments are deferred in Other comprehensive income.

We enter foreign currency derivatives that are designated as net investment hedges to reduce the volatility in Shareholders' equity resulting from translation adjustments associated with our net investments in foreign operations. The table below illustrates the impact on Other comprehensive loss of a 10% fluctuation in the foreign currency rate associated with the hedges at December 31:

	Notional Amount		10% Variance on Foreign Currency Rate	Impact on Other comprehensive income (loss)	
Millions of euros/U.S. dollars	2023	2022		2023	2022
Net investment hedges:					
Cross Currency Basis Swaps	€ 617	€ 617	euro/U.S. dollar rate	$ 70	$ 67
Cross Currency Swaps	€ 750	€ 750	euro/U.S. dollar rate	$ 81	$ 75
Forward Exchange Contracts	€ 1,550	€ 1,350	euro/U.S. dollar rate	$ 165	$ 138

Some of our consolidated entities enter transactions that are not denominated in their functional currencies. This results in exposure to foreign currency risk for financial instruments, including, but not limited to, third-party and intercompany receivables and payables and intercompany loans.

Our policy is to maintain a balanced position in foreign currencies to minimize exchange gains and losses arising from changes in exchange rates. We maintain risk management control practices to monitor the foreign currency risk attributable to our inter-company and third party outstanding foreign currency balances. These practices involve the centralization of our exposure to underlying currencies that are not subject to central bank and/or country specific restrictions. By centralizing most of our foreign currency exposure into one subsidiary, we are able to take advantage of natural offsets thereby reducing the overall impact of changes in foreign currency rates on our earnings.

To minimize the effects of our net currency exchange exposures, we enter into forward exchange contracts and cross-currency swaps. We also engage in short-term forward exchange contracts to manage our net exposure to foreign currencies as economic hedges. Changes in the fair value of these foreign currency contracts are reported in the Consolidated Statements of Income and offset the currency exchange results recognized on foreign currency balances.

Other (income) expense, net reflects net foreign currency losses of $34 million and $14 million in 2023 and 2022, respectively. A 10% fluctuation compared to the U.S. dollar would have resulted in an additional impact to earnings of approximately $21 million and $17 million in 2023 and 2022, respectively.

We also enter into cross-currency swap contracts to reduce our exposure to the foreign currency exchange risk and manage the variability of cash flows associated with certain intercompany loans. A 10% fluctuation compared to the U.S. dollar would have resulted in additional impact to earnings of approximately $117 million and $113 million in 2023 and 2022, respectively.

Interest Rate Risk—We are exposed to interest rate risk with respect to our fixed-rate and variable-rate debt. Fluctuations in interest rates impact the fair value of fixed-rate debt and expose us to the risk that we may need to refinance debt at higher rates. Fluctuations in interest rates impact interest expense from our variable-rate debt. We regularly evaluate the costs and risks associated with interest rate exposure to determine an appropriate level of exposure. To minimize earnings at risk as part of our interest rate risk management strategy, we may target to maintain floating-rate debt, through the use of interest rate swaps and issuance of variable-rate debt, equal to our cash and cash equivalents, as those assets earn interest based on floating-rates.

Pre-issuance interest rate—To mitigate the risk that benchmark interest rates may increase in connection with future financing activities, we adopted a pre-issuance interest rate strategy, under which we may enter into forward-starting interest rate swaps that are designated as cash flow hedges. We estimate that a 10% change in market interest rates as of December 31, 2023 and 2022 would change the fair value of these forward-starting interest rate swaps by approximately $12 million and $23 million, respectively.

Fixed-rate debt—We may enter into interest rate swaps that effectively convert a portion of our fixed-rate debt to variable-rate debt. These interest rate swaps are designated as fair value hedges. At December 31, 2023 and 2022 the total notional amount of these interest rate swaps was $2,171 million and $2,164 million, respectively.

At December 31, 2023, after giving consideration to the fixed-rate debt that we have effectively converted to variable-rate debt, approximately 80% of our debt portfolio, on a gross basis, incurred interest at a fixed-rate and the remaining 20% of the portfolio incurred interest at a variable-rate. We estimate that a 10% change in market interest rates as of December 31, 2023 and 2022 would change the fair value of these interest rate swaps by approximately $27 million and $35 million, respectively.

Variable-rate debt—At December 31, 2023, we had no borrowings under our Commercial Paper Program. We also had available borrowing capacity under our $3,250 million Senior Revolving Credit Facility and our $900 million U.S. Receivables Facility. At December 31, 2023 there were no outstanding borrowings under these facilities. Based on our average variable-rate debt outstanding per year, we estimate that a 10% change in market interest rates as of December 31, 2023 and 2022 would not materially impact the fair value of these facilities.

Capital Risk Management—The primary objective of the Group's capital management is to determine the mix of debt and equity that maximizes the value of the Group while minimizing the cost of capital. Capital includes equity attributable to the equity holders of the parent.

The Group manages its capital structure and makes adjustments to it in light of changes in economic conditions. To maintain or adjust the capital structure, the Group may issue new debt, repay debt, return capital to shareholders or issue new shares.

Liquidity and Capital Resources—As of December 31, 2023 and 2022, we had unrestricted cash and cash equivalents of $3,533 million and $2,389 million, respectively. In addition, at December 31, 2023 and 2022, we had total unused availability under our credit facilities of $4,150 million and $3,844 million, respectively.

We plan to fund our working capital, capital expenditures, debt service, dividends and other cash requirements with our current available liquidity and cash from operations, which could be affected by general economic, financial, competitive, legislative, regulatory, business and other factors, many of which are beyond our control. Debt repayment, and the purchase of shares under our share repurchase authorization, may be funded from cash and cash equivalents, cash from short-term investments, cash from operating activities, proceeds from the issuance of debt, or a combination thereof.

We intend to continue to declare and pay quarterly dividends, with the goal of increasing the dividend over time, after giving consideration to our cash balances and expected results from operations. However, there can be no assurance that any dividends or distributions will be declared or paid in the future.

At any time and from time to time, we may repay or redeem our outstanding debt, including purchases of our outstanding bonds in the open market, through privately negotiated transactions or a combination thereof, in each case using cash and cash equivalents, cash from our short-term investments, cash from operating activities, proceeds from the issuance of debt or proceeds from asset divestitures. Any repayment or redemption of our debt will depend on prevailing market conditions, our liquidity requirements, contractual restrictions and other factors. In connection with such repurchases or redemptions, we may incur cash and non-cash charges, which could be material in the period in which they are incurred.

In accordance with our current interest rate risk management strategy and subject to management's evaluation of market conditions and the availability of favorable interest rates among other factors, we may from time to time enter into interest rate swap agreements to economically convert a portion of our fixed rate debt to variable rate debt or convert a portion of our variable rate debt to fixed rate debt.

The table below provides a maturity analysis of our financial liabilities based on the remaining contractual maturities on an undiscounted basis as of December 31.

Millions of U.S. Dollars	Total obligations	Less than 1 year	Between 1 to 2 years	Between 2 to 5 years	Over 5 years
December 31, 2023					
Borrowings	$ 12,388	$ 1,115	$ 604	$ 1,859	$ 8,810
Interest payment on total borrowings	8,117	423	407	1,113	6,174
Trade and other payables	5,856	5,856	—	—	—
Lease liabilities	2,302	453	372	720	757
Derivatives liability	651	286	75	179	111
	$ 29,314	$ 8,133	$ 1,458	$ 3,871	$ 15,852

Millions of U.S. Dollars	Total obligations	Less than 1 year	Between 1 to 2 years	Between 2 to 5 years	Over 5 years
December 31, 2022					
Borrowings	$ 12,508	$ 927	$ 878	$ 2,232	$ 8,471
Interest payment on total borrowings	8,376	456	412	1,116	6,392
Trade and other payables	5,994	5,994	—	—	—
Lease liabilities	2,370	430	359	758	823
Derivatives liability	320	68	3	118	131
	$ 29,568	$ 7,875	$ 1,652	$ 4,224	$ 15,817

Credit Risk—Investments in cash and cash equivalents and transactions involving derivative financial instruments are entered into with counterparties that have sound credit ratings and a good reputation. Fair value through Other comprehensive income investments consists of bonds with counterparties whose credit ratings are investment grade and other high-quality instruments. We have no fair value through profit and loss investments at December 31, 2022 or 2023.

We have a global credit risk management policy to minimize credit losses due to non-performance of our customer base. We monitor our exposure to credit risk on an on-going basis through a team of credit professionals stationed in our key global markets. We continue to manage our customer credit risk very closely by monitoring our aging analysis along with payment and financial performance. Where appropriate, additional security instruments, letters of credit or corporate guarantees, are secured. Due to our global breadth and scale, we do not have a significant concentration of customer risk. Our single largest trade receivable balance amounted to $106 million and $101 million at December 31, 2023 and 2022, respectively.

Financial Instruments and Fair Value Measurements

The following table presents the financial assets and liabilities by measurement category:

	December 31, 2023				December 31, 2022			
Millions of U.S. Dollars	Financial Assets at Amortized Cost	Assets Held at Fair Value	Derivatives Used for Hedging	Total	Financial Assets at Amortized Cost	Assets Held at Fair Value	Derivatives Used for Hedging	Total
Financial Assets								
Trade receivables and other excluding prepayments	$ 4,276	$ —	$ —	$ 4,276	$ 4,511	$ —	$ —	$ 4,511
Derivative financial instruments	—	161	108	269	—	93	239	332
Cash and cash equivalents	3,533	—	—	3,533	2,389	—	—	2,389
Total	$ 7,809	$ 161	$ 108	$ 8,078	$ 6,900	$ 93	$ 239	$ 7,232

	Other Financial Liabilities at Amortized Cost	Liabilities at Fair Value through Profit and Loss	Derivatives Used for Hedging	Total	Other Financial Liabilities at Amortized Cost	Liabilities at Fair Value through Profit and Loss	Derivatives Used for Hedging	Total
Financial Liabilities								
Borrowings	$ 12,077	$ —	$ —	$ 12,077	$ 12,108	$ —	$ —	$ 12,108
Lease liabilities	1,964	—	—	1,964	2,026	—	—	2,026
Derivative financial instruments	—	153	390	543	—	43	277	320
Trade and other payables	5,856	—	—	5,856	5,994	—	—	5,994
Total	$ 19,897	$ 153	$ 390	$ 20,440	$ 20,128	$ 43	$ 277	$ 20,448

Financial Instruments Not Measured at Fair Value on a Recurring Basis—The following table presents the carrying value and estimated fair value of our Short-term debt and Long-term debt:

	December 31, 2023		December 31, 2022	
Millions of U.S. Dollars	Carrying Value	Fair Value	Carrying Value	Fair Value
Liabilities—				
Short term debt	$ 1,115	$ 1,112	$ 918	$ 890
Long-term debt	10,962	9,869	11,190	9,551
Total	$ 12,077	$ 10,981	$ 12,108	$ 10,441

The financial instruments in the table above are classified as Level 2. Our other financial instruments classified within Current assets and Current liabilities have a short maturity and their carrying value generally approximates fair value.

Fair Value Estimates—The following table summarizes derivative financial instruments outstanding for the periods presented that are measured at fair value on a recurring basis:

	Fair Value		
Millions of U.S. Dollars	December 31, 2023	December 31, 2022	Fair value Level
Assets—			
Derivatives designated as hedges:			
Foreign currency	$ 69	$ 197	2
Interest Rates	38	42	2
Commodities	1	—	2
Derivatives not designated as hedges:			
Commodities	98	28	2
Commodities	40	25	3
Foreign currency	23	40	2
	$ 269	$ 332	
Liabilities—			
Derivatives designated hedges:			
Foreign currency	44	10	2
Interest Rates	204	253	2
Commodities	142	14	2
Derivatives not designated hedges:			
Commodities	52	14	2
Commodities	63	12	3
Foreign Currency	38	17	2
	$ 543	$ 320	

The commodity financial instruments categorized as level 3 relate to the contracts for differences for electricity within the power purchase agreements. The level 3 fair value is calculated as the present value of the expected cash flows under the contracts. The key valuation parameter used within these determinations is the expected future electricity prices, which range up to $4,823/megawatt-hour.

As these contracts extend to periods where observable pricing data is limited and so a more than insignificant portion of their value may include estimates, day one gains of $129 million and $142 million were deferred and unamortized as of December 31, 2023 and 2022, respectively.

Derivative Instruments and Hedges

Commodity Prices—The following table presents the notional amounts of our outstanding commodity derivative instruments:

Millions of units	Notional Amount December 31, 2023	Notional Amount December 31, 2022	Unit of Measure	Maturity Date
Derivatives designated as hedges:				
Natural gas	72	5	MMBtu	2024 to 2026
Ethane	18	—	Bbl	2024 to 2025
Power	1	—	MWhs	2024 to 2026
Refined products	1	—	Bbl	2024
Derivatives not designated as hedges:				
Crude oil	12	2	Bbl	2024
Refined products	16	2	Bbl	2024
Precious metals	1	1	Troy Ounces	2024
Renewable Identification Numbers	59	—	RINs	2024
Power	47	33	MWhs	2033 to 2041

Interest rates—The following table presents the notional amounts outstanding interest rate derivative instruments:

Millions of U.S. dollars	Notional Amount December 31, 2023	Notional Amount December 31, 2022	Maturity Date
Cash flow hedges	$ 200	$ 400	2024
Fair value hedges	2,171	2,164	2025 to 2031

The ineffectiveness recorded for this cash flow hedging relationship was $2 million and $10 million for the years ended December 31, 2023 and 2022, respectively.

Foreign currency rates—The following table presents the notional amounts of our outstanding foreign currency derivative instruments:

Millions of U.S. dollars	Notional Amount December 31, 2023	Notional Amount December 31, 2022	Maturity Date
Net investment hedges	$ 3,289	$ 3,128	2024 to 2030
Cross currency swaps not designated	1,150	1,150	2024 to 2027
Not designated	555	396	2024 to 2025

For the years ended December 31, 2023 and 2022, we recognized a $2 million and $4 million gain in profit or loss relating to ineffectiveness, respectively.

The following tables summarize the pre-tax effect of derivative and non-derivative instruments recorded in Other comprehensive loss ("OCI"), the gains (losses) reclassified to earnings from OCI and additional gains (losses) recognized directly in earnings:

	Year Ended December 31, 2023			
Millions of U.S. dollars	Gain (Loss) Recognized in OCI	Gain (Loss) Reclassified to Income from OCI	Additional Gain (Loss) Recognized in Income	Statement of income Classification
Derivatives designated as hedges:				
Commodities	$ (2)	$ —	$ —	Revenue
Commodities	(157)	34	—	Cost of sales
Foreign currency	(108)	—	52	Finance Costs
Interest rates	18	5	(22)	Finance Costs
Derivatives not designated as hedges:				
Commodities	—	—	188	Revenue
Commodities	—	—	(150)	Cost of sales
Foreign currency	—	—	(29)	Other (expense) income, net
Foreign currency	$ —	$ —	$ (20)	Finance Costs
Total	$ (249)	$ 39	$ 19	

	Year Ended December 31, 2022			
Millions of U.S. dollars	Gain (Loss) Recognized in OCI	Gain (Loss) Reclassified to Income from OCI	Additional Gain (Loss) Recognized in Income	Statement of income Classification
Derivatives designated as hedges:				
Commodities	$ 21	$ (59)	$ —	Cost of sales
Foreign currency	232	—	50	Finance Costs
Interest rates	286	5	(211)	Finance Costs
Derivatives not designated as hedges:				
Commodities	—	—	72	Revenue
Commodities	—	—	(9)	Cost of sales
Foreign currency	—	—	16	Other (expense) income, net
Foreign currency	—	—	17	Finance Costs
Total	$ 539	$ (54)	$ (65)	

Other Financial Instrument—Cash and Cash Equivalents—At December 31, 2023 and 2022, we had marketable securities classified as Cash and cash equivalents of $2,432 million and $1,191 million, respectively.

5. Assets Held for Sale

During the fourth quarter of 2023, we entered into an agreement to sell our U.S. Gulf Coast-based ethylene oxide and derivatives ("EO&D") business along with the production facility located in Bayport, TX for cash consideration of $700 million, subject to working capital and other adjustments. The EO&D business had been identified as a non-core business within our Intermediates and Derivatives segment. The transaction is expected to close in the second quarter of 2024 following completion of the planned maintenance at the facility and is subject to regulatory and other customary closing conditions.

The following table summarizes the assets and liabilities held for sale:

Millions of U.S. dollars	December 31, 2023
ASSETS	
Accounts receivable - Trade, net	$ 42
Inventories	71
Prepaid expenses and other current assets	43
Operating lease assets	19
Property, plant and equipment, net	225
Goodwill	7
Total assets held for sale	$ 407
LIABILITIES	
Short-term debt	$ 43
Accounts payable - Trade	52
Accrued and other current liabilities	7
Operating lease liabilities	19
Total liabilities held for sale	$ 121

6. Revenues

Contract Balances—Contract liabilities were $175 million and $167 million at December 31, 2023 and 2022, respectively.

Disaggregation of Revenues—We participate globally across the petrochemical value chain and are an industry leader in many of our product lines. Our chemicals businesses consist primarily of large processing plants that convert large volumes of liquid and gaseous hydrocarbon feedstocks into plastic resins and other chemicals. Our chemical products tend to be basic building blocks for other chemicals and plastics. Our plastic products are used in large volumes as well as smaller specialty applications. Our refining business consists of our Houston refinery, which processes crude oil into refined products such as gasoline and distillates.

Revenues disaggregated by key products are summarized below:

Millions of U.S. dollars	Year Ended December 31, 2023	2022
Sales and other operating revenues:		
Olefins & co-products	$ 3,519	$ 5,090
Polyethylene	7,599	9,978
Polypropylene	5,649	7,815
Propylene oxide & derivatives	2,287	3,369
Oxyfuels and related products	5,640	5,482
Intermediate chemicals	2,865	4,044
Compounding and solutions	3,686	4,202
Refined products	9,179	10,975
Other	715	784
Total	$ 41,139	$ 51,739

The following table presents our revenues disaggregated by geography, based upon the location of the customer:

Millions of U.S. dollars	Year Ended December 31, 2023	2022
Sales and other operating revenues:		
United States	$ 20,003	$ 24,789
Germany	2,547	3,555
China	2,196	3,621
Japan	1,749	1,954
Mexico	1,642	2,042
Italy	1,365	1,737
France	1,091	1,366
Poland	905	1,271
The Netherlands	805	1,178
Other	8,836	10,226
Total	$ 41,139	$ 51,739

Transaction Price Allocated to the Remaining Performance Obligations—Our contracts with customers are commodity supply arrangements that settle based on market prices at future delivery dates; therefore, transaction prices are entirely variable. Transaction prices are known at the time revenue is recognized since they are generally determined by the commodity price index at a specific date, at month-end or at the month average once products are shipped to our customers. Future estimates of transaction prices for disclosure purposes are substantially constrained as they are highly susceptible to factors outside our control, including volatility in commodity markets, industry production capacities and operating rates, planned and unplanned industry operating interruptions, foreign exchange rates and worldwide geopolitical trends. We have elected the practical expedient to not disclose unsatisfied performance obligations with an original contract duration of one year or less.

7. Expenses by Nature

The following table presents our total Cost of sales, selling costs and administrative expenses by nature:

Millions of U.S. Dollars	Note	Year Ended December 31, 2023	2022
Change in inventories of finished goods and work in progress		$ 2,696	$ 1,513
Raw materials and utilities		26,157	36,874
Employee benefit expenses	8	3,515	3,163
Depreciation and amortization	15,16,17	2,140	1,784
Distribution expenses		1,434	1,395
Other expenses		1,980	2,041
Total cost of sales, selling costs, and administration expenses		$ 37,922	$ 46,770

8. Employee Benefit Expenses

The following table presents the components of total employee benefit costs:

Millions of U.S. Dollars	Note	Year Ended December 31, 2023	2022
Wages and salaries		$ 2,695	$ 2,415
Social security		424	390
Share-based compensation granted to directors and employees	9	91	70
Pension costs - defined benefit obligations	26	105	85
Pension costs - defined contribution obligations		66	68
Other post-employment benefits - defined benefit obligations	26	12	8
Other employee benefits		167	127
Total cost of employee benefits		$ 3,560	$ 3,163

9. Share-Based Compensation Granted to Directors and Employees

We are authorized to grant RSUs, Stock options, PSUs, and other cash and stock awards under our Long-Term Incentive Plan (“LTIP”). The Compensation and Talent Development Committee oversees our equity award grants, the type of awards, the required performance measures, and the timing and duration of each grant. The maximum number of shares of our common stock reserved for issuance under the LTIP is 30,000,000 shares. Assuming a maximum payout for our PSU awards, there were 7,778,231 shares available for issuance as of December 31, 2023.

Total share-based compensation expense and the associated tax benefits are as follows:

Millions of U.S. Dollars	Year Ended December 31, 2023	2022
Compensation expense:		
Restricted stock units	$ 44	$ 33
Stock options	10	8
Performance share units	37	29
Total	$ 91	$ 70
Tax benefit:		
Restricted stock units	$ 10	$ 8
Stock options	2	2
Performance share units	9	7
Total	$ 21	$ 17

Restricted Stock Unit Awards—RSUs entitle the recipient to be paid out an equal number of ordinary shares upon vesting. RSUs generally cliff vest on the third anniversary of the grant date.

The fair value of RSUs is based on the market price of the underlying stock on the date of grant. The weighted average grant date fair value for RSUs granted during the years ended December 31, 2023 and 2022 was $93.93 and $96.14, respectively. The total fair value of RSUs vested and issued during 2023 and 2022 was $30 million and $20 million, respectively.

The following table summarizes RSU activity:

	2023		2022	
	Number of Units (in thousands)	Weighted Average Granted Fair Value (Per Share)	Number of Units (in thousands)	Weighted Average Granted Fair Value (Per Share)
Outstanding at January 1	848	$ 95.28	738	$ 93.43
Granted	525	93.93	487	96.14
Vested	(347)	89.09	(335)	92.47
Forfeited	(32)	97.03	(42)	95.17
Outstanding at December 31	994	$ 96.67	848	$ 95.28

As of December 31, 2023, the unrecognized compensation cost related to RSUs was $42 million, which is expected to be recognized over a weighted average period of 1.6 years.

