LyondellBasell Industries N.V.

Financial Report

For the Year Ended 31 December 2019

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1. About LyondellBasell

LyondellBasell Industries N.V. is a global, independent chemical company and was incorporated, as a *Naamloze Vennootschap*, under Dutch law on 15 October 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 are one of the world's top independent chemical companies based on 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, while 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, diesel and jet fuel. 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, global and regional production capacity, our operational efficiency and our ability to control costs. We have a strong operational focus and, as a producer of large volume commodities, continuously strive to differentiate ourselves through safe, reliable and low-cost operations in all our businesses. We purchase large quantities of natural gas, electricity and steam which we use as energy to fuel our facilities. We also purchase large quantities of natural gas and crude oil derivatives which we use as feedstocks. During recent years, 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. While new facilities and increased supply have reduced the North American feedstock advantage, improved product supply and demand fundamentals in several businesses, notably global polyolefins products, have partially offset the decline.

We employed approximately 19,100 full-time and part-time employees at 31 December 2019. In addition to our own employees, we also use the services of contractors in the routine conduct of our businesses.

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, colors and powders, engineered composites and advanced polymers, which includes *Catalloy* and polybutene-1.
- *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 fuel products including gasoline and distillates.
- *Technology*. Our Technology segment develops and licenses chemical and polyolefin process technologies and manufactures and sells polyolefin catalysts.

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.

During 2019, LyondellBasell continued to exhibit strong cash generation and remained committed to our disciplined capital allocation strategy. Over each of the past six years, we have consistently delivered $5 billion to $6 billion in cash from operating activities. We affirmed our commitment to a strong and progressive dividend during 2019 by increasing our quarterly dividend for the eleventh time and returning a total of $5.2 billion in dividends and share repurchases to shareholders. Our businesses benefited from abundant and low-cost natural gas liquid feedstocks throughout the year, and we demonstrated our capability to derive value from mergers and acquisitions through the integration of the A. Schulman acquisition.

During the fourth quarter, margins within most of our businesses were impacted by slow industrial demand and typical seasonality. Refining margins improved on a higher Maya 2-1-1 crack spread and relatively strong prices for naphtha and coke.

Our Technology segment achieved record licensing revenues, contributing to the most profitable year in the Company's history for the segment.

In 2019, we developed opportunities to expand into new markets by leveraging our technologies to strengthen our position in Asia. In June, we announced new polypropylene capacity through our Thailand joint venture, HMC Polymers. In September, we signed a joint venture Memorandum of Understanding with Liaoning Bora Enterprise Group to build an integrated cracker and polyolefins project expanding our footprint in the rapidly growing Chinese market. In December 2019, we announced our intention to expand our existing partnership with China Petroleum & Chemical Corporation (Sinopec) to build a second propylene oxide and styrene monomer plant in China utilizing our advantaged technology.

Significant items that affected results in 2019 relative to 2018 include:

- Lower O&P—Americas segment results due to a decline in polyethylene margins while olefins margins improved;
- O&P—EAI segment results decreased due to unfavorable foreign exchange impacts and lower income from equity investments;
- I&D segment results declined due to margin and volume decreases primarily driven by intermediate chemicals;
- Higher APS segment results primarily due to the contribution of results from A. Schulman product lines;
- Lower Refining segment results due to a decline in margins; and
- Higher Technology segment results due to increased licensing revenue.

Other noteworthy items in 2019 include the following:

- Redeemed $1,000 million of our 5% senior notes due 2019;
- Executed a three-year, $4,000 million senior unsecured delayed draw term loan credit facility, of which $1,950 million was outstanding as of 31 December 2019;
- Issued €1,000 million of long-term guaranteed notes used to refinance $1,000 million of long-term debt and repay a portion of our outstanding short-term debt;
- Issued $1,000 million of long-term guaranteed notes used to repay our indebtedness outstanding under our Term Loan due 2020;
- Repurchased $3.8 billion of shares, primarily through the completion of a tender offer;
- Increased quarterly dividend from $1.00 per share to $1.05 per share in the second quarter;
- Commenced commissioning of our *Hyperzone* high density polyethylene plant; and
- Continued construction of our new PO/TBA project in Houston. In March 2020, we announced that we are slowing construction activities on our PO/TBA project. We are currently working with our contractors and suppliers to reevaluate the project timeline. See Section 2.1.3, "Outlook."