Stock Option Awards—Stock options allow employees the opportunity to purchase ordinary shares of stock in the future at an exercise price equal to the market price at the date of grant. The awards generally have a three-year vesting period that vests in equal increments on the first, second, and third anniversary of the grant date and have a contractual term of ten years.

The fair value of each Stock option is estimated, based on several assumptions, on the date of grant using the Black-Scholes option valuation model. The principal assumptions utilized in valuing Stock options include the expected stock price volatility (based on our historical stock price volatility over the expected term); the expected dividend yield; and the risk-free interest rate (an estimate based on the yield of a United States Treasury zero coupon bond with a maturity equal to the expected term of the option).

The expected term of Stock options granted is estimated based on the weighted average of historical exercise patterns and the midpoint of the remaining expected life.

In 2022, our board of directors declared a special dividend of $5.20 per share to all shareholders as of June 6, 2022. Pursuant to the anti-dilutive provisions under the award agreement, the Compensation Committee authorized the reduction of the exercise price for all outstanding stock options in an amount equal to the special dividends per share. The reduction in exercise price of $5.20 per share for all outstanding stock options was intended to provide an equitable and proportionate adjustment to holders of stock options as a result of the Company's payment of the special dividend. These adjustments did not result in incremental expense.

The weighted average fair value of Stock options granted and the assumptions used in estimating those fair values are as follows:

	Year Ended December 31,	
	2023	2022
Weighted average fair value:	$ 24.85	$ 24.27
Fair value assumptions:		
Dividend yield	5.0 %	4.3 %
Expected volatility	39.9-40.2%	39.1-40.7%
Risk-free interest rate	3.5-4.7%	1.9-4.2%
Weighted average expected term, in years	5.7	5.4

The following table summarizes Stock option activity:

	Number of Shares (in thousands)	Weighted Average Exercise Price	Weighted Average Remaining Term	Aggregate Intrinsic Value (Millions of U.S. Dollars)
Outstanding at January 1, 2022	2,449	$ 91.50		
Granted	372	92.16		
Exercised	(221)	86.23		
Forfeited	(2)	98.40		
Expired	(7)	108.46		
Outstanding at December 31, 2022	2,591	$ 87.46	5.6 years	$ 5
Exercisable at December 31, 2022	1,856	$ 85.69	4.5 years	$ 4
Outstanding at January 1, 2023	2,591	$ 87.46		
Granted	455	94.62		
Exercised	(364)	77.03		
Forfeited	(20)	92.72		
Expired	(18)	98.93		
Outstanding at December 31, 2023	2,644	$ 90.01	5.6 years	$ 19
Exercisable at December 31, 2023	1,851	$ 88.05	4.3 years	$ 17

The aggregate intrinsic value of Stock options exercised during the years ended December 31, 2023 and 2022 was $8 million and $6 million, respectively.

As of December 31, 2023, the unrecognized compensation cost related to Stock options was $6 million, which is expected to be recognized over a weighted average period of 1.4 years. During 2023, cash received from the exercise of Stock options was $25 million and the tax benefit associated with these exercises was $2 million.

Performance Share Units Awards—A target number of PSUs is granted to participants at the beginning of a three-year performance period. Final payout of awards, which can range from 0% to 200% of target shares granted, is determined and paid after the performance period. These awards are settled in shares of common stock, and each unit is equivalent to one share of our common stock.

The payout for PSUs will be equally based on Total Shareholder Return (“TSR”) relative to our peers and a performance metric. The fair value of the portion of the award that vests based on TSR is estimated using a Monte-Carlo simulation. For the other portion of the award, the fair value is determined at the end of each reporting period based on our stock price and the number of shares expected to vest.

The weighted average fair value and the assumptions used in estimating those fair value using a Monte-Carlo simulation are as follows:

	Year Ended December 31,	
	2023	2022
Weighted average fair value	$ 128.95	$ 122.15
Fair value assumptions:		
Expected volatility of LyondellBasell N.V. common stock	38.04 %	48.71 %
Expected volatility of peer companies	22.82-52.73%	23.12-61.28%
Average correlation coefficient of peer companies	0.52	0.59
Risk-free interest rate	4.39 %	1.69 %

The following table summarizes PSU activity assuming payout at 100% of target shares:

	2023		2022	
	Number of Units (in thousands)	Weighted Average Grant Date Fair Value (per share)	Number of Units (in thousands)	Weighted Average Grant Date Fair Value (per share)
Outstanding at January 1	771	$ 102.07	754	$ 95.45
Granted	421	108.05	291	101.33
Vested	(315)	82.42	—	—
Forfeited	(24)	116.46	(274)	78.06
Outstanding at December 31	853	$ 116.39	771	$ 102.07

The total fair value of PSUs vested during 2023 was $24 million paid out at 100% of target shares. As of December 31, 2023, the unrecognized compensation cost related to PSUs was $36 million, which is expected to be recognized over a weighted average period of 1.8 years.

Employee Stock Purchase Plan—We have an Employee Share Purchase Plan ("ESPP") which allows participants to purchase our stock at a 10% discount on the lower of the fair market value at either the beginning or end of the purchase period. As a result of the 10% discount and the look-back provision, the ESPP is considered a compensatory plan. Total expense related to our ESPP was $4 million and $3 million in 2023 and 2022, respectively.

10. Directors' Remuneration

Our Board of Directors is responsible for providing governance and oversight over the strategy, operations, and management of our Company. The Board of Directors consists of non-executive directors and one executive director, our CEO.

*Executive Director Remuneratio*n—Mr. Kenneth Lane served as our interim CEO for the period from January 1, 2022 through May 22, 2022. Mr. Peter Vanacker has served as CEO since May 23, 2022. Mr. Vanacker and Mr. Lane received a base salary, annual bonus, and grants of share-based awards under the Company's Long-Term Incentive Plan. The share-based awards include RSUs, Stock options, and PSUs. Information on these awards can be found in Note 9, Share-Based Compensation Granted to Directors and Employees.

The following table summarizes the full year CEO compensation expense recorded for the years ended December 31, 2023 and December 31, 2022:

Thousands of U.S. Dollars	Salary	Share-Based Compensation[(1)]	Short-Term Incentives[(2)]	Pension Service Cost	All Other Compensation[(3)]	Total
2023						
Peter Vanacker	$ 1,438	$ 7,925	$ 2,703	$ 12	$ 503	$ 12,581
2022						
Peter Vanacker	$ 862	$ 3,504	$ 1,155	$ 12	$ 2,569	$ 8,102
Kenneth Lane	$ 969	$ 3,015	$ 1,237	$ 12	$ 1,614	$ 6,847

(1) Share-based compensation expense represents costs for which are recognized over the vesting period.

(2) Short-term incentives represent annual bonuses paid for performance. The target annual bonus, set as a percentage of base salary, is multiplied by the payout for corporate-wide results. The payout for corporate-wide results ranges from 0 to 200% and is based on (i) health, safety and environmental performance; (ii) business results (earnings before interest, taxes, depreciation and amortization); (iii) value creation; and (iv) sustainability. The corporate wide results paid out at 127% of target for 2023 and 109% of target for 2022.

(3) Amounts included in All Other Compensation in the table above include Company 401(k) matching contributions and pension plan contributions; Company contributions under the Company's U.S. Senior Management Deferral Plan; state taxes owed for work performed in those states on behalf of the Company; executive physicals; payment of professional fees for tax filings; payment of business club memberships and dues; financial planning allowances; relocation costs for Mr. Vanacker; incremental cost for the personal use of Company aircraft by the executive's spouse or personal guests or the payment or reimbursement of commercial travel for spouses related to business trips; a $1.9 million cash sign-on bonus paid in connection with the 2022 appointment of Mr. Vanacker; and a one-time cash retention award paid to Mr. Lane in 2022, of which $1.5 million was expensed in 2022.

The following tables show the equity compensation activity for Mr. Vanacker during 2022 and 2023 and for Mr. Lane during 2022.

Overview of stock options are as follows:

		2022						
Grant Year	**Outstanding at January 1, 2022**	**Granted**	**Exercised**	**Forfeited/ Expired**	**Outstanding at December 31, 2022**	**Vested in 2022**	**Exercise Price**	**Expiration Date**
Peter Vanacker:								
2022	—	96,191	—	—	96,191	—	$ 101.51	5/23/2032
Kenneth Lane:								
2019	4,782	—	—	—	4,782	—	$ 80.68	07/15/2029
2020	26,298	—	13,149	—	13,149	13,149	78.15	02/20/2030
2021	30,707	—	—	—	30,707	10,237	99.21	02/25/2031
2022	—	28,469	—	—	28,469	—	89.26	02/24/2032
Total	61,787	28,469	13,149	—	77,107	23,386		

		2023						
Grant Year	**Outstanding at January 1, 2023**	**Granted**	**Exercised**	**Forfeited/ Expired**	**Outstanding at December 31, 2023**	**Vested in 2023**	**Exercise Price**	**Expiration Date**
Peter Vanacker:								
2022	96,191	—	—	—	96,191	32,065	$ 101.51	5/23/2032
2023	—	107,129	—	—	107,129	—	94.65	2/23/2033
Total	96,191	107,129	—	—	203,320	32,065		

The exercise price in the tables above for 2022 have been modified to reflect the reduction of exercise price related to the special dividend.

Overview of restricted stock units are as follows:

Grant Year	Outstanding at January 1, 2022	2022 Granted	2022 Vested	2022 Forfeited	Outstanding at December 31, 2022	Share Price at Grant Date
Peter Vanacker:						
2022	—	44,413	—	—	44,413	$ 106.71
Kenneth Lane:						
2019	8,069	—	8,069	—	—	$ 85.88
2020	5,774	—	—	—	5,774	83.35
2021	5,878	—	—	—	5,878	104.41
2022	—	7,200	—	—	7,200	94.46
2022	—	13,832	—	—	13,832	111.50
Total	19,721	21,032	8,069	—	32,684	

Grant Year	Outstanding at January 1, 2023	2023 Granted	2023 Vested	2023 Forfeited	Outstanding at December 31, 2023	Share Price at Grant Date
Peter Vanacker:						
2022	44,413	—	10,641	—	33,772	$ 106.71
2023	—	28,211	—	—	28,211	94.65
Total	44,413	28,211	10,641	—	61,983	

Overview of performance share units, assuming payout at 100% of target shares, are as follows:

Grant Year	Outstanding at January 1, 2022	2022 Granted	2022 Vested	2022 Forfeited	Outstanding at December 31, 2022	Share Price at Grant Date
Peter Vanacker:						
2022	—	46,263	—	—	46,263	$ 106.71
Kenneth Lane:						
2019	4,881	—	—	4,881	—	$ 85.88
2020	11,548	—	—	—	11,548	83.35
2021	11,756	—	—	—	11,756	104.41
2022	—	14,399	—	—	14,399	94.46
Total	28,185	14,399	—	4,881	37,703	

Grant Year	Outstanding at January 1, 2023	2023 Granted	2023 Vested	2023 Forfeited	Outstanding at December 31, 2023	Share Price at Grant Date
Peter Vanacker:						
2022	46,263	—	—	—	46,263	$ 106.71
2023	—	56,422	—	—	56,422	94.65
Total	46,263	56,422	—	—	102,685	

Our outstanding performance share units accrue accumulated dividend equivalents per unit during the three-year performance period, which will be converted to additional performance share units at the end of performance period subject to the same terms and conditions as the original award, including final performance factor. Performance share units granted in 2019, 2020, 2021, and 2022 received $12.79, $18.54, $14.34, and $9.90, respectively, of accumulated and accrued dividend equivalents per outstanding unit as of December 31, 2022. For performance share units granted in 2019, accrued dividend equivalents were reversed in 2022 due to final performance factor of 0%.

Performance share units that were granted in 2019 were forfeited in 2022 due to final performance factor of 0% at the end of the three-year performance period.

Performance share units granted in 2022 and 2023 received $14.84 and $4.94, respectively, of accumulated and accrued dividend equivalents per outstanding unit as of December 31, 2023.

Non-Executive Director Remuneration—Our non-executive members of our Board of Directors receive cash and equity compensation, in the form of RSUs, for their service on the Board and its committees. Additionally, Directors have the option to elect to receive all or a portion of the cash component of their compensation in Company shares. The compensation program for our non-executive Directors effective for the years ended December 31, 2023 and 2022 is shown in the table below.

Board Retainer	Cash	$115,000 ($325,000 for Chair)
	RSUs	Valued at $170,000 ($325,000 for Chair)
Committee Retainers	Members	$10,000 ($15,000 for Audit Committee)
	Chairs	$20,000 ($27,500 for Audit and Compensation and Talent Development Committee Chairs)
Travel Fees		$5,000 for each intercontinental round trip

The following table summarizes the compensation expense recorded in our Financial Statements associated with the non-executive members of the Board of Directors for the years ended December 31, 2023 and 2022.

	2023				2022			
Thousands of U.S. Dollars	Fees Earned or Paid in Cash(1)	Stock Compensation (2)	All Other Compensation (3)	Total	Fees Earned or Paid in Cash(1)	Stock Compensation (2)	All Other Compensation (3)	Total
Jacques Aigrain *Chair of the Board*	$ 347	$ 332	$ 13	$ 692	$ 346	$ 334	$ 15	$ 695
Lincoln Benet	145	174	5	324	145	175	5	325
Jagjeet Bindra(6)	57	69	15	141	150	175	24	349
Robin Buchanan	135	174	—	309	135	175	—	310
Anthony Chase	70	254	14	338	70	248	11	329
Nance Dicciani(6)	21	112	10	143	—	333	4	337
Robert Dudley	135	174	20	329	135	175	20	330
Claire Farley	150	174	24	348	150	175	19	344
Rita Griffin(7)	90	105	15	210	—	—	—	—
Michael Hanley	153	174	25	352	153	175	14	342
Virginia Kamsky(5)	135	178	25	338	41	154	8	203
Albert Manifold	141	174	5	320	137	175	5	317
Former Director								
Stephen Cooper(4)	—	—	4	4	—	122	4	126

(1) Includes retainers for services earned or paid through December 31, 2023 and 2022. Mr. Chase elected to receive 50% of the cash component of his 2023 and 2022 compensation in the form of shares of our common stock. Ms. Dicciani elected to receive all of the cash component of her first quarter of 2023 and 2022 compensation in the form of shares of our common stock. Mr. Cooper elected to receive all of the cash component of his 2022 compensation in the form of shares of our common stock until his retirement from the Board. Ms. Kamsky elected to receive 50% of the cash component of her 2022 compensation in the form of shares of our common stock.

(2) Represents annual grants of RSUs for all directors and shares of stock issued in lieu of cash compensation. The annual grants are made in conjunction with the Board's regularly scheduled meeting in May of each year. The terms of the RSUs provide for vesting one year from the date of grant and for cash dividend equivalent payments when dividends are paid on the Company's shares.

In 2023, the annual grant for each director, other than Mr. Aigrain and Ms. Griffin, was 1,860 shares. Mr. Aigrain received 3,556 shares as Chair of the Board while Ms. Griffin received 1,865 shares as she was elected during the Board's regularly scheduled meeting in May 2023. These awards are the only stock awards outstanding at 2023 fiscal year-end for the non-executive Board members. In 2022, the annual grant for each director other than Mr. Aigrain and Ms. Kamsky, was 1,568 shares. Mr. Aigrain received 2,997 shares as Chair of the Board, and Ms. Kamsky received 1,564 shares as she was elected the day after the Board's regularly scheduled meeting.

The shares received in lieu of cash compensation are issued at the same time quarterly cash payments for retainers and travel fees are otherwise made. The number of shares issued is based on the average of the closing price of the Company's shares over the quarter in which the compensation was earned. The shares issued in lieu of cash compensation in 2023 were as follows: Mr. Chase – 857 shares and Ms. Dicciani – 454 shares. The shares issued in lieu of cash compensation in 2022 were as follows: Mr. Chase – 853 shares, Mr. Cooper – 549 shares, Ms. Dicciani – 1,839 shares, and Ms. Kamsky – 556 shares.

(3) Includes $5,000 for each intercontinental trip taken for work performed for the Company. Mr. Chase elected to receive a part of his 2023 and 2022 travel fees in the form of shares of our common stock. In the first quarter of 2023 and in 2022, Ms. Dicciani elected to receive the cash component of the travel fees in the form of shares of our common stock. Mr. Cooper elected to receive his 2022 travel fees in the form of shares of our common stock until his retirement from the Board. Ms. Kamsky elected to receive a part of her 2022 travel fees in the form of shares of our common stock. Also includes retirement gifts in 2023 for Mr. Bindra and Ms. Dicciani, and benefits in kind related to tax preparation and advice related to the 2023 and 2022 Board members' UK and Dutch tax returns and payments. The Company provides these services, through a third party, to members of our Board because of our unique incorporation and tax domicile situation. For Mr. Aigrain, also includes the approximate incremental cost to the Company for the personal use of Company aircraft by a family member traveling with Mr. Aigrain in 2023. Approximate incremental cost for travel on Company aircraft has been determined based on the total trip charge for each flight segment divided by the total number of passengers traveling on that segment.

(4) Mr. Cooper retired from the Board on May 27, 2022.

(5) Ms. Kamsky was elected to the Board on May 26, 2022.

(6) Mr. Bindra and Ms. Dicciani retired from the Board on May 19, 2023.

(7) Ms. Griffin was elected to the Board on May 19, 2023.

11. Other (Income) Expense, Net

The following table presents the components of total Other (income) expenses:

Millions of U.S. Dollars	2023	2022
(Gains)/losses on foreign exchange	32	(37)
(Gains)/losses on sale of investment	(1)	—
Other	14	(28)
Total Other (income) expense, net	$ 45	$ (65)

12. Finance Costs

The following table presents the components of total finance costs:

Millions of U.S. Dollars	2023	2022
Interest expense on borrowings	$ 532	$ 269
Provisions for unwinding of discount	6	1
Foreign exchange (gain) loss from borrowings and cash	1	42
Interest expense on leases	72	69
Other	6	49
Total Finance costs	$ 617	$ 430

13. Income Tax Expense

LyondellBasell Industries N.V. is tax resident in the United Kingdom pursuant to a mutual agreement procedure determination ruling between the Dutch and United Kingdom competent authorities and therefore subject solely to the United Kingdom corporate income tax system. LyondellBasell Industries N.V. has little or no taxable income of its own because, as a holding company, it does not conduct any operations. Through our subsidiaries, we have substantial operations world-wide. Taxes are paid on the earnings generated in various jurisdictions where our subsidiaries operate.

The Company operates in multiple jurisdictions with complex legal and tax regulatory environments and is subject to taxes in the U.S. and non-U.S. jurisdictions. We monitor tax law changes and the potential impact to our results of operations. There continues to be increased attention on the tax practices of multinational companies, in particular the U.S. and Europe where we operate. In 2020, the Organization for Economic Cooperation and Development released Pillar One and Two proposals focused on taxing rights and minimum taxes, where we operate, including the United Kingdom. On July 11, 2023, as part of the Finance (No. 2) Act 2023, legislation was enacted in the United Kingdom which introduced an Income Inclusion Rule, known locally as the multinational top-up tax, and domestic minimum top-up tax. This legislation is applicable to periods after December 31, 2023. We continue to assess and monitor legislative changes, however, based on analysis of historical data, we do not expect the Pillar Two impact to be material based on the legislation enacted at this stage.

The significant components of the provision for income taxes are as follows:

		Year Ended December 31,	
Millions of U.S. Dollars	Note	2023	2022
Current tax on profits for the year		$ 456	$ 550
Deferred tax - origination and reversal of temporary difference	25	(109)	235
Income tax expense/(benefit)		$ 347	$ 785

The following table reconciles the expected tax expense (benefit) at the statutory rates applicable in the countries where the Company operates to the total income tax expense (benefit) as calculated:

	Year Ended December 31,	
Millions of U.S. Dollars	**2023**	**2022**
Profit before tax	$ 2,141	$ 4,583
Tax calculated at domestic tax rates applicable to profits in the respective countries	460	1,011
Tax effects of:		
Exempt income	(223)	(228)
Return to accrual	(29)	16
Uncertain tax positions	14	(80)
Patent box ruling	(31)	—
Non-deductible impairment	69	—
Audit settlement	46	—
Other, net	41	66
Income tax expense /(benefit)	$ 347	$ 785

The weighted average applicable tax rates for 2023 and 2022 were 21.5% and 22.1%, respectively. The decrease was primarily attributable to a change in the geographical mixture of the profit before tax. Our effective income tax rate of 16.2% in 2023 and 17.1% in 2022 resulted in Income tax expense of $347 million and $785 million, respectively. In 2023 the effective income tax rate decreased primarily due to the relative impact of our exempt income on reduced earnings, coupled with fluctuations in return to accruals and benefits recognized in the fourth quarter of 2023 related to a patent box ruling. These decreases were partially offset by an increase in the effective tax rate related to non-deductible impairments, an audit settlement recognized in the second quarter of 2023 and fluctuations in uncertain tax positions.

Our exempt income primarily includes interest income, export incentives, and equity earnings of joint ventures. Interest income earned by certain of our subsidiaries through intercompany financings is taxed at rates substantially lower than the U.S. statutory rate. Export incentives relate to tax benefits derived from elections and structures available for U.S. exports. Equity earnings attributable to the earnings of our joint ventures, when paid through dividends to certain European subsidiaries, are exempt from all or portions of normal statutory income tax rates. We currently anticipate the favorable treatment for interest income, dividends, and export incentives to continue in the near term; however, this treatment is based on current law.

Current and deferred taxes related to items charged or (credited) directly to other comprehensive income during the period are as follows:

	Year Ended December 31,	
Millions of U.S. Dollars	**2023**	**2022**
Current:		
Currency translation differences	$ (26)	$ 54
Derivatives	1	1
Deferred:		
Retirement benefit obligation	(28)	107
Currency translation differences	(5)	6
Derivatives	(28)	54
Other	—	3
	$ (86)	$ 225

Current and deferred taxes credited directly to equity are as follows:

Millions of U.S. Dollars	Year Ended December 31, 2023	Year Ended December 31, 2022
Deferred tax:		
Share-based payments	$ (4)	$ (4)
	$ (4)	$ (4)

14. Earnings per Share

Our unvested restricted stock units contain non-forfeitable rights to dividend equivalents and are considered participating securities. We calculate basic and diluted earnings per share under the two-class method.

Basic earnings per share—Basic earnings per share is based upon the weighted average number of shares of common stock outstanding during the period.

Millions of U.S. Dollars, except per share data	Year Ended December 31, 2023	Year Ended December 31, 2022
Profit attributable to LyondellBasell N.V.	$ 1,794	$ 3,798
Dividends on preferred stock	(7)	(7)
Profit attributable to participating securities	(6)	(10)
Profit attributable to equity holders of the Company	1,781	3,781
Basic weighted average common stock outstanding	325	327
Basic earnings per share	$ 5.48	$ 11.56

Diluted earnings per share—Diluted earnings per share includes the effect of certain stock option and other equity-based compensation awards to assume conversion of all dilutive potential ordinary shares.

Millions of U.S. Dollars, except per share data	Year Ended December 31, 2023	Year Ended December 31, 2022
Profit attributable to LyondellBasell N.V.	$ 1,794	$ 3,798
Dividends on preferred stock	(7)	(7)
Profit attributable to participating securities	(6)	(10)
Profit attributable to equity holders of the Company	1,781	3,781
Basic weighted average common stock outstanding	325	327
Effect of dilutive securities	1	1
Potential dilutive shares	326	328
Diluted earnings per share	$ 5.46	$ 11.54

15. Intangible Assets

Millions of U.S. Dollars	Emission Allowance	Various Contracts	Software	Customer relationship	Goodwill	Other	Total
Balance at January 1, 2022	$ 236	$ 76	$ 79	$ 235	$ 1,670	$ 118	$ 2,414
Acquisitions	—	8	—	—	6	—	14
Additions	56	—	13	—	—	2	71
Retirements	(19)	—	—	—	—	—	(19)
Amortization	(8)	(18)	(14)	(19)	—	(23)	(82)
Transfers	—	4	1	(3)	—	—	2
Exchange differences	(7)	—	1	(4)	(42)	(6)	(58)
Impairments	—	—	—	—	—	—	—
At December 31, 2022	$ 258	$ 70	$ 80	$ 209	$ 1,634	$ 91	$ 2,342
At December 31, 2022							
Cost	$ 771	$ 436	$ 124	$ 297	$ 1,634	$ 352	$ 3,614
Accumulated amortization and impairment	(513)	(366)	(44)	(88)	—	(261)	(1,272)
Closing balance	$ 258	$ 70	$ 80	$ 209	$ 1,634	$ 91	$ 2,342
Balance at January 1, 2023	$ 258	$ 70	$ 80	$ 209	$ 1,634	$ 91	$ 2,342
Acquisitions	—	(1)	6	14	31	14	64
Additions	12	(6)	27	—	—	3	36
Retirements	(20)	—	—	—	—	—	(20)
Amortization	(8)	(18)	(17)	(20)	—	(22)	(85)
Exchange differences	6	4	(1)	1	51	5	66
Transfers	(2)	(5)	3	4	—	—	—
Transfer to assets held for sale	—	—	—	—	(7)	—	(7)
Impairments	—	—	—	(88)	(228)	(1)	(317)
At December 31, 2023	$ 246	$ 44	$ 98	$ 120	$ 1,481	$ 90	$ 2,079
At December 31, 2023							
Cost	$ 764	$ 433	$ 161	$ 317	$ 1,481	$ 375	$ 3,531
Accumulated amortization and impairment	(518)	(389)	(63)	(197)	—	(285)	(1,452)
Closing balance	$ 246	$ 44	$ 98	$ 120	$ 1,481	$ 90	$ 2,079

Research and development—Research and development expenditures not capitalized and recognized as an expense for 2023 and 2022 were $114 million and $108 million, respectively.

Goodwill—The following table indicates goodwill by cash generating unit:

Millions of US dollars	O&P - Americas	O&P - EAI	I&D	APS	PM	CCS	EC	Technology	Total
December 31, 2022	$ 123	$ 29	$ 107	$ 1,371	—	$ —	$ —	$ 4	$ 1,634
Reallocation of goodwill	305	260	—	(565)	—	—	—	—	—
Acquisitions	—	—	—	—	31	—	—	—	31
Transfer to assets held for sale	—	—	(7)	—	—	—	—	—	(7)
Transfer				(730)	495	192	43		—
Impairment charge	—	—	—	—	(77)	(108)	(43)	—	(228)
Foreign currency translation adjustments	—	66	28	(76)	24	9	—	—	51
December 31, 2023	$ 428	$ 355	$ 128	$ —	$ 473	$ 93	$ —	$ 4	$ 1,481

As of December 31, 2022, goodwill included in our Advanced Polymer Solutions reporting unit was $1,371 million, the majority of which related to the 2018 acquisition of A. Schulman. As of December 31, 2022, a large portion of the Advanced Polymer Solutions reporting unit's fair value was derived from our *Catalloy* and polybutene-1 businesses, which had disproportionately low carrying values in comparison to the remaining assets of the reporting unit, which had relatively higher carrying values due to the 2018 purchase price allocation associated with the acquisition of A. Schulman. Effective January 1, 2023, our *Catalloy* and polybutene-1 businesses were moved from our Advanced Polymer Solutions segment and reintegrated into our Olefins and Polyolefins-Americas and Olefins and Polyolefins-Europe, Asia, International segments. Accordingly, on January 1, 2023, we allocated goodwill of $565 million from our Advanced Polymer Solutions segment to our Olefins and Polyolefins-Americas and Olefins and Polyolefins-Europe, Asia, International segments. The amounts allocated were $305 million and $260 million for Olefins and Polyolefins-Americas and Olefins and Polyolefins-Europe, Asia, International segments, respectively. The allocation was based on the fair values of the businesses that were reintegrated relative to the fair value of the Advanced Polymer Solutions segment. Our goodwill in the Advanced Polymer Solutions segment was reallocated to three groups of cash generating units as a result of the reorganization: Engineering Composites, Performance Materials and Custom Concentrates and Solutions.

As a result of the reallocation of goodwill and the change in both fair value and carrying value among reporting units, we recognized a non-cash impairment charge of $228 million on goodwill, $88 million on customer relationships, and $1 million on other contracts in 2023 in our Advanced Polymer Solutions segment.

At year end, the recoverable amounts of our cash generating units were determined based on value-in-use calculations except for the groups of cash generating units in our Advanced Polymer Solutions segment where we used fair value less cost of disposal. The value-in-use calculations were based on pre-tax discounted cash flows obtained from financial budgets covering a five-year period. Cash flows beyond the five-year period are extrapolated using the estimated growth rates described in the "Growth rate estimates" section below. The fair value less cost of disposal calculations were based on discounted cash flows reflecting market participant assumptions. Except for Performance Materials, the recoverable amounts of each of our cash generating units or groups of cash generating units were substantially in excess of their carrying value. In the case of Performance Materials, the recoverable amount was higher than its carrying value by approximately 5%.

The calculation of fair value is most sensitive to the following assumptions:

- Gross margin;
- Discount rates;
- Market share assumptions; and
- Growth rate used to extrapolate cash flows beyond the budget period.

An estimate of the sensitivity to net income resulting from impairment calculations is not practicable, given the numerous assumptions, including pricing, volumes, discount rates, and market information provided by unrelated third parties that can materially affect our estimates. That is, unfavorable adjustments to some of the above listed assumptions may be offset by favorable adjustments in other assumptions.

Gross margins—Gross margins are predicted in the planning period by using key hydrocarbon pricing estimates and product variable margins based on macroeconomic predictions and individual supply and demand balances.

Discount rates—Discount rates represent the current market assessment of the time value of money and risks specific to the cash generating unit for which the estimates of the cash flows have not been adjusted. The discount rate calculation is based on the nature of the assets and activities of the Company's cash generating units and derived from its weighted average cost of capital ("WACC"). The WACC takes into account both debt and equity. The cost of equity is derived from the expected return on investment by the nature of the Company's assets and activities.

Market share assumptions—These assumptions represent management's assessment of how the cash generating unit's position, relative to its competitors, might change over the forecast period and are based on market data and forecasts that reflect developments in demand such as global economic growth as well as assumptions regarding supply including global capacity.

Growth rate estimates—Rates are based upon managements' best estimates which are determined using published third party sources, internal knowledge and market insights based on macroeconomic predictions.

The key assumptions used for value-in-use and fair value less cost of disposal calculations in connection with our annual tests were as follows:

	2023		2022	
	Discount Rate	**Growth Rate**	**Discount Rate**	**Growth Rate**
Intermediates and Derivatives	11 %	2 %	10 %	2 %
Olefins and Polyolefins - Americas	10.5 %	2 %	9 %	2 %
Olefins and Polyolefins - EAI	10.5 %	1 %	10 %	1 %
Technology	11 %	1 %	10 %	1 %
Advanced Polymers Solutions	N/A	N/A	12 %	2 %
Performance Materials	11.5 %	2 %	N/A	N/A
Custom Concentrates and Solutions	15 %	2 %	N/A	N/A

The key assumptions used for fair value less cost of disposal calculations in January 2023 in connection with the reorganization of our Advanced Polymer Solutions Segment were as follows:

	Discount Rate	**Growth Rate**
Engineering Composites	14 %	2 %
Performance Materials	12 %	2 %
Custom Concentrates and Solutions	14 %	2 %

16. Property, Plant and Equipment

Millions of U.S. Dollars	Land	Major Manufacturing Equipment	Buildings	Major Turnarounds	Light Equipment and Instrumentation	Furniture and Fixtures	Information Systems	Assets Under Construction	Joint Operations	Total
Balance at January 1, 2022	$ 334	$ 7,312	$ 775	$ 511	$ 1,784	$ 7	$ 10	$ 4,121	$ 3,679	$ 18,533
Additions	—	60	—	—	—	—	—	1,839	116	2,015
Transfers	—	1,780	1,078	291	251	1	4	(3,405)	(10)	(10)
Retirements	—	(14)	—	—	(3)	—	—	—	—	(17)
Disposals	(1)	—	—	—	(1)	—	—	—	(1)	(3)
Depreciation	—	(564)	(48)	(211)	(263)	(1)	(5)	—	(191)	(1,283)
Impairments	—	(22)	—	—	—	—	(1)	(2)	—	(25)
Exchange differences	(14)	101	(10)	9	12	(1)	1	(31)	(117)	(50)
At December 31, 2022	$ 319	$ 8,653	$ 1,795	$ 600	$ 1,780	$ 6	$ 9	$ 2,522	$ 3,476	$ 19,160
At December 31, 2022										
Cost	$ 319	$ 13,993	$ 2,281	$ 1,732	$ 3,528	$ 22	$ 63	$ 2,522	$ 4,375	$ 28,835
Accumulated depreciation and impairment	—	(5,340)	(486)	(1,132)	(1,748)	(16)	(54)	—	(899)	(9,675)
Closing balance	$ 319	$ 8,653	$ 1,795	$ 600	$ 1,780	$ 6	$ 9	$ 2,522	$ 3,476	$ 19,160
Balance at January 1, 2023	$ 319	$ 8,653	$ 1,795	$ 600	$ 1,780	$ 6	$ 9	$ 2,522	$ 3,476	$ 19,160
Additions	3	22	8	—	44	—	—	1,590	112	1,779
Transfers	—	1,842	228	330	207	—	5	(2,612)	—	—
Retirements	—	(46)	(1)	—	(3)	—	—	—	—	(50)
Disposals	(1)	(2)	—	—	—	—		—	(2)	(5)
Depreciation	—	(761)	(91)	(217)	(276)	(1)	(4)	—	(172)	(1,522)
Impairments	—	(37)	—	—	—	—	—	(35)	(182)	(254)
Transfer to Assets held for sale	(4)	(123)	(5)	—	(31)	—	—	(62)	—	(225)
Exchange differences	10	14	10	23	57	—	—	19	(43)	90
At December 31, 2023	$ 327	$ 9,562	$ 1,944	$ 736	$ 1,778	$ 5	$ 10	$ 1,422	$ 3,189	$ 18,973
At December 31, 2023										
Cost	$ 327	$ 15,637	$ 2,515	$ 1,888	$ 3,796	$ 21	$ 67	$ 1,422	$ 4,808	$ 30,481
Accumulated depreciation and impairment	—	(6,075)	(571)	(1,152)	(2,018)	(16)	(57)	—	(1,619)	(11,508)
Closing balance	$ 327	$ 9,562	$ 1,944	$ 736	$ 1,778	$ 5	$ 10	$ 1,422	$ 3,189	$ 18,973

The below table outlines the Property, Plant and Equipment by category for our share of Joint operation fixed assets:

Millions of U.S. Dollars	Land	Major Manufacturing Equipment	Buildings	Light Equipment and Instrumentation	Assets Under Construction	Other	Total
Balance at January 1, 2022	$ 21	$ 2,488	$ 275	$ 90	$ 61	$ 744	$ 3,679
Additions	—	—	—	—	53	63	116
Transfers	—	9	5	—	(9)	(15)	(10)
Disposals	—	—	—	—	—	(1)	(1)
Depreciation	—	(127)	(9)	(8)	—	(48)	(192)
Impairments	—	—	—	—	—	—	—
Exchange differences	—	(87)	2	1	(5)	(27)	(116)
At December 31, 2022	$ 21	$ 2,283	$ 273	$ 83	$ 100	$ 716	$ 3,476
At December 31, 2022							
Cost	$ 21	$ 2,541	$ 296	$ 101	$ 100	$ 1,316	$ 4,375
Accumulated depreciation and impairment	—	(258)	(23)	(18)	—	(600)	(899)
Closing balance	$ 21	$ 2,283	$ 273	$ 83	$ 100	$ 716	$ 3,476
Balance at January 1, 2023	$ 21	$ 2,283	$ 273	$ 83	$ 100	$ 716	$ 3,476
Additions	—	22	—	—	30	60	112
Transfers	5	49	(21)	3	(41)	5	—
Disposals	—	—	—	—	—	(2)	(2)
Depreciation	—	(107)	(9)	(8)	—	(48)	(172)
Impairments	—	—	—	—	—	(182)	(182)
Exchange differences	—	(20)	(5)	—	(1)	(17)	(43)
At December 31, 2023	$ 26	$ 2,227	$ 238	$ 78	$ 88	$ 532	$ 3,189
At December 31, 2023							
Cost	$ 26	$ 2,592	$ 270	$ 104	$ 88	$ 1,728	$ 4,808
Accumulated depreciation and impairment	—	(365)	(32)	(26)	—	(1,196)	(1,619)
Closing balance	$ 26	$ 2,227	$ 238	$ 78	$ 88	$ 532	$ 3,189

The largest joint operations for the Company are the Louisiana Integrated PolyEthylene JV LLC and Bora LyondellBasell Petrochemical Co., Ltd. Our share of the property, plant and equipment, net, for these joint operations was $1,738 million and $919 million respectively at December 31, 2023, and $1,788 million and $972 million respectively at December 31, 2022.

Capitalized borrowing costs—We capitalize interest costs incurred on funds used to construct property, plant and equipment. In 2023 and 2022, we capitalized interest of $7 million and $114 million, respectively.

Disposition—In the second quarter of 2022 we sold our ownership interest in our polypropylene manufacturing facility located in Geelong, Australia, LyondellBasell Australia (Holdings) Pty Ltd, for consideration of $38 million. In connection with this sale, we assessed the assets of the disposal group for impairment and determined that the carrying value exceeded the fair value less costs to sell. As a result, we recognized a non-cash impairment charge in the second quarter of 2022 of $69 million in the operating results of our Olefins and Polyolefins - Europe, Asia, International segment. The fair value measurement for the disposal group was based on expected consideration and classified as Level 3 within the fair value hierarchy. The charge is reflected as Impairments in our Consolidated Statements of Income.

Impairment of Property, Plant and Equipment—In 2023, we recognized a $182 million non-cash impairment related to our European PO Joint Operation, reducing its carrying value to an estimated fair value of zero. Also, in conjunction with the APS segment reporting changes disclosed above, we recognized a non-cash impairment charge of $35 million in our APS segment.

Depreciation of property, plant, equipment and right-of-use assets and amortization of intangible assets are recognized in Cost of sales, Selling costs and Administrative expenses as indicated in the following table:

	Year Ended December 31,	
Millions of U.S. Dollars	2023	2022
Cost of sales	$ 2,140	$ 1,778
Selling costs	$ —	$ 1
Administrative expenses	$ —	$ 5
Total	$ 2,140	$ 1,784

17. Leases

We lease storage tanks, terminal facilities, land, office facilities, railcars, pipelines, barges, plant equipment and other equipment. As of December 31, 2023 and 2022, our Right-of-use assets were $1,671 million and $1,867 million, respectively. As of December 31, 2023 and 2022, lease liabilities totaled $1,964 million and $2,026 million, respectively. These values were derived using a weighted average discount rate of 3.8% in 2023 and 3.4% in 2022.

Our leases have a weighted-average remaining lease term of 9 years. While extension clauses included in our leases do not materially impact our Right-of-use assets or Lease liabilities, certain leases include options to extend the lease for up to 20 years.

Millions of U.S. dollars	Storage	Railcars	Land	Offices	Pipelines	Other	Total
Balance at January 1, 2022	$ 1,353	$ 281	$ 121	$ 107	$ 96	$ 131	$ 2,089
Additions	41	54	—	17	2	29	143
Changes	87	58	—	11	1	(8)	149
Depreciation	(317)	(87)	(5)	(31)	(13)	(35)	(488)
Terminations and other	(8)	(1)	(6)	(4)	—	(7)	(26)
Balance at December 31, 2022	$ 1,156	$ 305	$ 110	$ 100	$ 86	$ 110	$ 1,867
Balance at January 1, 2023	$ 1,156	$ 305	$ 110	$ 100	$ 86	$ 110	$ 1,867
Additions	52	98	1	16	—	80	247
Changes	79	20	—	8	13	(14)	106
Depreciation	(348)	(96)	(6)	(34)	(13)	(36)	(533)
Impairments	—	—	(10)	—	—	—	(10)
Terminations and other	(1)	(14)	23	—	(3)	(11)	(6)
Balance at December 31, 2023	$ 938	$ 313	$ 118	$ 90	$ 83	$ 129	$ 1,671

The following table sets out the cash and non-cash movements for the lease liability for the period:

Millions of U.S. dollars		
Balance as at January 1, 2022	$	2,141
Cash Flows		(382)
Additions - Leases		143
Changes - Leases		149
Other non-cash movements		(25)
Balance as at December 31, 2022	$	2,026
Balance as at January 1, 2023	$	2,026
Cash Flows		(416)
Additions - Leases		247
Changes - Leases		106
Other non-cash movements		1
Balance as at December 31, 2023	$	1,964

The following table presents the timing of maturities related to our Lease liabilities as of December 31, 2023:

Millions of U.S. dollars		
2024	$	453
2025		372
2026		305
2027		254
2028		161
Thereafter		757
Total lease payments		2,302
Less: Imputed interest		(338)
Total	$	1,964

The following table presents the components of Lease cost for the years ended December 31, 2023 and 2022:

Millions of U.S. dollars		2023		2022
Lease costs				
Depreciation of right-of-use assets	$	526	$	487
Interest on lease liabilities		72		69
Net lease costs	$	598	$	556

In connection with the planned exit from the refinery business, announced in April 2022, we recognized accelerated lease amortization costs of $110 million during 2023 and $91 million during 2022 which is included in Depreciation of right-of-use assets lease cost above. See Note 31 to the Consolidated Financial Statements for additional information regarding the planned exit.

Cash paid for Lease liabilities principal and interest represented $416 million and $72 million, respectively, for the year ended December 31, 2023 and $382 million and $69 million, respectively, for the year ended December 31, 2022.

As of December 31, 2023, we have entered into additional leases, with an undiscounted value of $148 million, primarily for buildings, that have not yet commenced. These leases, which will commence in 2024 and 2025, have lease terms ranging from 2 to 12 years.

18. Investments in Associates, Joint Ventures and Acquisition of Joint Operations

Summarized aggregate financial information of the joint ventures and associates are shown below.

The amounts recognized on our Consolidated Statement of Financial Position as of December 31 are as follows:

Millions of U.S. Dollars	2023	2022
Associates	$ 231	$ 261
Joint ventures	929	877
Total	$ 1,160	$ 1,138

The amounts recognized on our Consolidated Statement of Income for the year ended December 31 are as follows:

Millions of U.S. Dollars	2023	2022
Associates	$ (40)	$ (16)
Joint ventures	108	32
Total	$ 68	$ 16

Associates—The changes in our investments in Associates for the year ended December 31 are as follows:

Millions of U.S. Dollars	2023	2022
Opening balance	$ 261	$ 292
Share in profit of associates, net of tax	(40)	(16)
Contributions	30	5
Dividends received	(4)	(6)
Impairments	(20)	—
Currency exchange differences	4	(14)
Closing balance	$ 231	$ 261

Currency exchange differences are reported in the Consolidated Statement of Other Comprehensive Income within Currency translation of foreign operations.

Joint Ventures—The changes in our Joint Venture investments for the year ended December 31 are as follows:

Millions of U.S. Dollars	2023	2022
Opening balance	$ 877	$ 1,052
Share in profit of joint ventures, net of tax	108	32
Dividends received	(123)	(252)
Contributions	102	4
Other	(35)	41
Closing balance	$ 929	$ 877

Currency exchange differences are reported in the Consolidated Statement of Other Comprehensive Income within Currency translation of foreign operations. None of the associates and joint ventures are listed on a stock exchange.

Principal Subsidiaries—Information about principal subsidiaries at December 31, 2023 is set out in Appendix A.

Associates, Joint Ventures and Joint Operations—Our principal Associates, Joint Ventures and Joint Operations are as follows:

Entity Name	Jurisdiction of formation and principal place of business	Percent Owned
Bora LyondellBasell Petrochemical Co., Ltd.	China	50%
Ningbo ZRCC Lyondell Chemical Co. Ltd.	China	27%
Ningbo ZRCC LyondellBasell New Material Company Limited	China	50%
PolyMirae Co., Ltd.	Republic Of Korea	50%
Indelpro, S.A. de C.V.	Mexico	49%
Basell Orlen Polyolefins Sp. Z.o.o.	Poland	50%
Al Waha Petrochemical Company	Saudi Arabia	25%
Saudi Ethylene & Polyethylene Company	Saudi Arabia	25%
Saudi Polyolefins Company	Saudi Arabia	25%
HMC Polymers Company Limited	Thailand	29%
Louisiana Integrated PolyEthylene JV LLC	United States	50%
LyondellBasell Covestro Manufacturing Maasvlakte V.O.F	Netherlands	50%
PO JV, LP	United States	61%

19. Inventories

Inventories consisted of the following components at December 31:

Millions of U.S. Dollars	2023	2022
Finished goods	$ 3,301	$ 3,393
Parts and materials	975	944
Raw materials and supplies	1,225	1,453
Total inventories	$ 5,501	$ 5,790

Cost of inventories expensed in Cost of sales was $28,853 million and $38,387 million in 2023 and 2022, respectively.