The following selected financial data of the Company should be read in conjunction with the Consolidated Financial Statements and related notes thereto and the discussion and analysis of our results of operations below. The selected financial data of the Company is derived from its audited Consolidated Financial Statements.

Millions of U.S. Dollars (except for earnings per share amounts)	Year Ended 31 December 2019	2018
Results of Operations Data		
Revenue	$ 34,911	$ 39,133
Cost of Sales	29,711	32,707
Operating profit	3,962	5,420
Finance costs	360	436
Depreciation, amortization and impairments	1,685	1,285
Share of profit of investments accounted for using the equity method	142	194
Income tax expense	663	571
Profit for the year	3,102	4,652
Earnings per share:		
Basic	8.75	11.94
Diluted	8.75	11.92
Balance Sheet Data		
Total equity	$ 7,466	$ 9,880
Borrowings	12,212	9,563
Lease Liabilities	1,507	—
Cash and cash equivalents	(939)	(415)
Net debt	12,780	9,148
Trade and other receivables	3,694	4,602
Inventories	4,278	4,468
Trade and other payables	(4,109)	(4,442)
Net working capital	3,863	4,628

Revenues—Revenues decreased $4,222 million, or 11%, in 2019 compared to 2018. Average sales prices were lower for most of our products as sales prices generally correlate with crude oil prices, which decreased relative to 2018. These lower prices led to a revenue decrease of 10% in 2019. Lower sales volumes resulted in a revenue decrease of 2% relative to 2018. Unfavorable foreign exchange impacts in 2019 resulted in a revenue decrease of 2% relative to the prior period. These decreases were partially offset by the acquired operations of A. Schulman, which contributed an additional 3%, or $1,304 million, of revenues in 2019 compared to 2018.

Cost of Sales—Cost of sales decreased $2,996 million, or 9%, in 2019 compared to 2018. This decrease in cost of sales is primarily due to lower feedstock and energy costs. Costs for crude oil, heavy liquid feedstocks and natural gas liquids ("NGLs") and other feedstocks were lower in 2019 relative to 2018. This decrease corresponds with the decrease in revenues as discussed above.

Fluctuations in our cost of sales are generally driven by changes in feedstock and energy costs. Feedstock and energy related costs generally represent approximately 75% to 80% of cost of sales, other variable costs account for approximately 10% of cost of sales on an annual basis and fixed operating costs, consisting primarily of expenses associated with employee compensation, depreciation and amortization, and maintenance, range from approximately 10% to 15% in each annual period.

Cost of sales also includes $23 million related to A. Schulman integration costs incurred during 2019.

Depreciation and amortization increased $400 million, or 31%, in 2019 compared to 2018. The increase is due to the implementation of *IFRS 16, Leases*, which resulted in an additional $328 million of amortization of Right-of-use assets which were previously recorded as operational lease expenses. The remaining increase is primarily due to the addition of A. Schulman assets acquired in August 2018. In 2020, we estimate depreciation and amortization charges will increase approximately 15% due to the completion of various capital projects, including our *Hyperzone* project.

Operating Profit—Operating profit decreased $1,458 million in 2019 compared to 2018. Operating profit for our O&P—Americas, I&D, Refining, APS and O&P—EAI segments declined by $658 million, $461 million, $53 million, $89 million and $92 million, respectively, relative to 2018. These decreases were partially offset by an increase in operating profit in our Technology segment of $109 million. Operating results for each of our business segments are reviewed further in the "Segment Analysis" section.

Finance Costs—Finance costs decreased $76 million in 2019 compared to 2018. The $76 million decrease in Finance Costs was primarily due to higher foreign exchange gains on intercompany loans amounting $183 million, partially offset by $104 million higher interest expense on borrowings and leases as a result of the adoption of *IFRS 16, Leases*.