20. Trade and Other Receivables

Trade and Other Receivables consisted of the following at December 31:

Millions of U.S. Dollars	2023	2022
Accounts receivable, trade	$ 3,361	$ 3,405
Accounts receivable, related parties	193	349
Less: allowance for trade receivables losses	(6)	(7)
Trade receivables, net	3,548	3,747
Social security and other taxes	197	204
Prepaid expenses	306	589
Other	531	560
Total	4,582	5,100
Less: non-current portion	(285)	(223)
Current portion	$ 4,297	$ 4,877

The carrying value of trade and other receivables approximates their fair value. The maximum exposure to credit risk at the reporting date is the carrying value of each class of receivable mentioned above. We do not hold any collateral as security.

The aging of the net trade receivables at December 31 was as follows:

Millions of U.S. Dollars	2023	2022
Amounts undue	$ 3,459	$ 3,651
Past due 0-90 days	120	100
Rebate credits	(31)	(4)
Total	$ 3,548	$ 3,747

The aging of the gross provision for doubtful debts provided for at December 31 was as follows:

	2023		2022	
Millions of U.S. Dollars	Gross	Provision	Gross	Provision
Amounts undue	$ —	$ —	$ —	$ —
Past due 0-90 days	—	—	—	—
Past due 91-180 days	6	6	7	7
Total	$ 6	$ 6	$ 7	$ 7

The movement in the allowance for doubtful accounts is as follows:

Millions of U.S. Dollars	2023	2022
Balance, January 1	$ 7	$ 7
(Write off) additions, net	(1)	—
Balance, December 31	$ 6	$ 7

Trade receivables secured by letters of credit were $61 million and $54 million at December 31, 2023 and 2022, respectively. The carrying amounts of trade and other receivables are denominated in the following currencies at December 31:

Millions of Euros/U.S. dollars	2023	2022
USD	$ 2,939	$ 3,038
EUR	1,103	1,234
Other	540	828
Total	$ 4,582	$ 5,100

21. Cash and Cash Equivalents

For the purpose of the Consolidated Statement of Cash Flows, Cash and cash equivalents comprise the following at December 31:

Millions of U.S. Dollars	2023	2022
Cash at bank and on hand	$ 1,101	$ 1,198
Short-term deposits	2,432	1,191
Total	$ 3,533	$ 2,389

Cash at banks earns interest at floating rates based on daily bank deposit rates. Short-term deposits are made for varying periods of between one-day and three-months, depending on the immediate cash requirements, and earn interest at the respective short-term deposit rates.

22. Equity Attributable to the Owners of the Company

The Company's authorized share capital totals €51 million divided into 1,275 million ordinary shares of €0.04 each. Other reserves comprise of gains and losses on pension revaluation, financial instruments and foreign currency revaluations.

For a breakdown of Equity attributable to equity holders, refer to the Consolidated Statement of Changes in Equity. For a detail of the non-distributable reserves, refer to the Corporate Financial Statements.

Dividend distribution—We declared and paid the following dividends for the following periods:

Millions of U.S. dollars, except per share amounts	Dividend Per Ordinary Share	Aggregate Dividends Paid	Date of Record
For the year 2023:			
March - Quarterly dividend	$ 1.19	$ 389	March 6, 2023
June - Quarterly dividend	1.25	408	May 30, 2023
September - Quarterly dividend	1.25	407	August 28, 2023
December - Quarterly dividend	1.25	406	November 27, 2023
	$ 4.94	$ 1,610	
For the year 2022:			
March - Quarterly dividend	$ 1.13	$ 371	March 7, 2022
June - Quarterly dividend	1.19	389	June 6, 2022
June - Special dividend	5.20	1,704	June 6, 2022
September - Quarterly dividend	1.19	388	August 29, 2022
December - Quarterly dividend	1.19	386	November 28, 2022
	$ 9.90	$ 3,238	

In addition to the dividends paid to ordinary shareholders above, in 2022 we paid $8 million of dividend equivalents to holders of RSUs, which are recognized as dividends in Retained earnings.

In February, May, August and November 2023, we paid cash dividends of $15.00 per share to our redeemable non-controlling interest stock shareholders of record as of January 15, 2023, April 15, 2023, July 15, 2023, and October 15, 2023, respectively. In 2023 and 2022, total dividends were $7 million for each year.

Share Repurchase Authorization—In May 2023, our shareholders approved a proposal to authorize us to repurchase up to 34.0 million ordinary shares, through November 19, 2024 (“2023 Share Repurchase Authorization”), which superseded any prior repurchase authorizations. The timing and amount of these repurchases, which are determined based on our evaluation of market conditions and other factors, may be executed from time to time through open market or privately negotiated transactions. The repurchased shares, which are recorded at cost, are classified as Treasury stock and may be retired or used for general corporate purposes, including for various employee benefit and compensation plans.

In May 2022, our shareholders approved a proposal to authorize us to repurchase up to 34.0 million ordinary shares, through November 27, 2023 (“2022 Share Repurchase Authorization”), which superseded any prior repurchase authorizations.

The following table summarizes our share repurchase activity for the periods presented:

Millions of U.S. dollars, except shares and per share amounts	Shares Repurchased	Average Purchase Price	Total Purchase Price, Including Commissions and Fees
For the year 2023:			
2022 Share Repurchase Authorization	1,365,898	$ 88.98	$ 122
2023 Share Repurchase Authorization	983,309	90.99	89
	2,349,207	$ 89.82	$ 211
For the year 2022:			
2021 Share Repurchase Authorization	2,111,538	$ 97.72	$ 206
2022 Share Repurchase Authorization	2,286,216	87.50	200
	4,397,754	$ 92.41	$ 406

Total cash paid for share repurchases for the years ended December 31, 2023 and 2022, was $211 million and $420 million, respectively. Cash payments made during the reporting period may differ from the total purchase price, including commissions and fees, due to the timing of payments.

As of December 31, 2023 and 2022, we had 113,075 and 113,471 shares of redeemable non-controlling interest stock outstanding, respectively. During the years ended December 31, 2023 and 2022, 396 and 1,903 shares were redeemed for less than a $1 million and $2 million, respectively. There were no share redemptions during 2021.

Ordinary Shares—The changes in the outstanding amounts of ordinary shares are as follows:

	December 31, 2023	December 31, 2022
Ordinary shares outstanding:		
Beginning balance	325,723,567	329,536,389
Share-based compensation	793,984	291,104
Employee stock purchase plan	315,058	293,828
Purchase of ordinary shares	(2,349,207)	(4,397,754)
Ending balance	324,483,402	325,723,567

Treasury Shares—The changes in the amounts of treasury shares held by the Company are as follows:

	December 31, 2023	December 31, 2022
Ordinary shares held as Treasury shares:		
Beginning balance	14,698,931	10,675,605
Share-based compensation	(793,984)	(291,104)
Employee stock purchase plan	(315,058)	(83,324)
Purchase of ordinary shares	2,349,207	4,397,754
Ending balance	15,939,096	14,698,931

Accumulated Other Comprehensive Loss—The components of, and after-tax changes in, Accumulated other comprehensive loss as of and for the years ended December 31, 2023 and 2022 are presented in the following table:

Millions of U.S. dollars	Financial Derivatives	Defined Benefit Pension and Other Post-retirement Benefit Plans	Foreign Currency Translation Adjustments	Total
Balance—December 31, 2021	$ (330)	$ (329)	$ (919)	$ (1,578)
Other comprehensive income (loss) before reclassifications	$ 303	$ 386	$ (84)	$ 605
Tax expense before reclassifications	(66)	(107)	(60)	(233)
Amounts reclassified from accumulated other comprehensive loss	(53)	—	—	(53)
Tax (expense) benefit	12	—	—	12
Net other comprehensive income (loss)	196	279	(144)	331
Balance—December 31, 2022	$ (134)	$ (50)	$ (1,063)	$ (1,247)
Other comprehensive income (loss) before reclassifications	$ (139)	$ (103)	$ 41	$ (201)
Tax benefit before reclassifications	36	28	31	95
Amounts reclassified from accumulated other comprehensive loss	39	—	—	39
Tax (expense) benefit	(9)	—	—	(9)
Net other comprehensive income (loss)	(73)	(75)	72	(76)
Balance—December 31, 2023	$ (207)	$ (125)	$ (991)	$ (1,323)

23. Non-Controlling Interests

Non-controlling interests primarily represent the interest of unaffiliated investors in a partnership that owns our PO/SM II plant at the Channelview, Texas complex and A. Schulman plastics.

24. Borrowings

The carrying amounts of borrowings and the fair value of borrowings as of December 31 are as follows:

	2023		2022	
Millions of U.S. Dollars	Carrying Value	Fair Value	Carrying Value	Fair Value
Non-current:				
Senior Notes due 2024, $1,000 million, 5.75%	$ —	$ —	$ 774	$ 778
Senior Notes due 2055, $1,000 million, 4.625%	975	876	974	803
Guaranteed Notes due 2025, $500 million, 1.250%	481	460	475	440
Guaranteed Notes due 2026, €500 million, 0.875%	542	518	518	466
Guaranteed Notes due 2027, $1,000 million, 3.5%	585	570	587	550
Guaranteed Notes due 2027, $300 million, 8.1%	300	324	300	328
Guaranteed Notes Due 2030, $500 million, 3.375%	124	121	120	121
Guaranteed Notes Due 2030, $500 million, 2.250%	474	429	469	399
Guaranteed Notes due 2031, €500 million, 1.625%	542	481	516	415
Guaranteed Notes Due 2040, $750 million, 3.375%	742	579	741	536
Guaranteed Notes due 2043, $750 million, 5.25%	726	723	725	671
Guaranteed Notes due 2044, $1,000 million, 4.875%	982	927	982	843
Guaranteed Notes due 2049, $1,000 million, 4.2%	976	803	976	752
Guaranteed Notes Due 2050, $1,000 million, 4.20%	975	796	971	749
Guaranteed Notes Due 2051, $1,000 million, 3.625%	916	731	897	684
Guaranteed Notes Due 2060, $500 million, 3.800%	483	362	481	332
Guaranteed Notes Due 2033, $500 million, 5.625%	495	525	—	—
Term loan due 2027, $1,657 million, 5.61%	454	454	454	454
Other	190	190	230	230
Total	10,962	9,869	11,190	9,551
Current:				
Senior Notes due 2024, $1,000 million, 5.75%	775	775	—	—
Guaranteed Notes due 2023, $750 million, 4%	—	—	424	422
Current portion Term loan due 2027, $1,657 million, 5.18%	135	135	97	97
Commercial Paper	—	—	200	200
Other	205	202	197	171
Total	1,115	1,112	918	890
Total borrowings	$ 12,077	$ 10,981	$ 12,108	$ 10,441

The fair values of the senior notes and guaranteed notes are based on data obtained from well-established and recognized vendors of market data for debt valuations. The fair value of the finance payable to investees and the Other equals the carrying amount, as the impact of discounting is not significant.

The following table sets out an analysis of the cash movements in borrowings for the period.

Millions of U.S. Dollars	Current Borrowings	Non-current Borrowings	Total
Balance as at January 1, 2022	$ 495	$ 12,007	$ 12,502
Net Cash Flows	—	(103)	(103)
Foreign Exchange Adjustments	(2)	(299)	(301)
Other Non-cash Movements	425	(415)	10
Balance as at December 31, 2022	918	11,190	12,108
Net Cash Flows	(565)	461	(104)
Foreign Exchange Adjustments	—	36	36
Other Non-cash Movements	762	(725)	37
Balance as at December 31, 2023	$ 1,115	$ 10,962	$ 12,077

Gains (losses) related to fair value adjustments associated with the fair value hedge accounting of our fixed-for-floating interest rate swaps for the applicable periods are as follows:

	Gains (Losses)		Cumulative Fair Value Hedging Adjustments Included in Carrying Amount of Debt	
	Year Ended December 31,		Year Ended December 31,	
Millions of U.S Dollars	2023	2022	2023	2022
Guaranteed Notes due 2025, 1.25%	$ (5)	$ 12	$ 9	$ 14
Guaranteed Notes due 2026, 0.875%	(5)	12	8	13
Guaranteed Notes due 2027, 3.5%	2	46	2	—
Guaranteed Notes due 2030, 3.375%	(4)	23	17	21
Guaranteed Notes due 2030, 2.25%	(4)	22	20	24
Guaranteed Notes due 2031, 1.625%	(8)	11	3	11
Guaranteed Notes due 2050, 4.2%	(4)	10	9	13
Guaranteed Notes due 2051, 3.625%	(18)	90	72	90
Guaranteed Notes due 2060, 3.8%	(2)	9	7	9
Total	$ (48)	$ 235	$ 147	$ 195

These fair values adjustments are recognized in finance cost in the Consolidated Statement of income.

The carrying amounts of our borrowings are denominated in the following currencies:

	December 31,	
Millions of U.S. Dollars	2023	2022
USD	$ 10,124	$ 10,236
EUR	1,092	1,041
CNY	803	742
Other	58	89
Total	$ 12,077	$ 12,108

Long-Term Debt

Senior Revolving Credit Facility—Our $3,250 million senior unsecured revolving credit facility (the "Senior Revolving Credit Facility"), which expires in November 2026, may be used for dollar and euro denominated borrowings. The facility has a $200 million sub-limit for dollar and euro denominated letters of credit, a $1,000 million uncommitted accordion feature, and supports our commercial paper program. In May 2023, we amended our Senior Revolving Credit Facility to update the interest rate benchmark to reference the secured overnight financing rate ("SOFR") rather than the London Interbank Offered Rate ("LIBOR"). Borrowings under the facility bear interest at either a base rate, SOFR or EURIBOR rate, plus an applicable margin. Additional fees are incurred for the average daily unused commitments. At December 31, 2023, we had no borrowings or letters of credit outstanding and $3,250 million of unused availability under this facility.

The facility contains customary covenants and warranties, including specified restrictions on indebtedness and liens. Additionally, we are required to maintain a maximum leverage ratio (calculated as the ratio of total net funded debt to consolidated earnings before interest, taxes and depreciation and amortization, both as defined in the Amended and Restated Credit Agreement) financial covenant 3.50 to 1.00. In the event an acquisition meeting certain thresholds is consummated, we can elect to increase the maximum leverage ratio for each of the first six fiscal quarters ending after such acquisition, as indicated in the Amended and Restated Credit Agreement.

Covenants and Provisions—Our $300 million 8.1% guaranteed notes due 2027, which are guaranteed by LyondellBasell Industries Holdings B.V., a wholly owned subsidiary of LyondellBasell Industries N.V., contain certain restrictions with respect to the level of maximum debt that can be incurred and security that can be granted by certain operating companies that are direct or indirect wholly owned subsidiaries of LyondellBasell Industries Holdings B.V. These notes contain customary provisions for default, including, among others, the non-payment of principal and interest, certain failures to perform or observe obligations under the Agreement on the notes, the occurrence of certain defaults under other indebtedness, failure to pay certain indebtedness and the insolvency or bankruptcy of certain LyondellBasell Industries N.V. subsidiaries.

The indentures governing all other notes contain limited covenants, including those restricting our ability and the ability of our subsidiaries to incur indebtedness secured by significant property or by capital stock of subsidiaries that own significant property, enter into certain sale and lease-back transactions with respect to any significant property or enter into consolidations, mergers or sales of all or substantially all of our assets.

We may redeem some of our notes at any time in whole, or from time to time in part, prior to their respective maturity dates, at a redemption price equal to the greater of (i) 100% of the principal amount of the notes redeemed and (ii) the sum of the present values of the remaining scheduled payments of principal and interest (discounted at the applicable treasury yield or comparable government bond rate plus their respective basis points) on the notes to be redeemed. Some of our notes may also be redeemed prior to their respective maturity dates, at a redemption price equal to 100% of the principal amount of the notes redeemed plus accrued and unpaid interest. Certain notes are also redeemable upon certain tax events.

Further, our Senior Notes due 2024 may be redeemed and repaid, in whole at any time or in part from time to time prior to the date that is 90 days prior to the scheduled maturity date of the notes at a redemption price equal to 100% of the principal amount of the notes redeemed plus a premium for each note redeemed equal to the greater of 1.00% of the then outstanding principal amount of the note and the excess of: (a) the present value at such redemption date of (i) the principal amount of the note at maturity plus (ii) all required interest payments due on the note through maturity (excluding accrued but unpaid interest), computed using a discount rate equal to the Treasury Rate as of such redemption date plus 50 basis points; over (b) the outstanding principal amount of the note. These notes may also be redeemed, in whole or in part, at any time on or after the date which is 90 days prior to the final maturity date of the notes, at a redemption price equal to 100% of the principal amount of the notes redeemed plus accrued and unpaid interest.

As of December 31, 2023, we are in compliance with our debt covenants.

Guaranteed Notes due 2033—In May 2023, LYB International Finance III, LLC ("LYB Finance III"), a wholly owned finance subsidiary of LyondellBasell Industries N.V., issued $500 million of 5.625% guaranteed notes due 2033 (the "2033 Notes") at a discounted price of 99.895%. Net proceeds from the sale of the notes totaled $495 million, after deducting underwriting discounts and offering expenses.

The 2033 Notes are the first green financing instruments we have issued related to our green financing framework. Net proceeds from the sale of the 2033 Notes are being used to finance or refinance, in whole or in part, 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 towards qualifying projects. This includes approximately $155 million related to new eligible green projects in 2023 with the remaining allocated to existing eligible green projects in 2022 and 2021. Pending the full allocation of the net proceeds, any portion that has not been allocated to eligible green projects will be managed in accordance with our normal liquidity management practices.

Guaranteed Notes due 2023—In July 2023, we repaid the $425 million remaining of outstanding principal on our 4.0% guaranteed notes due 2023.

Short-Term Debt

U.S. Receivables Facility—Our U.S. Receivables Facility, which expires in June 2024, has a purchase limit of $900 million in addition to a $300 million uncommitted accordion feature. This facility provides liquidity through the sale or contribution of trade receivables by certain of our U.S. subsidiaries to a wholly owned, bankruptcy-remote subsidiary on an ongoing basis and without recourse. The bankruptcy-remote subsidiary may then, at its option and subject to a borrowing base of eligible receivables, sell undivided interests in the pool of trade receivables to financial institutions participating in the facility ("Purchasers"). The sale of the undivided interest in the pool of trade receivables is accounted for as a secured borrowing in the Consolidated Statement of Financial Position. We are responsible for servicing the receivables. We pay variable interest rates on our secured borrowings. Additional fees are incurred for the average daily unused commitments. In May 2023, we amended our U.S. Receivables Facility to update the interest rate benchmark to reference SOFR rather than LIBOR. In the event of liquidation, the bankruptcy-remote subsidiary's assets will be used to satisfy the claims of the Purchasers prior to any assets or value in the bankruptcy-remote subsidiary becoming available to us. This facility also provides for the issuance of letters of credit up to $200 million. Performance obligations under the facility are guaranteed by LyondellBasell Industries N.V. The term of the facility may be extended in accordance with the terms of the agreement. The facility is also subject to customary warranties and covenants, including limits and reserves and the maintenance of specified financial ratios. Under the terms of the U.S. Receivable Facility, we are required to maintain a maximum leverage ratio consistent with the terms of the Senior Revolving Credit Facility as discussed above. At December 31, 2023, there were no borrowings or letters of credit outstanding and $900 million unused availability under the facility.

Commercial Paper Program—We have a commercial paper program under which we may issue up to $2,500 million of privately placed, unsecured, short-term promissory notes ("commercial paper"). This program is backed by our $3,250 million Senior Revolving Credit Facility. Proceeds from the issuance of commercial paper may be used for general corporate purposes, including dividends and share repurchases. At December 31, 2023, we had no outstanding borrowings of commercial paper.

Precious Metal Financings—We enter into lease agreements for precious metals which are used in our production processes. Precious metal borrowings are classified as Short-term debt or Long-term debt, other, based on the maturities of the lease agreements.

Weighted Average Interest Rate—At December 31, 2023 and 2022, our weighted average interest rate on outstanding Short-term debt was 1.9% and 3.7%, respectively.

Additional Information

Other Information—LYB International Finance B.V., LYB International Finance II B.V., LYB International Finance III, LLC and LYB Americas Finance Company LLC ("LYB Finance subsidiaries") are wholly owned finance subsidiaries of LyondellBasell Industries N.V., as defined in Rule 3-10(b) of Regulation S-X. Any debt securities issued by LYB Finance subsidiaries will be fully and unconditionally guaranteed by LyondellBasell Industries N.V., and no other subsidiaries of LyondellBasell Industries N.V. guarantees these securities. Our unsecured notes rank equally in right of payment to each respective finance subsidiary's existing and future unsecured indebtedness and to all of LyondellBasell Industries N.V.'s existing and future unsubordinated indebtedness. There are no significant restrictions that would impede LyondellBasell Industries N.V., as guarantor, from obtaining funds by dividend or loan from its subsidiaries.

25. Deferred Income Tax

The gross movement in the deferred income tax account is as follows:

Millions of U.S. Dollars	Note	2023	2022
Opening balance at January 1,		$ 2,770	$ 2,390
Income statement charge	13	(109)	235
Tax charge/(credit) relating to components of other comprehensive income	13	(61)	170
Tax charge/(credit) directly relating to equity	13	(4)	—
Tax charge/(credit) relating to reclass from deferred tax liabilities		(1)	(4)
Currency translation adjustment		16	(21)
Deferred tax liabilities, net		$ 2,611	$ 2,770

The deferred tax movement of tax loss, credit and interest carryforwards ("tax attributes") and the tax effects of temporary differences between the tax basis of assets and liabilities and their reported amounts in the Consolidated Financial Statements are presented below.

Millions of U.S. Dollars	Retirement Benefit Obligation	Tax Attributes	Other	Total
Deferred income tax assets:				
Balance at January 1, 2022	$ 383	$ 57	$ 52	$ 492
(Charged)/credited to the income statement	(21)	147	95	221
(Charged)/credited to other comprehensive income	(107)	—	(1)	(108)
(Charged)/credited to equity	4	—	—	4
(Charged)/credited for deferred tax liabilities and current tax liabilities reclassification	(1)	10	40	49
Currency translation adjustment	(13)	1	(2)	(14)
Balance at December 31, 2022	$ 245	$ 215	$ 184	$ 644
Reclassification				(409)
Net deferred tax assets				$ 235
Balance at January 1, 2023	$ 245	$ 215	$ 184	$ 644
(Charged)/credited to the income statement	21	111	42	174
(Charged)/credited to other comprehensive income	28	—	37	65
(Charged)/credited to equity	4	—	—	4
(Charged)/credited for deferred tax liabilities and current tax liabilities reclassification	6	15	(1)	20
Currency translation adjustment	5	1	—	6
Balance at December 31, 2023	$ 309	$ 342	$ 262	$ 913
Reclassification				(584)
Net deferred tax assets				$ 329

Millions of U.S. Dollars	Intangible Asset	Accelerated Tax Depreciation	Inventory	Other	Total
Deferred income tax liabilities:					
Balance at January 1, 2022	$ 53	2,262	$ 422	$ 145	$ 2,882
Charged/(credited) to the income statement	(3)	523	(74)	10	456
Charged/(credited) to other comprehensive income	—	—	—	62	62
(Charged)/credited to equity	—	—	—	—	—
Reclass (to)/from deferred tax assets	—	12	—	37	49
Currency translation adjustment	(2)	(18)	(8)	(7)	(35)
Balance at December 31, 2022	$ 48	2,779	$ 340	$ 247	$ 3,414
Reclassification					(409)
Net deferred tax liabilities					$ 3,005
Balance at January 1, 2023	$ 48	2,779	$ 340	$ 247	$ 3,414
Charged/(credited) to the income statement	(35)	128	(35)	7	65
Charged/(credited) to other comprehensive income				4	4
(Charged)/credited to equity	—	—	—	—	—
Reclass (to)/from deferred tax assets	10	7	4	(2)	19
Currency translation adjustment	—	11	3	8	22
Balance at December 31, 2023	$ 23	2,925	$ 312	$ 264	$ 3,524
Reclassification					(584)
Net deferred tax liabilities					$ 2,940

At December 31, 2023 and 2022, we had realizable tax attributes available in the amount of $1,413 million and $1,027 million, respectively, for which a deferred tax asset was recognized at December 31, 2023 and 2022 of $342 million and $215 million, respectively.

Deferred tax assets are recognized for tax attributes to the extent that the realization of the related tax benefit through future taxable profits is probable. Prior to the close of each reporting period, we consider the weight of all evidence, both positive and negative, to determine if the deferred tax assets for tax attributes and deductible temporary differences for each jurisdiction can be valued at full value. We place greater weight on historical evidence over future predictions of our ability to utilize net deferred tax assets. We consider future reversals of existing taxable temporary differences, future taxable income exclusive of reversing temporary differences, and taxable income in prior carryback year(s) if carryback is permitted under applicable law, as well as available prudent and feasible tax planning strategies that would, if necessary, be implemented to ensure realization of the net deferred tax asset.

The Company did not recognize deferred tax assets of $78 million and $66 million with respect to tax attributes amounting to $477 million and $360 million for the years ended December 31, 2023 and 2022, respectively, which can be carried forward and utilized against future taxable income.

The expiration periods of tax attributes for which no deferred tax assets are recognized as of December 31, 2023 are as follows:

Millions of U.S. Dollars	Gross Tax Attributes	Deferred Tax on Tax Losses
2024	$ 39	$ 1
2025	20	—
2026	11	—
2027	15	2
2028	9	2
Thereafter	145	7
Indefinite	238	66
Total	$ 477	$ 78

As of December 31, 2023 and 2022, deferred taxes of $77 million and $86 million, respectively, have been provided on the unremitted earnings (to the extent such earnings are subject to taxation on their future remittance) of certain joint ventures, equity investments and subsidiaries. As of December 31, 2023, the Company intends to permanently reinvest approximately $550 million of our non-U.S. earnings. Repatriation of these earnings to the U.S. in the future could result in a tax impact of approximately $60 million. As it is not probable that this taxable temporary difference will reverse in the foreseeable future, we have not recognized any deferred tax liabilities.

Contingencies—Certain income tax returns of LyondellBasell N.V. and its subsidiaries are under examination by tax authorities. These audits may result in proposed assessments by the tax authorities. The Company believes that its tax positions comply with applicable tax law and intends to defend its positions through appropriate administrative and judicial processes.

Our current income tax payable is expected to be settled within the next 12-months.

26. Retirement Benefit Obligations

Millions of U.S. Dollars	Note	2023	2022
Asset in the Consolidated Statement of Financial Position:			
Defined benefit pension plans		$ 5	$ 14
Liabilities in the Consolidated Statement of Financial Position:			
Defined benefit pension plans		904	758
Other post-employment benefit plans		181	193
Total liabilities		1,085	951
Net defined benefit liabilities		$ 1,080	$ 937
Income statement charge:			
Defined benefit pension plans	8	$ 105	$ 85
Other post-employment benefit plans	8	12	8
Total charges		$ 117	$ 93
Remeasurements recognized in the Consolidated Statement of Other Comprehensive Income (loss) in the period (before tax):			
Defined benefit pension plans		$ (84)	$ 305
Other post-employment benefit plans		4	64
Total recognized in Other Comprehensive Income in the period		$ (80)	$ 369

We have defined benefit pension plans which cover employees in various countries. We also sponsor postretirement benefit plans other than pensions that provide medical benefits to certain of our U.S., Canadian, and French employees. In Italy and Germany, we provide other post-employment benefits such as early retirement and deferred compensation severance benefits. We use a measurement date of December 31 for all of our benefit plans.

The U.S. defined benefit pension plans are subject to the provisions of the Employee Retirement Income Security Act of 1974 ("ERISA"), including minimum funding requirements. The benefits under the U.S. defined benefit plans are determined either under a cash balance formula or another formula based on the participant's earnings history or service or both. The benefit payments are made from a trust or insurance contract. The plans are administered by the Company's Benefits Administrative Committee ("BAC") and investment of the trust assets is directed by external investment managers hired and monitored by the Company's Benefits Finance Committee ("BFC"). Both the BAC and BFC consist of individuals appointed by the Board of Directors of Lyondell Chemical Company, a wholly owned subsidiary of the Company.

The non-U.S. defined benefit pension plans are subject to the regulatory framework and minimum funding requirements of applicable jurisdictions in which the plans are operated. The benefits under the non-U.S. defined benefit pension plan are also generally calculated based on the participant's earnings history or service or both. The benefit payments from certain non-U.S. plans are made from a trust or insurance contract; however, there are also a number of unfunded plans under which the Company meets each benefit payment obligation as it falls due. Management of non-U.S. plan assets is governed by local regulations and practice in each applicable jurisdiction.

Defined benefit pension plans—The amounts recognized in the Statement of Financial Position are determined as follows:

	Year Ended December 31,	
Millions of U.S. Dollars	**2023**	**2022**
Present value of benefit obligations	$ (2,475)	$ (2,388)
Fair value of plan assets	1,605	1,673
Deficit of defined benefit pension plans	(870)	(715)
Effect of asset limitation and minimum funding requirement	(29)	(29)
Net liability	$ (899)	$ (744)

The following tables provide a reconciliation of changes in the net defined benefit liability over the year:

Millions of U.S. Dollars	Present Value of Obligation	Fair Value of Plan Assets	Total	Effect of Asset Limitation and Minimum Funding Requirement	Total
At January 1, 2022	$ 3,808	$ (2,730)	$ 1,078	$ 8	$ 1,086
Current service cost	84	—	84	—	84
Past service cost	(12)	—	(12)	—	(12)
Interest expense (income)	70	(57)	13	22	35
	142	(57)	85	22	107
Remeasurements:					
Return on plan assets (excluding interest income)	—	532	532	—	532
Effect of changes in demographic assumptions	(35)	—	(35)	—	(35)
Effect of changes in financial assumptions	(909)	—	(909)	—	(909)
Effect of changes in experience adjustments	76	—	76	—	76
	(868)	532	(336)	—	(336)
Exchange differences	(124)	69	(55)	(1)	(56)
Contributions:					
Employers	—	(57)	(57)	—	(57)
Plan participants	2	(2)	—	—	—
Payments from plans:					
Benefit payments	(211)	211	—	—	—
Settlement payments	(361)	361	—	—	—
At December 31, 2022	$ 2,388	$ (1,673)	$ 715	$ 29	$ 744

Millions of U.S. Dollars	Present Value of Obligation	Fair Value of Plan Assets	Total	Effect of Asset Limitation and Minimum Funding Requirement	Total
At January 1, 2023	$ 2,388	$ (1,673)	$ 715	$ 29	$ 744
Current service cost	73	—	73	—	73
Past service cost	2	—	2	—	2
Interest expense (income)	107	(79)	28	(2)	26
	182	(79)	103	(2)	101
Remeasurements:					
Return on plan assets (excluding interest income)	—	97	97	—	97
Effect of changes in demographic assumptions	(6)	—	(6)	—	(6)
Effect of changes in financial assumptions	(29)	—	(29)	—	(29)
Effect of changes in experience adjustments	26	—	26	—	26
	(9)	97	88	—	88
Exchange differences	46	(24)	22	2	24
Contributions:					
Employers	—	(58)	(58)	—	(58)
Plan participants	2	(2)	—	—	—
Payments from plans:					
Benefit payments	(134)	134	—	—	—
Settlement payments	—	—	—	—	—
At December 31, 2023	$ 2,475	$ (1,605)	$ 870	$ 29	$ 899

In May 2022, a LyondellBasell sponsored pension plan purchased a group annuity contract from an insurance company to transfer $361 million of our outstanding pension benefit obligations related to certain U.S. retirees and beneficiaries. The purchase of the group annuity contract was funded with pension plan assets. The insurance company is now required to pay and administer the retirement benefits owed to approximately 9,000 U.S. retirees and beneficiaries with no change to their monthly retirement benefit payment amounts.

The defined benefit obligation and plan assets are composed by country as follows:

	2022							
Millions of U.S. Dollars	U.S.	Canada	France	Germany	Netherlands	U.K.	Other	Total
Present value of obligation	$ 1,140	$ 63	$ 154	$ 391	$ 449	$ 159	$ 32	$ 2,388
Fair value of plan assets	(1,021)	(70)	(9)	—	(389)	(173)	(11)	(1,673)
Effect of asset limitation and minimum funding requirement	—	7	—	—	—	22	—	29
Total	$ 119	$ —	$ 145	$ 391	$ 60	$ 8	$ 21	$ 744

	2023							
Millions of U.S. Dollars	**U.S.**	**Canada**	**France**	**Germany**	**Netherlands**	**U.K.**	**Other**	**Total**
Present value of obligation	$ 1,155	$ 61	$ 166	$ 463	$ 452	$ 144	$ 34	$ 2,475
Fair value of plan assets	(960)	(65)	(10)	—	(392)	(169)	(9)	(1,605)
Effect of asset limitation and minimum funding requirement	—	4	—	—	—	25	—	29
Total	$ 195	$ —	$ 156	$ 463	$ 60	$ —	$ 25	$ 899

As of December 31, 2023, the present value of the defined benefit obligation was comprised of approximately $1,276 million relating to active employees, $448 million relating to vested deferred members and $751 million relating to members in retirement. As of December 31, 2022, the present value of the defined benefit obligation was comprised of approximately $1,251 million relating to active employees, $423 million relating to vested deferred members and $714 million relating to members in retirement.

Our goal is to manage pension investments over the longer term to achieve optimal returns with an acceptable level of risk and volatility. The assets are externally managed by professional investment firms and performance is evaluated continuously against specific benchmarks. The Company and other oversight bodies actively monitor investment results. The expected contributions to be paid to the defined benefit pension plans during 2024 are $97 million. The actual return on plan assets was a loss of $18 million and a loss of $465 million for 2023 and 2022, respectively.

The major categories of plan assets as a percentage of total plan assets are as follows:

	Year Ended December 31,	
	2023	**2022**
Equity securities	26 %	23 %
Fixed income securities	23 %	21 %
U.S. government securities	12 %	13 %
Alternatives	11 %	16 %
Insurance arrangements	28 %	27 %

Alternatives as noted in the table above include investments in real estate, hedge funds, private equity and insurance annuity contracts.

Plan assets as of December 31 are summarized as follows:

	2023			2022		
Millions of U.S. Dollars	Quoted	Unquoted	Total	Quoted	Unquoted	Total
Common and preferred stock:						
Domestic	$ 53	$ —	$ 53	$ 51	$ —	$ 51
International	102	—	102	91	—	91
Fixed income securities						
Corporate bonds	53	—	53	—	—	—
Commingled funds:						
Domestic equity	191	—	191	168	—	168
International equity	92	—	92	86	—	86
Fixed income	287	—	287	342	—	342
Real estate	—	80	80	—	100	100
Hedge funds	—	42	42	—	119	119
Private equity	—	65	65	—	60	60
U.S. government securities:						
U.S. Treasury securities	206	—	206	223	—	223
Cash and cash equivalents	41	—	41	28	—	28
Insurance arrangements	—	474	474	—	492	492
Total Pension Assets	$ 1,025	$ 661	$ 1,686	$ 989	$ 771	$ 1,760

Our pension plans have not directly invested in securities of LyondellBasell Industries N.V. and there have been no significant transactions between any of the pension plans and the Company or related parties thereof.

The weighted average assumptions used to determine benefit obligations were as follows:

	2023	2022
Discount rate	4.85 %	4.72 %
Rate of salary increase	4.22 %	3.73 %
Rate of price inflation	2.56 %	2.76 %
Rate of pension increase	2.57 %	2.75 %

The weighted average assumptions used to determine net pension cost were as follows:

	2023	2022
Discount rate	4.72 %	2.13 %
Rate of salary increase	3.73 %	3.62 %
Rate of price inflation	2.76 %	2.16 %
Rate of pension increase	2.75 %	2.27 %

The sensitivity analysis presented in the following table is based on a change in an assumption while holding all other assumptions constant. In practice, this is unlikely to occur, and changes in some of the assumptions may be correlated.

The sensitivity of the benefit obligations to changes in the discount rate is as follows:

Millions of U.S. Dollars	Effects on Benefit Obligations in 2023	Change %	Effects on Benefit Obligations in 2022	Change %
Present value of obligations	$ 2,475		$ 2,388	
Discount rate increases by 50 basis points	(136)	(5.5)%	(133)	(5.6)%
Discount rate decreases by 50 basis points	150	6.1 %	147	6.1 %

Reasonably foreseeable changes to the other principal assumptions would not result in a material impact to the benefit obligations and the benefit costs of our pension plans.

The defined benefit pension plans and the other post-employment benefit plans are subject to a number of risks, the most significant of which are discussed below:

- *Market price risk*—Significant changes in investment performance may result in corresponding increases and decreases in the value of the plan assets.
- *Changes in bond yields*—A decrease in corporate bond yields will increase plan liabilities, although this will be partially offset by an increase in the value of the plan's bond holdings.
- *Inflation risk*—Some of the pension plans' benefit arrangements are directly related to the salary levels so that a significant increase in salaries could lead to an increase in the pension obligations of the plans.
- *Life expectancy*—Some plan obligations provide benefits for the lifetime of the member and so increases in life expectancy could result in an increase in the plans' liabilities.

Other post-employment benefits plans—The amounts recognized in the Consolidated Statement of Financial Position are determined as follows:

	December 31,	
Millions of U.S. Dollars	2023	2022
Present value of benefit obligations	$ 181	$ 193
Fair value of plan assets	—	—
Net liability	$ 181	$ 193

The changes in the net defined benefit liability over the year are as follows:

Millions of U.S. Dollars	Present Value of Obligation	Fair Value of Plan Assets	Total
At January 1, 2022	$ 271	$ —	$ 271
Current service cost	3	—	3
Past service cost	(1)	—	(1)
Interest expense	6	—	6
	8	—	8
Remeasurements:			
Effect of changes in demographic assumptions	—	—	—
Effect of changes in financial assumptions	(65)	—	(65)
Effect of changes in experience adjustments	1	—	1
	(64)	—	(64)
Exchange differences	(5)	—	(5)
Contributions:			
Employers	—	(17)	(17)
Plan participants	7	(7)	—
Payments from plans:			
Benefit payments	(24)	24	—
At December 31, 2022	$ 193	$ —	$ 193

Millions of U.S. Dollars	Present Value of Obligation	Fair Value of Plan Assets	Total
At January 1, 2023	$ 193	$ —	$ 193
Current service cost	2	—	2
Past service cost	1	—	1
Interest expense	9	—	9
	12	—	12
Remeasurements:			
Effect of changes in demographic assumptions	(2)	—	(2)
Effect of changes in financial assumptions	(4)	—	(4)
Effect of changes in experience adjustments	1	—	1
	(5)	—	(5)
Exchange differences	1	—	1
Contributions:			
Employers	—	(20)	(20)
Plan participants	6	(6)	—
Payments from plans:			
Benefit payments	(26)	26	—
At December 31, 2023	$ 181	$ —	$ 181

The weighted average assumptions used to determine benefit obligations were as follows:

	2023	2022
Discount rate	5.44 %	5.13 %
Rate of salary increase	4.13 %	4.16 %

The weighted average assumptions used to determine net benefit cost were as follows:

	2023	2022
Discount rate	5.13 %	2.43 %
Rate of salary increase	4.16 %	4.17 %

The following table reflects the sensitivity of the benefit obligations of our other post-employment benefit plans to changes in the discount rate:

Millions of U.S. Dollars	Effects on Benefit Obligations in 2023	Change %	Effects on Benefit Obligations in 2022	Change %
Present value of obligations	$ 181		$ 193	
Discount rate increases by 50 basis points	(9)	(4.7)%	(9)	(4.9)%
Discount rate decreases by 50 basis points	10	5.3 %	10	5.4 %

Reasonably foreseeable changes to the other principal assumptions would not result in a material impact to the benefit obligations and the benefit costs of our other post-employment benefit plans.

The weighted average duration of the defined benefit obligation for the defined benefit pension plans and other post-employment benefit plans is 11.9 and 10.3 years, respectively.

As of December 31, 2023, future expected benefit payments by our defined benefit pension plans and other post-employment benefit plans which reflect expected future service, as appropriate, are as follows:

Millions of U.S. Dollars	2024	2025	2026	2027	2028	Thereafter	Total
Defined benefit pension plans	$ 187	$ 176	$ 157	$ 161	$ 165	$ 864	$ 1,710
Other post-employment benefit plans	15	15	16	15	15	68	144
Total	$ 202	$ 191	$ 173	$ 176	$ 180	$ 932	$ 1,854

27. Trade and Other Payables

	December 31,	
Millions of U.S. Dollars	2023	2022
Trade payables	$ 3,572	$ 3,404
Amounts due to related parties	677	881
Social security and other taxes	41	26
Accrued expenses	1,566	1,683
Total Trade and other payables	$ 5,856	$ 5,994

28. Provisions

Millions of U.S. Dollars	Asset Retirement Obligation	Environmental	Restructuring	Other	Total
Balance at January 1, 2022	$ 72	$ 139	$ 14	$ 37	$ 262
Charged/(credited) to the income statement:					
Additional provisions	263	—	29	—	292
Changes in estimate	3	5	—	1	9
Used during the period	(3)	(12)	(7)	(1)	(23)
Foreign exchange differences	(5)	—	—	—	(5)
Other	(8)	(4)	—	(3)	(15)
At December 31, 2022	$ 322	$ 128	$ 36	$ 34	$ 520
Of which:					
Non-current	$ 316	$ 117	$ 31	$ 30	$ 494
Current	6	11	5	4	26
Closing balance	$ 322	$ 128	$ 36	$ 34	$ 520

Millions of U.S. Dollars	Asset Retirement Obligation	Environmental	Restructuring	Other	Total
Balance at January 1, 2023	$ 322	$ 128	$ 36	$ 34	$ 520
Charged/(credited) to the income statement:					
Additional provisions	—	1	7	15	23
Changes in estimate	6	—	25	25	56
Used during the period	(5)	(9)	(4)	(3)	(21)
Foreign exchange differences	4	1	—	1	6
Other	—	—	(1)	4	3
At December 31, 2023	$ 327	$ 121	$ 63	$ 76	$ 587
Of which:					
Non-current	$ 325	$ 111	$ 53	$ 25	$ 514
Current	2	10	10	51	73
Closing balance	$ 327	$ 121	$ 63	$ 76	$ 587

Asset retirement obligations—At some locations, we are contractually obligated to decommission our plants upon site exit. We have provided for the net present value of the estimated costs. Typically, such costs are incurred within three years of a plant's closure. The asset retirement obligation recorded in connection with the planned exit from the refinery business, was $263 million and $270 million as of December 31, 2022 and 2023, respectively.

Environmental Remediation—Our accrued liability for future environmental remediation costs at current and former plant sites and other remediation sites totaled $121 million and $128 million as of December 31, 2023 and 2022, respectively. At December 31, 2023, the accrued liabilities for individual sites range from less than $1 million to $25 million. The remediation expenditures are expected to occur over a number of years, and are not concentrated in any single year. In our opinion, it is reasonably possible that losses in excess of the liabilities recorded may have been incurred. However, we cannot estimate any amount or range of such possible additional losses. New information about sites, new technology or future developments such as involvement in investigations by regulatory agencies, could require us to reassess our potential exposure related to environmental matters.

29. Contingencies and Commitments

Contingencies-Litigation and Other Matters

Indemnification—We are parties to various indemnification arrangements, including arrangements entered into in connection with acquisitions, divestitures and the formation and dissolution of joint ventures. Pursuant to these arrangements, we provide indemnification to and/or receive indemnification from other parties in connection with liabilities that may arise in connection with the transactions and in connection with activities prior to completion of the transactions. These indemnification arrangements typically include provisions pertaining to third party claims relating to environmental and tax matters and various types of litigation. As of December 31, 2023, we had not accrued any significant amounts for our indemnification obligations, and we are not aware of other circumstances that would likely lead to significant future indemnification obligations. We cannot determine with certainty the potential amount of future payments under the indemnification arrangements until events arise that would trigger a liability under the arrangements.

As part of our technology licensing contracts, we give indemnifications to our licensees for liabilities arising from possible patent infringement claims with respect to certain proprietary licensed technologies. Such indemnifications have a stated maximum amount and generally cover a period of 5 to 10 years.

Legal Proceedings—We are subject to various lawsuits and claims, including but not limited to, matters involving contract disputes, environmental damages, personal injury and property damage. We vigorously defend ourselves and prosecute these matters as appropriate.

Our legal organization applies its knowledge, experience and professional judgment to the specific characteristics of our cases, employing a litigation management process to manage and monitor legal proceedings in which we are a party. Our process facilitates the early evaluation and quantification of potential exposures in individual cases. This process also enables us to track those cases that have been scheduled for trial, mediation or other resolution. We regularly assess the adequacy of legal accruals based on our professional judgment, experience and the information available regarding our cases.

Based on a consideration of all relevant facts and circumstances, we do not believe the ultimate outcome of any currently pending lawsuit against us will have a material adverse effect upon our operations, financial condition or Consolidated Financial Statements.

Commitments

Commitments—We have various purchase commitments for materials, supplies and services incidental to the ordinary conduct of business, generally for quantities required for our businesses and at prevailing market prices. These commitments are designed to ensure sources of supply and are not expected to be in excess of normal requirements. Additionally, we have capital expenditure commitments, which we incur in our normal course of business.

The aggregate future estimated purchase obligations are as follows:

	December 31, 2023	
	Purchase Obligation	
Millions of U.S. Dollars	Joint Ventures	Consolidated Entities
No later than 1 year	$ 464	$ 7,848
Later than 1 year and no later than 5 years	516	8,939
Later than 5 years	—	11,833
Total	$ 980	$ 28,620

Financial Assurance Instruments—We have obtained letters of credit, performance and surety bonds and have issued financial and performance guarantees to support trade payables, potential liabilities and other obligations. Considering the frequency of claims made against the financial instruments we use to support our obligations, and the magnitude of those financial instruments in light of our current financial position, management does not expect that any claims against or draws on these instruments would have a material adverse effect on our Consolidated Financial Statements. We have not experienced any unmanageable difficulties in obtaining the required financial assurance instruments for our current operations.

30. Related Parties

We have related party transactions with our associates and joint venture partners. These related party transactions include the sales and purchases of goods and services in the normal course of business as well as certain financing arrangements.

The related party transactions are summarized as follows:

	Year Ended December 31,	
Millions of U.S. Dollars	2023	2022
The Company billed related parties for:		
Sale of products—		
Joint Ventures	$ 4	$ 7
Associates	29	40
Shared services agreements—		
Associates	1	—
Related parties billed the Company for:		
Sale of products—		
Joint Ventures	$ 406	$ 529
Associates	578	742
Shared services agreements—		
Associates	77	93
Year-end balances with related parties:		
Receivable from Joint Ventures	$ 1	$ 3
Receivable from Associates	6	12
Loans to Associate and Joint Ventures	21	54
Payables to Joint Ventures	106	106
Payables to Associates	75	58

Related Party Notes Receivable—In July 2022, we executed a loan agreement with our joint operation partner to lend CNY 150 million (approximately $21 million as of December 31, 2023) to our joint operation in Bora LyondellBasell Petrochemical Co. Ltd. (BLYB"). The loan matured six months from issuance with the option to extend up to nine times, in six months increments, with consent of the joint operation partners. As of December 31, 2023, the loan has been extended twice and matures in February 2024. It is expected the loan will be extended a third time in the first quarter of 2024. Interest accrues at the one-year prime rate from People's Bank of China and is payable quarterly.

Other—We have guaranteed $18 million of the indebtedness of two of our joint ventures as of December 31, 2023.

31. Segment and Related Information

Our operations are managed by senior executives who report to our Chief Executive Officer, the chief operating decision maker. Discrete financial information is available for each of the segments, and our Chief Executive Officer uses the operating results of each of the operating segments for performance evaluation and resource allocation.

The activities of each of our segments from which they earn revenues and incur expenses are described below:

- *Olefins and Polyolefins-Americas* ("O&P-Americas"). Our O&P-Americas segment produces and markets olefins and co-products, polyethylene and polypropylene.
- *Olefins and Polyolefins-Europe, Asia, International* ("O&P-EAI"). Our O&P-EAI segment produces and markets olefins and co-products, polyethylene, and polypropylene.
- *Intermediates and Derivatives* ("I&D"). Our I&D segment produces and markets propylene oxide and its derivatives; oxyfuels and related products; and intermediate chemicals such as styrene monomer, acetyls, ethylene oxide and ethylene glycol.
- *Advanced Polymer Solutions* ("APS"). Our APS segment produces and markets compounding and solutions, such as polypropylene 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.

Our chief operating decision maker uses EBITDA as the primary measure for reviewing profitability of our segments, and therefore, we have presented EBITDA for all segments. We define EBITDA as earnings from continuing operations before interest, income taxes, and depreciation and amortization.

"Other" includes intersegment eliminations and items that are not directly related or allocated to business operations, such as foreign exchange gains or losses and components of pension and other post-retirement benefit costs other than service costs. Sales between segments are made primarily at prices approximating prevailing market prices.

Effective January 1, 2023, our *Catalloy* and polybutene-1 businesses were moved from our Advanced Polymer Solutions segment and reintegrated into our Olefins and Polyolefins-Americas and Olefins and Polyolefins-Europe, Asia, International segments. Segment information provided within has been revised for all periods presented to reflect these changes on a retrospective basis as if the changes had taken place prior to the fiscal years presented. This change has no impact on the Company's consolidated statements of income, consolidated balance sheets, consolidated statements of shareholders' equity and consolidated statements of cash flows previously reported.

Accounting policies for internal reporting are based on U.S. GAAP and are materially similar to those described in Summary of Material Accounting Policies (See Note 2) except for:

Inventories—The Group measures its inventories in accordance with the Last In, First Out ("LIFO") method, which is permitted under U.S. GAAP. According to IAS 2, *Inventories,* the LIFO method is prohibited under IFRS. Therefore, the inventories are measured using the First In, First Out ("FIFO") method for the Consolidated Financial Statements. This inventory measurement difference between the reportable segments and the consolidated information results in different costs of sale and net profit for the period.

Employee Benefits—Under U.S. GAAP, ASC Topic 715, *Compensation-Retirement Benefits* (“ASC 715”) requires the interest expense component of pension expense to be calculated as the product of the defined benefit liability and the discount rate. Such interest expense is netted against interest income resulting from the expected rate of return on plan assets applied to the market value of assets. The expected rate of return on plan assets is a longer term rate, and is expected to change less frequently than the discount rate, reflecting long-term market expectations, rather than current fluctuations in market conditions. Under IFRS, in accordance with *IAS 19, Employee Benefits* the Company recognizes a net interest expense (income), which is the product of the net defined benefit liability (asset) and the discount rate, as a component of its pension expense on defined benefit plans.

Under ASC 715, past service cost and actual return on plan assets in excess of expected return are initially recorded in other comprehensive income and subsequently recognized in earnings over the average remaining service period of the participants to the extent it exceeds the "corridor". The corridor is defined as the greater of 10 percent of the accumulated projected benefit obligation or the fair value of the plan assets as of the beginning of the year. Under IFRS, the Company recognizes immediately past service cost and net interest expense (income) as discussed above in the Consolidated Statement of Income. Actual return of plan assets in excess of recognized interest income is permanently recorded in other comprehensive income.

Other—There are differences between IFRS and U.S. GAAP with respect to IFRS 11, *Joint Arrangements* as well as, leases, discontinued operations, the subsequent measurement of asset retirement obligations, capitalization of development costs related to Research and development and amortization of debt issuance costs. If material, these differences are separately disclosed in the Consolidated Financial Statements reconciliation.

Houston Refinery Operations—After thoroughly analyzing our options, we determined that exiting the refining business no later than the end of the first quarter of 2025 is the best strategic and financial path forward for the Company. Our exit from the refining business progresses our greenhouse gas emission reduction goals, and the site’s prime location gives us more options for advancing our future strategic objectives, including circularity.

Costs incurred since our decision to exit the refining business through December 31, 2023 were $512 million. Our estimate of total exit costs, inclusive of costs incurred to date, range from $550 million to $1,050 million. We intend to proceed with an orderly shut-down and do not expect to recognize these charges all at once, but rather over time. We do not anticipate any material cash payments related to the exit of the refinery business to be made in 2024.

Costs incurred for the planned exit from the refinery business are as follows:

	Year Ended December 31,		Inception to Date December 31,
Millions of U.S. Dollars	**2023**	**2022**	**2023**
Accelerated lease amortization costs	$ 110	$ 91	$ 201
Personnel costs	79	47	126
Asset retirement obligation accretion	6	1	7
Asset retirement cost depreciation	146	32	178
Refinery exit costs	$ 341	$ 171	$ 512

In subsequent periods, we expect to incur additional costs primarily consisting of accelerated amortization of operating lease assets of $10 million to $60 million, personnel costs of $20 million to $95 million and other charges of $40 million to $90 million.

In connection with the planned exit from the refinery business, we recorded liabilities for asset retirement obligations of $270 million as of December 31, 2023. The asset retirement obligations we recorded require significant judgment and are subject to changes in the underlying assumptions. We estimate that the Houston refinery’s asset retirement obligations are in the range of $150 million to $450 million.

Summarized financial information concerning reportable segments is shown in the following table for the periods presented:

	Year Ended December 31, 2023							
Millions of U.S. Dollars	O&P – Americas	O&P – EAI	I&D	APS	Refining	Technology	Other	Total
Sales and other operating revenues:								
Customers	$ 6,967	$ 9,822	$10,875	$ 3,686	$ 9,179	$ 578	$ —	$ 41,107
Intersegment	4,313	657	211	12	535	85	(5,813)	—
	11,280	10,479	11,086	3,698	9,714	663	(5,813)	41,107
Depreciation and amortization expense	587	207	443	98	158	41	—	1,534
Other income (expense), net	2	(1)	(13)	2	—	—	(48)	(58)
Income (loss) from equity investments	49	(55)	(13)	(1)	—	—	—	(20)
EBITDA	2,303	(9)	1,679	(162)	379	375	(56)	4,509
Capital expenditures	480	273	590	75	32	69	12	1,531

	Year Ended December 31, 2022							
Millions of U.S. Dollars	O&P – Americas	O&P – EAI	I&D	APS	Refining	Technology	Other	Total
Sales and other operating revenues:								
Customers	$ 9,420	$ 12,568	$12,703	$ 4,197	$ 10,975	$ 588	$ —	$ 50,451
Intersegment	5,060	887	247	5	918	105	(7,222)	—
	14,480	13,455	12,950	4,202	11,893	693	(7,222)	50,451
Depreciation and amortization expense	591	171	332	95	39	39	—	1,267
Other income (expense), net	(30)	—	(39)	4	(7)	(4)	4	(72)
Income (loss) from equity investments	98	(68)	(25)	—	—	—	—	5
EBITDA	2,865	178	1,872	115	921	366	(16)	6,301
Capital expenditures	383	349	940	60	53	98	7	1,890

Sales and other operating revenues and Capital expenditures disclosed above are prepared from the financial records of LyondellBasell N.V. in accordance with accounting principles generally accepted in the United States ("U.S. GAAP") while the Consolidated Financial statements have been prepared in accordance with International Financial Reporting Standards ("IFRS"). The differences are primarily related to the difference in accounting for joint arrangements under IFRS and U.S. GAAP.

Reconciliation of EBITDA for reportable segments to the Company's Consolidated Statement of Income is summarized in the following table:

	Year Ended December 31,	
Millions of U.S. Dollars	**2023**	**2022**
EBITDA:		
Total segment EBITDA	$ 4,565	$ 6,317
Other EBITDA	(56)	(16)
	4,509	6,301
Less:		
Depreciation and amortization expense	(1,534)	(1,267)
Other income (expense), net	58	72
Income from equity investments	20	(5)
Operating Income in accordance with U.S. GAAP	3,053	5,101
Measurement difference:		
Inventory valuation	(248)	(262)
Impairments	(96)	—
Classification difference:		
Other income (expense), net	(45)	65
Joint Arrangements	(91)	14
Other	(17)	47
Operating Profit in accordance with IFRS	$ 2,556	$ 4,965
Less:		
Finance costs	617	430
Add:		
Finance Income	134	32
Share of profit of investments accounted for using the equity method	68	16
Profit before income tax	$ 2,141	$ 4,583

Long-lived assets include Property, plant and equipment, Right-of-use assets, Intangible assets excluding goodwill and Investments in associates and joint ventures. The following long-lived assets data is based upon the location of the assets:

	December 31,	
Millions of U.S. Dollars	**2023**	**2022**
Long-lived assets:		
United States	$ 15,579	$ 16,166
Germany	1,647	1,490
China	1,274	1,326
The Netherlands	1,070	1,050
France	764	778
Italy	416	330
Mexico	256	285
Other	1,412	1,398
Total	$ 22,418	$ 22,823

32. Subsequent Events

In January 2024, we entered into an agreement to acquire a 35% interest in Saudi Arabia-based National Petrochemical Industrial Company (“NATPET”) from Alujain Corporation for approximately $500 million. Enabled by its *Spheripol* polypropylene (PP) technology, our acquisition positions us to grow and upgrade our core PP business through access to advantaged feedstocks, plus additional product marketing capacity, in a strategic region. Closing of the transaction is subject to regulatory and other customary closing conditions. NATPET will be included prospectively within our Olefins and Polyolefins-Europe, Asia, International segment.

In February 2024, we issued $750 million of 5.5% guaranteed notes due 2034. Net proceeds from the sale of the notes totaled $737 million, after deducting underwriting discounts and offering expenses. We intend to use the net proceeds for the repayment of our 5.75% Senior Notes due 2024.

In March 2024, we repaid the $775 million remaining principle on our 5.75% Senior Notes due 2024.

Corporate Financial Statements

LYONDELLBASELL INDUSTRIES N.V.

CORPORATE FINANCIAL STATEMENTS

CORPORATE STATEMENT OF INCOME

	Year Ended December 31,	
Millions of U.S. Dollars	**2023**	**2022**
Income from Group companies after tax	$ 1,792	$ 3,618
Other income (expense), net of tax	2	180
Profit attributable to the equity holders	$ 1,794	$ 3,798

LYONDELLBASELL INDUSTRIES N.V.

CORPORATE FINANCIAL STATEMENTS

CORPORATE STATEMENT OF FINANCIAL POSITION

Before Appropriation of Profit

Millions of U.S. Dollars	Note	December 31, 2023	December 31, 2022
ASSETS			
Non-current assets:			
Goodwill	2	$ 324	$ 324
Investments in Group companies	2	12,987	12,826
Long-term loans to Group companies	6	4,500	4,785
Other Assets		3	—
Total non-current assets		17,814	17,935
Current assets:			
Receivables from Group companies		16	14
Prepaid expense and other current assets		4	2
Short-term loans to Group companies	6	285	—
Cash and cash equivalents	3	178	38
Total current assets		483	54
Total assets		$ 18,297	$ 17,989
EQUITY AND LIABILITIES			
Equity:	4		
Share capital		$ 19	$ 19
Share premium		194	169
Legal reserves		(1,124)	(1,003)
Other reserves		12,026	9,906
Profit for the year		1,794	3,798
Total equity attributable to equity holders		12,909	12,889
Non-current liabilities:			
Long-term debt	5	978	1,748
Deferred income	7	1,030	729
Other long-term liabilities		26	8
Deferred tax liabilities		2	2
Total non-current liabilities		2,036	2,487
Current liabilities:			
Bank overdraft	3	8	96
Short-term loans from Group companies	6	2,510	2,461
Current maturities of long term debt	5	774	—
Other liabilities		60	56
Total current liabilities		3,352	2,613
Total equity and liabilities		$ 18,297	$ 17,989

Notes to the Corporate Financial Statements

1. General

LyondellBasell Industries N.V. (the “Company” or “LyondellBasell N.V.”), together with its consolidated subsidiaries (collectively, the “Group”) applies the option provided in Section 2:362 (8) of the Dutch Civil Code for the principles applicable to the recognition and measurement of assets and liabilities and the determination of results for its Corporate Financial Statements. Accordingly, the principles for recognition and measurement of assets and liabilities and determination of results (hereinafter referred to as “accounting policies”) of the Company's Corporate Statement of Financial Position are the same as those applied for the Consolidated Financial Statements under International Financial Reporting Standards (“IFRS”), as adopted by the European Union, for the periods ended December 31, 2023 and 2022, except as noted below:

- Investments in subsidiaries and other companies in which the Company has control are measured at net asset value, which is based on the net book value of assets, provisions and liabilities, in accordance with the accounting policies applied in the Consolidated Financial Statements.
- Goodwill presented in the Corporate Statement of Financial Position reflects the goodwill of subsidiaries directly acquired by the Company and is measured in accordance with the accounting policies of the Consolidated Financial Statements. Goodwill of subsidiaries indirectly owned (via intermediate subsidiaries) is recognized as part of the net asset value of such intermediate subsidiary.

At December 31, 2023 and 2022, the Company had 15 and 16 full-time employees, respectively, all located outside of The Netherlands.

2. Goodwill and Investments

Millions of U.S. Dollars	Goodwill	Investments
Balance at January 1, 2022	$ 324	$ 13,057
Income from investments, net of tax	—	1,414
Equity settled transactions	—	84
Dividends received	—	(2,051)
Additions to other reserves	—	322
Balance at December 31, 2022	$ 324	$ 12,826
Balance at January 1, 2023	$ 324	$ 12,826
Income from investments, net of tax	—	891
Equity settled transactions	—	105
Dividends received	—	(747)
Additions to other reserves	—	(88)
Balance at December 31, 2023	$ 324	$ 12,987

Equity settled transactions—Equity settled transactions represent share-based compensation granted to directors and employees.

Dividends received—During 2023, the Company received the following dividends from direct subsidiaries:

- $360 million from LYB Export Holdings Limited; and
- $387 million from LyondellBasell Hungary Kft.

Additions to other reserves—This mainly represents movements for currency translation differences and remeasurements of post-employment benefits obligations, which are non-distributable.

3. Cash and Cash Equivalents

Cash and cash equivalents are held at LYB Finance Company B.V., an internal banking unit. The interest rate on the account with LYB Finance Company B.V. is subject to a floating interest rate, based on current market rates. Cash is liquid, with no restrictions. At December 31, 2023 and 2022 the borrowing and lending rates were as follows:

	2023		2022	
	Borrowing	**Lending**	**Borrowing**	**Lending**
US Dollar	6.59 %	5.19 %	5.37 %	3.97 %
Great British pound	6.45 %	5.05 %	4.41 %	3.011 %
Euro	5.10 %	3.70 %	2.747 %	1.347 %

4. Equity Attributable to Equity Holders

Equity attributable to equity holders as follows:

			Legal reserve		Other reserves			
Millions of U.S. Dollars	**Share Capital**	**Share premium**	**Currency translation differences**	**Group Companies**	**Retained earnings**	**Treasury Shares**	**Profit for the year**	**Total Equity Attributable to equity holders**
Balance as at January 1, 2022	$ 19	$ 94	$ (920)	$ (71)	$ 7,713	$ (965)	$ 6,449	$ 12,319
Previous year results	—	—	—	—	6,449	—	(6,449)	—
Employee share-based payments:								
Issuance of shares	—	75	—	—	—	25	—	100
Tax credits related to share-based payments	—	—	—	—	—	—	—	—
Purchase of non-controlling interest	—	—	—	—	—	—	—	—
Shares purchased	—	—	—	—	—	(406)	—	(406)
Net current period change	—	—	(144)	475	—	—	—	331
Profit for the year	—	—	—	—	—	—	3,798	3,798
Additions to legal reserve	—	—	—	(343)	343	—	—	—
Common stock dividends paid	—	—	—	—	(3,246)	—	—	(3,246)
Preferred stock dividends paid	—	—	—	—	(7)	—	—	(7)
Balance as at December 31, 2022	$ 19	$ 169	$ (1,064)	$ 61	$ 11,252	$ (1,346)	$ 3,798	$ 12,889

			Legal Reserve		Other reserves			
Millions of U.S. Dollars	Share Capital	Share premium	Currency translation differences	Group Companies	Retained earnings	Treasury Shares	Profit for the year	Total Equity Attributable to equity holders
Balance as at January 1, 2023	$ 19	$ 169	$ (1,064)	$ 61	$ 11,252	$ (1,346)	$ 3,798	$ 12,889
Previous year results	—	—	—	—	3,798	—	(3,798)	—
Employee share-based payments:								
Issuance of shares	—	25	—	—	(5)	107	—	127
Shares purchased	—	—	—	—	—	(211)	—	(211)
Net current period change	—	—	74	(24)	(123)	—	—	(73)
Profit for the year	—	—	—	—	—	—	1,794	1,794
Additions to legal reserve	—	—	—	(171)	171	—	—	—
Common stock dividends paid	—	—	—	—	(1,610)	—	—	(1,610)
Preferred stock dividends paid	—	—	—	—	(7)	—	—	(7)
Balance as at December 31, 2023	$ 19	$ 194	$ (990)	$ (134)	$ 13,476	$ (1,450)	$ 1,794	$ 12,909

Share capital—The Company's authorized share capital totals €51 million divided into 1,275 million ordinary shares of €0.04 each. The issued and fully paid up share capital amounted to €15 million divided in 333 million ordinary shares.

The item "Group Companies" relates to the "*Wettelijke reserve deelnemingen,",* revaluation reserve and a reserve for capitilized development costs which is required by Dutch Law. This reserve relates to any legal or economic restrictions on the ability of group companies to transfer funds to the parent in the form of dividends.

Pursuant to Dutch Law, limitations exist relating to the distribution of share capital of $19 million at December 31, 2023 and 2022 and Legal reserves of $1,124 million and $1,003 million at December 31, 2023 and 2022, respectively.

For more information related to share repurchases please refer to Note 22 of the Consolidated Financial Statements. For more information related to Share based compensation refer to Note 9 of the Consolidated Financial Statements.

Gains and losses related to currency translation differences cannot be distributed as part of shareholders' equity as they form part of the legal reserves protected under Dutch Law.

The reconciliation of the Company's retained earnings to those of the Group reflected in the Group's Consolidated Statement of Financial Position is as follows:

	December 31,	
Millions of U.S. Dollars	2023	2022
Retained earnings as per Consolidated Statement of Financial Position	$ 15,469	$ 15,294
Non-distributable reserves of Group companies	(199)	(244)
Profit for the year	(1,794)	(3,798)
Retained earnings as per Corporate Statement of Financial Position	$ 13,476	$ 11,252

Proposed Appropriation of Result—The Board of Directors paid an aggregate dividend of $4.94 per share from its 2023 annual accounts. This included an interim dividend of $1.19 per share paid to shareholders of record on March 6, 2023 and $1.25 per share on May 30, 2023, August 28, 2023 and November 27, 2023. These dividend payments, totaling $1,610 million, have been charged to retained earnings.

The Board of Directors approved all dividends paid, as described above.

5. Debt

Senior Notes due 2055—In March 2015, we issued $1,000 million of 4.625% Notes due 2055 at a discounted price of 98.353%.

5.75% Senior Notes—In April 2012, the Company issued $1,000 million aggregate principal amount of 5.75% senior notes due 2024, at an issue price of 100%. In December 2021, the company made a repayment of $225 million. As of December 31, 2023, the balance remaining on the loan is $775 million and is due in 2024.

6. Group Company Loans

As of December 31, 2023, the maturities of our Long-term Loan Receivable from our Subsidiary and Loans Payable to our Subsidiaries for the next five years and thereafter are as follows:

Millions of U.S. Dollars	Total	2024	2025	2026	2027	2028	Thereafter
Non-current receivables:							
Subordinate note receivable due July 2025, $2,000 million	$ 2,000	$ —	$ 2,000	$ —	$ —	$ —	$ —
Subordinate note receivable due July 2026, $500 million	500	—	—	500	—	—	—
Senior note receivable due June 2030, $2,000 million	2,000	—	—	—	—	—	2,000
Total non-current receivables	$ 4,500	$ —	$ 2,000	$ 500	$ —	$ —	$ 2,000
Current receivable:							
Note receivable due April 2024, $986 million	285	285	—	—	—	—	—
Current payables:							
Revolving credit facility agreement	$ 1,660	$ 1,660	$ —	$ —	$ —	$ —	$ —
Loan payable due October 2028, $2,000 million	850	850	—	—	—	—	—
Total current payables	$ 2,510	$ 2,510	$ —	$ —	$ —	$ —	$ —

Long-term Loan Receivable from our Subsidiary are as follows:

- $2,000 million 6.14% senior note due July 1, 2025 with fair value of 1,997 million, and a $500 million 6.30% senior note due July 1, 2026, with a fair value of $506 million.
- $285 million 6.14% due April 2024 for which fair value approximates the carrying value.
- $2,000 million 4.63% senior note due June 30, 2030, with a fair value of $2,080 million.

Loans Payable to our Subsidiaries—In October 2021, the maturity date of our loan payable was extended to October 2028 all other terms of the loan remain unchanged. The loan bears interest at a variable rate, which is set for a period of 3 months, using the U.S. LIBOR rate, plus 125 basis points. At December 31, 2023, the outstanding balance was $850 million which approximates the fair value.

In September 2021 we entered into a revolving credit facility agreement with our wholly owned subsidiary, LYB Finance company B.V. for a maximum principal amount of $2,500 million. The interest rate is 3 month USD LIBOR plus a spread of 1.055%. The loan is payable on demand from the lender. At December 31, 2023, the outstanding balance on the loan was $1,660 million.

Changes in Group Company loans are presented below:

Millions of U.S. Dollars	Receivables	Payables
Balance at January 1, 2022	$ 6,759	$ 2,445
Borrowings	—	16
Discharge and assignments	(1,974)	—
Balance at December 31, 2022	$ 4,785	$ 2,461
Of which:		
Non-current	4,785	—
Current	—	2,461
Balance at December 31, 2022	$ 4,785	$ 2,461
Balance at January 1, 2023	$ 4,785	$ 2,461
Borrowings	—	49
Balance at December 31, 2023	$ 4,785	$ 2,510
Of which:		
Non-current	4,500	—
Current	285	2,510
Balance at December 31, 2023	$ 4,785	$ 2,510

7. Deferred Income

Deferred income represents excess dividends paid by LyondellBasell Finance Company compared to its net asset value. Deferred income is reduced as the Company recognizes its share of LyondellBasell Finance Company's income. After the Deferred income is fully recognized, we will record our earnings from LyondellBasell Finance Company as additions to Investments in Group companies.

The change in Deferred income, summarized below, represents our share of LyondellBasell Finance Company profit.

Millions of U.S. Dollars	Deferred Income
Balance at January 1, 2023	$ 729
Deferred revenue	1,200
Income from Group Companies, net of tax	(899)
Balance at December 31, 2023	$ 1,030

8. Commitments and Contingencies Not Included in the Balance Sheet

The Company has entered into guarantee agreements with counterparties on behalf of certain subsidiaries for the supply of raw materials and securing credit with third party banks. At December 31, 2023 and 2022 the total guaranteed amount was $21,293 million and $19,800 million, respectively.

In 2023, the Company received an annual fee of 0.13% for guarantees of $2 billion in aggregate and an annual fee between 0.17% and 0.19% for all other outstanding guarantees as of December 31, 2023. In 2022, the Company received an annual fee of 0.13% for guarantees of $1 billion in aggregate and an annual fee of 0.17% and 0.19% for all other outstanding guarantees.

The Company is jointly and severally liable, as intended in article 403, Book 2, of the Dutch Civil Code for the following subsidiaries in the Consolidated Financial Statements: LyondellBasell Subholdings B.V., LyondellBasell Circular Economy B.V., LYB International Finance B.V., LYB International Finance II B.V., Basell International Holdings B.V., LyondellBasell Industries Holdings B.V., LYB Trading Company B.V. and LyondellBasell China Holdings B.V.

9. Independent Auditor's Fees

The fees listed below relate to the procedures applied to the Company and its consolidated group entities by PricewaterhouseCoopers Accountants N.V., The Netherlands, the external independent auditor as referred to in section 1(1) of the Dutch Accounting Firms Oversight Act (“Wta”), as well as by other Dutch and foreign-based PricewaterhouseCoopers individual partnerships and legal entities, including their tax services and advisory groups.

	Year Ended December 31,	
Millions of U.S. Dollars	**2023**	**2022**
Financial statements audit fees	$ 12.1	$ 11.0
Other assurance fees	2.3	0.9
All other fees	3.2	0.9
	$ 17.6	$ 12.8

The total audit fees of PricewaterhouseCoopers Accountants N.V., The Netherlands, charged to the Company and its group entities amounted to $1.4 million and $1.5 million in 2023 and 2022, respectively. These audit fees include the aggregate fees billed for professional services rendered for the audit of LyondellBasell Industries N.V.'s annual financial statements, annual statutory financial statements of subsidiaries and services that are normally provided by the independent auditor in connection with these audits.

Other assurance fees include the aggregate fees billed for assurance and related services that are reasonably related to the performance of the audit or review of the Group's financial statements and are not reported under audit services. This category includes fees related to the performance of audits of benefit plans, agreed-upon or expanded audit procedures relating to accounting records required to respond to or comply with financial, accounting or regulatory reporting matters and consultations as to the accounting or disclosure treatment of transactions or events and/or the actual or potential impact of final or proposed rules, standards or interpretations by regulatory or standard setting bodies.

Other fees relate to permitted services that are not included in the above categories.

10. Directors' Remuneration

Reference is made to Note 10, Directors' Remuneration of the Consolidated Financial Statements.

April 4, 2024

The Board of Directors

/s/ Peter Vanacker	/s/ Jacques Aigrain
Peter Vanacker	Jacques Aigrain
/s/ Lincoln Benet	/s/ Robin W.T. Buchanan
Lincoln Benet	Robin W.T. Buchanan
/s/ Anthony R. Chase	/s/ Robert W. Dudley
Anthony R. Chase	Robert W. Dudley
/s/ Claire S. Farley	/s/ Rita Griffin
Claire S. Farley	Rita Griffin
/s/ Michael S. Hanley	/s/ Virginia A. Kamsky
Michael S. Hanley	Virginia A. Kamsky
/s/ Albert J. Manifold	
Albert J. Manifold	

11. Other Information

Proposed Appropriation of Result

Profit remaining after the appropriation to reserves shall be at the disposal of the general meeting (article 22 sub 3 Articles of Association). The Board of Directors may also appropriate the complete profit to the reserves.

Legal Structure

The list of our subsidiaries as of December 31, 2023 is included in Appendix A. See Note 18 to the Consolidated Financial Statements for a list of our principal Associates, Joint Ventures and Joint Operations.

Appendix - A

Entity Name	Jurisdiction of Formation
LyondellBasell Industries N.V.	Netherlands
LYB International Finance B.V.	Netherlands
LyondellBasell Finance Company	United States
Basell North America Inc.	United States
Lyondell Chemical Company	United States
LYB (Barbados) Holdings SRL	Barbados
LYB Bayport Ethers LLC	United States
LYB Channelview POTBA LLC	United States
LYB (Barbados) SRL	Barbados
LYB Equistar Holdings LLC	United States
Equistar LP, LLC	United States
Equistar GP, LLC	United States
Equistar Chemicals, LP	United States
Equistar Bayport, LLC	United States
Equistar Mont Belvieu Corporation	United States
LyondellBasell LC Offtake LLC	United States
LYB Finance Holdings LLC	United States
LYB Americas Finance Company LLC	United States
Lyondell Chemical Properties, L.P.	United States
LYB Houston Hub Holdings LLC	United States
LYB International Finance III, LLC	United States
LYB Receivables LLC	United States
LYB Recycling CA LLC	United States
Lyondell Chemical Europe, Inc.	United States
Lyondell Chemical Overseas Services, Inc.	United States
Lyondell Chemical Technology 1 Inc.	United States
Lyondell Chemical Technology, L.P.	United States
Lyondell POTechLP, Inc.	United States
Lyondell Chemical Technology Management, Inc.	United States
Lyondell POTechGP, Inc.	United States
Lyondell POJVGP, LLC	United States
Lyondell POJVLP, LLC	United States
PO Offtake, LP	United States
Lyondell Refining Company LLC	United States
Lyondell Refining I LLC	United States
Houston Refining LP	United States
LyondellBasell Acetyls Holdco, LLC	United States
LyondellBasell Acetyls, LLC	United States
LyondellBasell Investment LLC	United States
LyondellBasell Transportation Company, LLC	United States
LyondellBasell Advanced Polymers Inc.	United States
A. Schulman International Inc.	United States
AS Mex Hold S.A. de C.V.	Mexico
A. Schulman de Mexico S.A. de C.V.	Mexico
LyondellBasell SCS UK Ltd	United Kingdom

Entity Name	Jurisdiction of Formation
AS Worldwide LLC & Cie, S.C.S.	Luxembourg
AS Worldwide, LLC	United States
LYB Treasury Services Ltd.	United Kingdom
ASI Investments Holding Co.	United States
HGGC Citadel Plastics Holdings, Inc.	United States
Bulk Molding Compounds, Inc.	United States
BMC Deutschland GmbH	Germany
tetra-DUR Kunststoff-Produktion GmbH	Germany
BMC TetraDURTurkey Plastik Hammadde Kompozit Üretim Sanayi ve Ticaret Limted Şirketi	Turkey
HPC Holdings, LLC	United States
LYB Composites Holding LLC	United States
LyondellBasell Composites LLC	United States
Quantum Composites, Inc.	United States
LYB Matrixx Holdings Inc.	United States
LYB Brazil Holdings LLC	United States
A. Schulman Plásticos do Brasil Ltda.	Brazil
LyondellBasell Hungary Kft	Hungary
LYB International Funding B.V.	Netherlands
LYB International Limited	Cayman
LyondellBasell Subholdings B.V.	Netherlands
Basell International Holdings B.V.	Netherlands
Basell (Thailand) Holdings B.V.	Netherlands
Basell Advanced Polyolefins (Thailand) Company Ltd.	Thailand
Basell Advanced Polyolefins (Dalian) Co., Ltd.	China
Basell Arabie Investissements SAS	France
Basell Asia Pacific Limited	China
Basell Trading (Shanghai) Co. Ltd.	China
LyondellBasell Malaysia Sdn. Bhd.	Malaysia
LyondellBasell Polyolefin (Shanghai) Co., Ltd.	China
Basell Holdings Middle East GmbH	Germany
Basell International Trading FZE	United Arab Emirates
Basell Moyen Orient Investissements SAS	France
Basell Poliolefinas Ltda.	Brazil
Colortech Da Amazonia Lta.	Brazil
Basell Poliolefinas, S. de R.L. de C.V.	Mexico
Basell Polyolefin Istanbul Ticaret Limited Sirketi	Turkey
Basell Polyolefins India Private Limited	India
Basell Polyolefins Korea Ltd.	Korea, Republic Of
Bulk Molding Compounds do Brasil Industria de Plásticos Reforçados Ltda.	Brazil
Citadel Plastics Mexico Holdings, LLC	United States
Bulk Molding Compounds Mexico, S. de R.L. de C.V.	Mexico
Lyondell Asia Holdings Limited	China
Lyondell Basell Arabian Limited	Saudi Arabia
Lyondell China Holdings Limited	China
Lyondell Greater China Holdings Limited	China
Lyondell Greater China Trading Limited	China
Lyondell Japan, Inc.	Japan

Entity Name	Jurisdiction of Formation
Lyondell South Asia Pte Ltd	Singapore
LyondellBasell Advanced Polymers (Malaysia) Sdn. Bhd.	Malaysia
LyondellBasell Advanced Polyolefins (Malaysia) Sdn. Bhd.	Malaysia
LyondellBasell Brasil Ltda.	Brazil
LyondellBasell Canada Inc.	Canada
LyondellBasell Egypt LLC	Egypt
LyondellBasell Polymers (Malaysia) Sdn. Bhd.	Malaysia
LyondellBasell Singapore Pte. Ltd.	Singapore
LyondellBasell Taiwan Co., Ltd.	Taiwan
LyondellBasell Vietnam Company Limited	Vietnam
OE Insurance Ltd	Bermuda
LYB International Finance II B.V.	Netherlands
LyondellBasell Industries Holdings B.V.	Netherlands
A. Schulman Castellon S.L.	Spain
A. Schulman International Services BV	Belgium
A.Schulman Poznan Sp. Z o.o.	Poland
A. Schulman Plastics BV	Belgium
A. Schulman Belgium BV	Belgium
A. Schulman Europe International B.V.	Netherlands
A. Schulman 's-Gravendeel B.V.	Netherlands
A. Schulman Gainsborough Ltd	United Kingdom
A. Schulman Thermoplastic Compounds Limited	United Kingdom
A. Schulman Nordic AB	Sweden
A. Schulman Plastics S.r.l.	Italy
A. Schulman Plastik Sanayi ve Ticaret Anonim Sirketi	Turkey
A. Schulman Polska Sp. z o.o.	Poland
Basell Benelux B.V.	Netherlands
Basell Poliolefinas Iberica S.L.	Spain
Basell Poliolefine Italia S.r.l.	Italy
Basell Sales & Marketing Company B.V.	Netherlands
Basell UK Holdings Limited	United Kingdom
Basell Polyolefins UK Limited	United Kingdom
LYB Finance Company B.V.	Netherlands
LYB Luxembourg S.à r.l.	Luxembourg
Basell Germany Holdings GmbH	Germany
Basell Chemie Köln GmbH	Germany
Basell Polyolefine GmbH	Germany
Basell Bayreuth Chemie GmbH	Germany
A. Schulman GmbH	Germany
A. Schulman Real Estate GmbH & Co. KG	Germany
LYB Europe Funding Limited	Hong Kong
LyondellBasell Holdings France SAS	France
A. Schulman Europe Verwaltungs GmbH	Germany
A. Schulman Inc. Limited	United Kingdom
A. Schulman Plastics SAS	France
A. Schulman S.A.S.	France
Elian S.A.S.	France
Basell Polyolefines France S.A.S.	France

Entity Name	Jurisdiction of Formation
Compagnie de Distribution des Hydrocarbures SAS	France
Compagnie Petrochimique de Berre SAS	France
Lyondell Chimie France SAS	France
LyondellBasell Services France S.A.S.	France
LYB Advanced Polymer Solutions Ireland Limited	Ireland
LYB Ireland Limited	Ireland
LyondellBasell Central Europe Kft.	Hungary
LYB Trading Company B.V.	Netherlands
Lyondell Chemie Nederland B.V.	Netherlands
Lyondell Chemie (PO-11) B.V.	Netherlands
Lyondell Chemie (POSM) B.V.	Netherlands
Lyondell PO-11 C.V.	Netherlands
LyondellBasell China Holdings B.V.	Netherlands
Basell Advanced Polyolefins (Suzhou) Co. Ltd.	China
Guangzhou Basell Advanced Polyolefins Co., Ltd.	China
LyondellBasell Advanced Polymer (Changshu) Co., Ltd.	China
LyondellBasell Advanced Polymer (Dongguan) Co. Ltd.	China
Mepol S.r.l.	Italy
Industrial Technology Investments Poland Sp. Z.o.o.	Poland
Polar S.r.l.	Italy
LyondellBasell Circular Economy B.V.	Netherlands
QCP Holding B.V.	Netherlands
QCP Arles S.A.S.	France
QCP IP B.V.	Netherlands
QCP Landemont S.A.S.	France
QCP B.V.	Netherlands
Tivaco S.A.	Belgium

Independent auditor's report

To: the general meeting and the board of directors of LyondellBasell Industries N.V.

Report on the audit of the financial statements 2023

Our opinion

In our opinion:

- the consolidated financial statements of LyondellBasell Industries N.V. together with its subsidiaries ('the Group') give a true and fair view of the financial position of the Group as at 31 December 2023 and of its result and cash flows for the year then ended in accordance with International Financial Reporting Standards as adopted in the European Union ('EU-IFRS') and with Part 9 of Book 2 of the Dutch Civil Code;
- the corporate financial statements of LyondellBasell Industries N.V. ('the Company') give a true and fair view of the financial position of the Company as at 31 December 2023 and of its result for the year then ended in accordance with Part 9 of Book 2 of the Dutch Civil Code.

What we have audited

We have audited the accompanying financial statements 2023 of LyondellBasell Industries N.V., Rotterdam. The financial statements comprise the consolidated financial statements of the Group and the corporate financial statements of the Company.

The consolidated financial statements comprise:

- the consolidated statement of financial position as at 31 December 2023;
- the following statements for 2023: the consolidated statement of income, the consolidated statement of comprehensive income, the consolidated statement of changes in equity and the consolidated statement of cash flows; and
- the notes to the financial statements, including material accounting policy information.

The corporate financial statements comprise:

- the corporate statement of financial position as at 31 December 2023;
- the corporate statement of income for the year then ended; and
- the notes, comprising a summary of the accounting policies applied and other explanatory information.

The financial reporting framework applied in the preparation of the financial statements is EU-IFRS and the relevant provisions of Part 9 of Book 2 of the Dutch Civil Code for the consolidated financial statements and Part 9 of Book 2 of the Dutch Civil Code for the corporate financial statements.

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The basis for our opinion

We conducted our audit in accordance with Dutch law, including the Dutch Standards on Auditing. We have further described our responsibilities under those standards in the section 'Our responsibilities for the audit of the financial statements' of our report.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

Independence

We are independent of LyondellBasell Industries N.V. in accordance with the 'Wet toezicht accountantsorganisaties' (Wta, Audit firms supervision act), the 'Verordening inzake de onafhankelijkheid van accountants bij assuranceopdrachten' (ViO, Code of Ethics for Professional Accountants, a regulation with respect to independence) and other relevant independence regulations in the Netherlands. Furthermore, we have complied with the 'Verordening gedrags- en beroepsregels accountants' (VGBA, Dutch Code of Ethics).

Our audit approach

We designed our audit procedures with respect to the key audit matters, fraud and going concern, and the matters resulting from that, in the context of our audit of the financial statements as a whole and in forming our opinion thereon. The information in support of our opinion, such as our findings and observations related to individual key audit matters, the audit approach for fraud risk and the audit approach for going concern was addressed in this context, and we do not provide separate opinions or conclusions on these matters.

Overview and context

LyondellBasell Industries N.V. is a worldwide manufacturer of chemicals and polymers, a refiner of crude oil, a significant producer of gasoline blending components and a developer and licensor of technologies for production of polymers. The business operations are subject to the cyclical and volatile nature of the chemicals industry which causes fluctuations in the results from period to period and over business cycles.

The chemicals industry has historically experienced periods of capacity shortages, causing prices and profit margins to increase, followed by periods of lower demand, resulting in oversupply and declining prices and profit margins. The volatility of results affected our determination of materiality as set out in the materiality section of our report.

The Group is comprised of several components and therefore we considered our group audit scope and approach as set out in the section 'The scope of our group audit'. We paid specific attention to the areas of focus driven by the operations of the Group, as set out below.

As part of designing our audit, we determined materiality and assessed the risks of material misstatement in the financial statements. In particular, we considered where management made important judgements, for example, in respect of significant accounting estimates that involved making assumptions and considering future events that are inherently uncertain. In these considerations, we paid attention to, amongst others, the assumptions underlying the physical and transition risk related to climate change.

LyondellBasell Industries N.V. assessed the possible effects of climate change, including the revised climate reduction goals announced in December 2022, on its financial position. We discussed LyondellBasell Industries N.V.'s assessment and governance thereof with the board of directors and evaluated the potential impact on the financial position including underlying assumptions and estimates. We have performed a risk assessment of how the impact of the Group's ambition in respect of climate change may affect the financial statements and our audit. The expected effects of climate change are not considered a key audit matter for the 2023 audit.

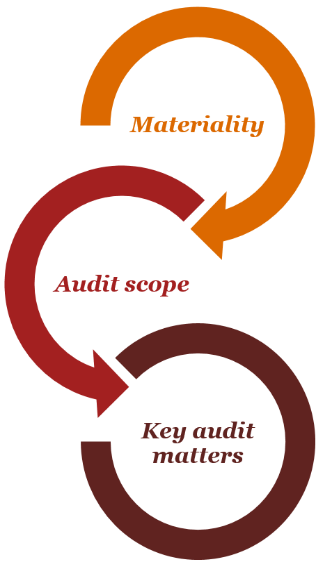
In note 3 of the consolidated financial statements, the Company describes the areas of judgement in applying accounting policies and the key sources of estimation uncertainty. Given the significant estimation uncertainty and the related higher inherent risks of material misstatement in providing for uncertain tax positions, we considered this matter as key audit matter as set out in the section 'Key audit matters' of this report.

The Company has recognised a significant impairment charge in 2023. Given the complexity, sensitivity, and inherent subjectivity related to the various assumptions underlying an impairment assessment, we consider this area as key audit matter for our audit as well, as set out in the section 'Key audit matters' of this report.

Other areas of focus that were not considered as key audit matters were inventory costing, revenue recognition and derivative financial instruments.

We ensured that the audit teams at both group and component level included the appropriate skills and competences which are needed for the audit. We therefore included experts and specialists in the areas of, among other matters, IT, pensions, tax, valuation, and financial instruments in our team.

The outline of our audit approach was as follows:



Materiality

Overall materiality: USD 215 million.

Audit scope

- We conducted audit work in six geographical locations: the Netherlands, the United States of America, Germany, Italy, Slovakia and China.
- We performed an audit of the complete financial information of six components and specified audit procedures of nine other components.
- Audit coverage: 85% of consolidated revenue, 94% of consolidated total assets and 81% of consolidated profit before tax.

Key audit matters

- Provisions for uncertain tax positions.
- Impairment assessment fixed assets and goodwill.

Materiality

The scope of our audit was influenced by the application of materiality, which is further explained in the section 'Our responsibilities for the audit of the financial statements'.

Based on our professional judgement we determined certain quantitative thresholds for materiality, including the overall materiality for the financial statements as a whole as set out in the table below. These, together with qualitative considerations, helped us to determine the nature, timing and extent of our audit procedures on the individual financial statement line items and disclosures and to evaluate the effect of identified misstatements, both individually and in aggregate, on the financial statements as a whole and on our opinion.

Overall group materiality	USD 215 million (2022: USD 250 million).
Basis for determining materiality	We used our professional judgement to determine overall materiality. As a basis for our judgement, we used 5% of the three-year weighted average of profit before income tax based on the US GAAP consolidated financial statements.
Rationale for benchmark applied	We used profit before tax as the primary benchmark, a generally accepted auditing practice, based on our analysis of the common information needs of the users of the financial statements. On this basis, we believe that profit before tax is the most relevant metric for the financial performance of the Company. The Company uses two accounting frameworks for calculating profit before tax: • The financial reporting frameworks that have been applied in the preparation of the financial statements are EU-IFRS and Part 9 of Book 2 of the Dutch Civil Code. • The accounting principles generally accepted in the United States of America (US GAAP) have been applied for the quarterly and annual earnings releases, and the financial statements filed with the United States Securities and Exchange Commission. Both US GAAP and EU-IFRS are applied in maintaining the daily operational accounting records. In addition, we believe that the users of financial information of the Company are primarily interested in the consolidated financial information based on US GAAP. Any user of these consolidated financial statements (EU-IFRS and Part 9 of Book 2 of the Dutch Civil Code) would likely not review this information in isolation; if users did review this information, we expect it would likely be in supplement to the US GAAP financial information. The result of the benchmark applied using US GAAP figures is not higher than the result had the EU-IFRS figures been applied as a benchmark. Therefore, for the audit of these consolidated financial statements (EU-IFRS and Part 9 of Book 2 of the Dutch Civil Code) we have applied a generally accepted auditing practice benchmark on the profit before tax based on US GAAP. We have applied a three-year weighted average of the profit before income tax as the Company's operations are subject to the cyclicality and volatility of the chemicals industry, hence operating results may vary substantially over the years.

Component materiality	Based on our judgement, we allocate materiality to each component in our audit scope that is less than our overall group materiality. The range of materiality allocated across components was between USD 50 million and USD 205 million. Certain components were audited to a local statutory audit materiality that was also less than our overall group materiality.

We also take misstatements and/or possible misstatements into account that, in our judgement, are material for qualitative reasons.

We agreed with the board of directors that we would report to them any misstatement identified during our audit above USD 20 million (2022: USD 25 million) as well as misstatements below that amount that, in our view, warranted reporting for qualitative reasons.

The scope of our group audit

LyondellBasell Industries N.V. is the parent company of a group of entities. The financial information of this group is included in the consolidated financial statements of LyondellBasell Industries N.V.

We tailored the scope of our audit to ensure that we, in aggregate, performed sufficient work on the financial statements to enable us to provide an opinion on the financial statements as a whole, taking into account the management structure of the Group, the nature of operations of its components, the accounting processes and controls, and the markets in which the components of the Group operate. In establishing the overall group audit strategy and plan, we determined the type of work required to be performed at component level by the group engagement team and by each component auditor.

Our audit primarily focussed on six individually significant components of the Group located in the United States of America and the Netherlands.

We subjected six components to audits of their complete financial information, as those components are individually financially significant to the Group. We further subjected nine components to specific risk-focussed audit procedures as they include significant or higher risk areas.

In total, in performing these procedures, we achieved the following coverage on the financial line items:

Revenue	85%
Total assets	94%
Profit before tax	81%

None of the remaining components represented more than 2% of total group revenue and/or total group assets. For those remaining components we performed, among other things, analytical procedures to corroborate our assessment that there were no significant risks of material misstatements within those components.

The group engagement team performed the audit work for group entities located in the Netherlands and the United States of America. We used component auditors located in Germany, China, the Netherlands, the United States of America, Italy, and Slovakia who are familiar with the local laws and regulations to perform the audit work.

Where component auditors performed the work, we determined the level of involvement we needed to have in their work to be able to conclude whether we had obtained sufficient and appropriate audit evidence as a basis for our opinion on the consolidated financial statements as a whole.

We issued instructions to the component audit teams in our audit scope. These instructions included, among others, our risk analysis, materiality and the scope of the work. We explained to the component audit teams the structure of the Group, the main developments that were relevant for the component auditors, the risks identified, the materiality levels to be applied and our global audit approach. We liaised with the component teams in the United States of America, China, Italy, the Netherlands, Slovakia, and Germany to review their audit work and reports about their findings. We had individual calls with each of the in-scope component audit teams both during the year and upon conclusion of their work. During these calls, we discussed the significant accounting and audit issues identified by the component auditors, their reports, the findings of their procedures and other matters, that could be of relevance for the consolidated financial statements.
The group engagement team visits the component teams and local management on a rotational basis. In the current year, the group audit team visited the United States of America and the Netherlands components, given the importance of revenue and property, plant and equipment. For each of these locations we reviewed selected working papers of the respective component auditors based on professional judgement.

The group engagement team performed the audit work on the group consolidation, financial statement disclosures and a number of more complex items at the head office.

By performing the procedures outlined above at the components, combined with additional procedures exercised at group level, we have been able to obtain sufficient and appropriate audit evidence on the Group's financial information to provide a basis for our opinion on the financial statements.

Audit approach fraud risks

We identified and assessed the risks of material misstatements of the financial statements due to fraud. During our audit we obtained an understanding of LyondellBasell Industries N.V. and its environment and the components of the internal control system. This included management's risk assessment process and their process for responding to the risks of fraud and monitoring the internal control system.

We evaluated the design and relevant aspects of the internal control system with respect to the risks of material misstatements due to fraud and in particular the fraud risk assessment, as well as, among others, the code of conduct, ethics hotline and whistleblower procedures, the compliance programmes, and training and incident registration. We evaluated the design and the implementation and, where considered appropriate, tested the operating effectiveness of internal controls designed to mitigate fraud risks.

We asked members of the board of directors as well as the internal audit department, compliance department, segments controllers and legal department, whether they are aware of any actual or suspected fraud. This did not result in signals of actual or suspected fraud that may lead to a material misstatement.

As part of our process of identifying fraud risks, we evaluated fraud risk factors with respect to financial reporting fraud, misappropriation of assets and bribery and corruption. We evaluated whether these factors indicate that a risk of material misstatement due to fraud is present.

In accordance with ISA 240 there are two presumed fraud risks when performing audit procedures:
1) Risk of management override of controls.
2) Risk of fraud in revenue recognition.

As part of our risk assessment, we evaluated the revenue transactions of the group. The group largely operates in a low value/high volume sales environment with an automated revenue recognition process. The limited complexity of the group's business model, automated revenue recognition process and lack of incentives to perpetrate fraud limits the risk of fraud in revenue recognition.

Based on the above, our identification of fraud risk was limited to management override of controls and we performed the following specific procedures:

Identified fraud risk	***Our audit work and observations***
Risk of management override of controls Management is in a unique position to perpetrate fraud because of management's ability to manipulate accounting records and prepare fraudulent financial statements by overriding controls that otherwise appear to be operating effectively. We paid attention to the risk of management override of controls, including risks of potential misstatements due to fraud based on an analysis of potential interests of management in areas where management would most likely override controls, i.e., accounting for significant unusual transactions, recording of critical accounting estimates, booking of manual journal entries, or via incomplete/inaccurate disclosures.	We evaluated the design of the internal controls that are intended to mitigate the risk of management override of controls and assessed the effectiveness of the controls in the process of generating and processing journal entries and making estimates. We also paid specific attention to the access safeguards in the IT system and the possibility that these lead to violations of the segregation of duties. We selected journal entries based on risk criteria and conducted specific audit activities for these entries, as part of which we also paid attention to significant transactions outside the normal course of business. We also performed specific audit procedures related to important estimates of management, including uncertain tax positions and valuation of fixed assets and goodwill (refer to the key audit matters for our audit work and observations). We specifically paid attention to the inherent risk of management bias in estimates. Our audit procedures did not lead to specific indications of fraud or suspicions of fraud with respect to management override of controls.

We incorporated an element of unpredictability in our audit. In addition, we reviewed lawyer's letters and correspondence with regulators. During the audit, we remained alert to indications of fraud. Furthermore, we considered the outcome of our other audit procedures and evaluated whether any findings were indicative of fraud or non-compliance with laws and regulations.

Audit approach going concern

Management prepared the financial statements on the assumption that the entity is a going concern and that it will continue all its operations for at least twelve months from the date of preparation of the financial statements.

Our procedures to evaluate management's going-concern assessment included, amongst others:

- considering whether management identified events or conditions that may cast significant doubt on the entity's ability to continue as a going concern (hereafter: going-concern risks);
- considering whether management's going-concern assessment included all relevant information of which we were aware as a result of our audit and inquiring with management regarding the management's most important assumptions underlying its going-concern assessment;
- evaluating management's current budget including cash flows for at least twelve months from the date of the financial statements taking into account current developments in the industry and all relevant information of which we were aware as a result of our audit;
- analysing whether the current and the required financing has been secured to enable the continuation of the entirety of the entity's operations, including compliance with relevant covenants;
- performing inquiries of management as to its knowledge of going-concern risks beyond the period of management's assessment.

Our procedures did not result in outcomes contrary to management's assumptions and judgements used in the application of the going-concern assumption.

Key audit matters

Key audit matters are those matters that, in our professional judgement, were of most significance in the audit of the financial statements. We have communicated the key audit matters to the board of directors. The key audit matters are not a comprehensive reflection of all matters identified by our audit and that we discussed. In this section, we described the key audit matters and included a summary of the audit procedures we performed on those matters.

Compared to prior year one new key audit matter is introduced, namely 'Impairment assessment fixed assets and goodwill'.

Key audit matter	***Our audit work and observations***
Provisions for uncertain tax positions *Note 13* The Company has recorded income tax expense from continuing operations of $347 million, income tax receivables of $290 million, income tax payables of $272 million, and net deferred tax liabilities of $2,611 million. The Company operates in multiple jurisdictions throughout the world, and their tax returns are periodically audited or subjected to review by tax authorities. Management recognises uncertain income tax positions when it is more likely than not, based on the technical merits, that the position or a portion thereof will be sustained upon examination. As disclosed by management in note 13 of the consolidated financial statements, there continues to be increased attention on the tax practices of multinational companies, in particular the U.S. and Europe where the Company	We assessed and tested the design and operating effectiveness of controls over the accounting for uncertain tax positions, including: • identification and recognition of the liabilities for uncertain tax positions; and • the completeness of the liabilities for uncertain tax positions. We found the controls above to be properly designed and operating effectively to support our intended reliance. In addition, we were supported by individuals with specialised skills and knowledge in taxation and performed the following testing procedures: • assessed management's analysis of the technical merits of tax positions and estimates of the amount of tax benefit expected to be sustained;

Key audit matter	*Our audit work and observations*
operates. The company continues to monitor proposed tax law changes as they could increase their tax liabilities in the future, if enacted. Significant judgements were made by management when determining provisions for tax uncertainties, including a high degree of estimation uncertainty due to the complexity of tax laws, frequency of tax audits and potential for adjustments as a result of such tax audits. Based on the above, we consider the provisions for uncertain tax provisions to be a key audit matter.	• evaluated the status and results of tax audits by the relevant tax authorities; • evaluated communication with tax authorities; • assessed the probability of tax positions of being sustained by evaluating and challenging management's key assumptions and the application of relevant tax laws, particularly in cases where there had been developments with tax authorities; and • considered and evaluated any evidence contrary to the assumptions used by management. Based on the procedures performed we noted no material issues arising from our work.
Impairment assessment fixed assets and goodwill *Note 15 and 16* The Company has recognised an impairment charge of $616 million in 2023 related to the following assets and goodwill: the LyondellBasell Covestro Manufacturing Maasvlakte V.O.F ('European PO joint operation') ($192 million), goodwill related to the Advanced Polymer Solutions ('APS') segment ($228 million) and related other APS intangible and fixed assets ($124 million), as well as $72 million related to various other impairments. For several assets this related to declining financial performance and unfavourable long-term economic outlook. For the goodwill this related to the re-segmentation of the APS segment during 2023. Impairments are recognised when the carrying value is higher than the recoverable amounts. European PO joint operation The impairment on the European PO joint operation represents a write down of $182 million on property, plant and equipment and $10 million on right-of-use asset. The fair values of the joint operation assets were determined using an income approach; the significant inputs used in the fair value determination, including projected cash flows and the discount rate, are considered to be Level 3 inputs. APS Goodwill and other intangible and fixed assets There was a trigger early in 2023 due to the APS re-segmentation. Effective 1 January 2023, the *Catalloy* and polybutene-1 businesses were moved from the APS segment and reintegrated into the Olefins and Polyolefins ('O&P') segments.	We assessed and tested the design and operating effectiveness of controls over the accounting for impairments, including: • Management's identification of triggering events; and • Management's impairment analysis review. We found the controls above to be properly designed and operating effectively to support our intended reliance. In addition, we were supported by individuals with specialised skills and knowledge in valuation and performed the following testing procedures. We evaluated management's cash flow forecasts and the process in place by the Group to determine the recoverable value or in case of goodwill the relative fair values of underlying assets to support the goodwill. In particular, we focused on whether they identified the relevant groups of CGUs at the appropriate level. We assessed the consistency of the assumptions in cashflow forecast against the Company's long-range plan and performed a sensitivity analysis to determine if the applied growth rates could reasonably result in a material misstatement. We found no exceptions. We feel the judgements are appropriate.

Key audit matter	Our audit work and observations
This resulted in the current year impairment for goodwill and several other fixed assets in the remaining APS segment that were recognised per Q1 2023. We focused our audit efforts on the goodwill impairment recognised in relation to the APS segment due to the impairment charge of $228 million recognised in the current year. The remaining goodwill balance related to APS is approximately $566 million. As per IAS 36, goodwill is subject to an annual impairment test. No additional impairment (or trigger for reversal of APS fixed asset impairments) was noted. The recoverable amounts of the APS groups of cash-generating units ('CGUs') have been determined to be the fair values, calculated utilising a discounted cash flow method under the income approach, based on estimated future cash flows from those CGUs. This was an area of focus as management's assessment of the recoverable amount of the Group's CGUs is considered a significant estimate. The recoverable value estimate required the use of valuation models, input data, and assumptions by management, particularly with respect to the discount rates applied to the forecasted cash flows. Given the complexity, sensitivity, and inherent subjectivity related to the significant assumptions and the resulting significant estimation uncertainty, there is an inherent risk of understatement of the impairment charges. Therefore, we considered this area as a key audit matter for our audit.	For all groups of CGUs, and in particular, APS-Performance Materials and APS-Custom Concentrates, with the help of our specialists, we challenged management's following assumption: • discount rate - by assessing the cost of capital for the company and comparable organisations within the industry, as well as considering territory and CGU-specific factors. We found the assumption to be consistent and in line with our expectations. We challenged management on the adequacy of their sensitivity calculations for the relevant groups of CGUs. We performed our own sensitivity analysis and agreed that the calculations were most sensitive to the assumption for discount rate. We assessed the Company's disclosures in the IFRS financial statements related to the (goodwill) impairment assessment and concluded they provide sufficient insight into the separate groups of CGUs as well as the significant assumptions and their sensitivities. Based on the procedures performed we noted no material issues arising from our work.

Report on the other information included in the financial report

The financial report contains other information. This includes all information in the financial report in addition to the financial statements and our auditor's report thereon.

Based on the procedures performed as set out below, we conclude that the other information:

- is consistent with the financial statements and does not contain material misstatements; and
- contains all the information regarding the directors' report and the other information that is required by Part 9 of Book 2 of the Dutch Civil Code.

We have read the other information. Based on our knowledge and the understanding obtained in our audit of the financial statements or otherwise, we have considered whether the other information contains material misstatements.

By performing our procedures, we comply with the requirements of Part 9 of Book 2 of the Dutch Civil Code and the Dutch Standard 720. The scope of such procedures was substantially less than the scope of those procedures performed in our audit of the financial statements.

The board of directors is responsible for the preparation of the other information, including the directors' report and the other information in accordance with Part 9 of Book 2 of the Dutch Civil Code.

Report on other legal and regulatory requirements

Our appointment

We were appointed as auditors of LyondellBasell Industries N.V. This followed the passing of a resolution by the shareholders at the annual general meeting held on 20 May 2010. Our appointment has been renewed annually by shareholders and now represents a total period of uninterrupted engagement of fourteen years.

Responsibilities for the financial statements and the audit

Responsibilities of the board of directors

The board of directors is responsible for:

- the preparation and fair presentation of the financial statements in accordance with EU-IFRS and Part 9 of Book 2 of the Dutch Civil Code; and for
- such internal control as the board of directors determines is necessary to enable the preparation of the financial statements that are free from material misstatement, whether due to fraud or error.

In preparing the financial statements, the board of directors is responsible for assessing the Company's ability to continue as a going concern. Based on the financial reporting frameworks mentioned, the board of directors should prepare the financial statements using the going-concern basis of accounting unless the board of directors either intends to liquidate the Company or to cease operations or has no realistic alternative but to do so.

The board of directors should disclose in the financial statements any event and circumstances that may cast significant doubt on the Company's ability to continue as a going concern.

Our responsibilities for the audit of the financial statements

Our responsibility is to plan and perform an audit engagement in a manner that allows us to obtain sufficient and appropriate audit evidence to provide a basis for our opinion. Our objectives are to obtain reasonable assurance about whether the financial statements as a whole are free from material misstatement, whether due to fraud or error and to issue an auditor's report that includes our opinion. Reasonable assurance is a high but not absolute level of assurance, and is not a guarantee that an audit conducted in accordance with the Dutch Standards on Auditing will always detect a material misstatement when it exists. Misstatements may arise due to fraud or error. They are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of the financial statements.

Materiality affects the nature, timing and extent of our audit procedures and the evaluation of the effect of identified misstatements on our opinion.

A more detailed description of our responsibilities is set out in the appendix to our report.

Rotterdam, 4 April 2024
PricewaterhouseCoopers Accountants N.V.

Ian Lefebure
I.J.C. Lefebure RA

Appendix to our auditor's report on the financial statements 2023 of LyondellBasell Industries N.V.

In addition to what is included in our auditor's report, we have further set out in this appendix our responsibilities for the audit of the financial statements and explained what an audit involves.

The auditor's responsibilities for the audit of the financial statements

We have exercised professional judgement and have maintained professional scepticism throughout the audit in accordance with Dutch Standards on Auditing, ethical requirements and independence requirements. Our audit consisted, among other things, of the following:

- Identifying and assessing the risks of material misstatement of the financial statements, whether due to fraud or error, designing and performing audit procedures responsive to those risks, and obtaining audit evidence that is sufficient and appropriate to provide a basis for our opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the intentional override of internal control.
- Obtaining an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Company's internal control.
- Evaluating the appropriateness of accounting policies used and the reasonableness of accounting estimates and related disclosures made by the board of directors.
- Concluding on the appropriateness of the board of directors' use of the going-concern basis of accounting, and based on the audit evidence obtained, concluding whether a material uncertainty exists related to events and/or conditions that may cast significant doubt on the Company's ability to continue as a going concern. If we conclude that a material uncertainty exists, we are required to draw attention in our auditor's report to the related disclosures in the financial statements or, if such disclosures are inadequate, to modify our opinion.
  Our conclusions are based on the audit evidence obtained up to the date of our auditor's report and are made in the context of our opinion on the financial statements as a whole. However, future events or conditions may cause the Company to cease to continue as a going concern.
- Evaluating the overall presentation, structure and content of the financial statements, including the disclosures, and evaluating whether the financial statements represent the underlying transactions and events in a manner that achieves fair presentation.

Considering our ultimate responsibility for the opinion on the consolidated financial statements, we are responsible for the direction, supervision and performance of the group audit. In this context, we have determined the nature and extent of the audit procedures for components of the Group to ensure that we performed enough work to be able to give an opinion on the financial statements as a whole. Determining factors are the geographic structure of the Group, the significance and/or risk profile of group entities or activities, the accounting processes and controls, and the industry in which the Group operates. On this basis, we selected group entities for which an audit or review of financial information or specific balances was considered necessary.

We communicate with the board of directors regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that we identify during our audit.

From the matters communicated with the board of directors, we determine those matters that were of most significance in the audit of the financial statements of the current period and are therefore the key audit matters. We describe these matters in our auditor's report unless law or regulation precludes public disclosure about the matter or when, in extremely rare circumstances, we determine that a matter should not be communicated in our report because the adverse consequences of doing so would reasonably be expected to outweigh the public interest benefits of such communication.