Share of Profit of Investments Accounted for Using the Equity Method—Our share of profit of investments accounted for using the equity method decreased $52 million in 2019 primarily due to reduced polyolefin spreads for our joint ventures in our O&P—EAI segment.

Income Taxes—Our effective income tax rates of 17.6% in 2019 and 10.9% in 2018 resulted in tax provisions of $663 million and $571 million, respectively.

We monitor tax law changes and the potential impact to our results of operations. There continues to be increased attention to the tax practices of multinational companies, including certain provisions of H.R.1, also known as the U.S. Tax Cuts and Jobs Act (the "Tax Act"), the European Union's state aid investigations, proposals by the Organization for Economic Cooperation and Development with respect to base erosion and profit shifting, and European Union tax directives and their implementation. Management does not believe that recent changes in income tax laws, other than those disclosed and reflected in our financial statements, will have a material impact on our Consolidated Financial Statements, although new or proposed changes to tax laws could affect our tax liabilities in the future.

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 foreign exchange gains/losses, the amount of exempt income, and changes in unrecognized tax benefits associated with uncertain tax positions.

Our exempt income primarily includes interest income, export incentives, and equity earnings of our joint ventures. Interest income earned by certain of our European subsidiaries through intercompany financings is either untaxed or 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 and tax rulings, which could change, including changes with respect to proposed Treasury regulations under the Tax Act if finalized. Foreign exchange gains/losses have a permanent impact on our effective income tax rate that can cause unpredictable movement in our effective income tax rate. As of 31 December 2019 deferred tax assets not recognized in various jurisdictions were $92 million, of which the recognition could impact our effective income tax rate in the future. We believe our effective income tax rate for 2020 will be approximately 20%.

The weighted average applicable tax rates for 2019 and 2018 were 23.8% and 24.4%, respectively. The decrease was primarily attributable to a change in the geographical mixture of the profit before tax. Our effective income tax rate of 17.6% in 2019 and 10.9% in 2018 resulted in tax provisions of $663 million and $571million, respectively. Compared to 2018, the 2019 effective income tax rate increased primarily due to a reduction of tax exempt income and a favorable impact of an audit settlement impacting specific uncertain tax positions which resulted in a $366 million non-cash benefit to our effective tax rate for 2018.

2.1.1 Segment Analysis

Our continuing operations are managed through six reportable segments: O&P—Americas, O&P—EAI, I&D, APS, Refining and Technology. Results for our APS segment incorporates the businesses acquired from A. Schulman beginning 21 August 2018. Each of the operating segments is managed by a senior executive reporting directly to our Chief Executive Officer ("CEO"), the chief operating decision maker. Discrete financial information is available for each of the segments, and our CEO uses the operating results of each of the operating segments for performance evaluation and resource allocation.

Accounting policies for internal reporting, which are based on accounting principles generally accepted in the United States of America ("U.S. GAAP"), are materially similar to those described in Summary of Significant 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.

- *Other*—Amongst others, there are minor 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, 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.

We use earnings 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 postretirement benefit costs other than service cost, are included in "Other." For additional information related to our operating segments, as well as a reconciliation of EBITDA to its nearest U.S. GAAP measure and to IFRS Operating profit, see Note 33 of the Consolidated Financial Statements.

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

	Year Ended 31 December	
Millions of U.S. Dollars	2019	2018
Sales and other operating revenues:		
O&P—Americas	$ 8,435	$ 10,408
O&P—EAI	9,504	10,838
I&D	7,834	9,588
APS	4,850	4,024
Refining	8,251	9,157
Technology	663	583
Other, including intersegment eliminations	(4,810)	(5,594)
Total	$ 34,727	$ 39,004
Share of profit of associates and joint ventures:		
O&P—Americas	$ 46	$ 58
O&P—EAI	172	225
I&D	7	6
Total	$ 225	$ 289
EBITDA:		
O&P—Americas	$ 2,302	$ 2,762
O&P—EAI	1,062	1,163
I&D	1,557	2,011
APS	424	400
Refining	(65)	167
Technology	411	328
Other, including intersegment eliminations	1	36
Total	$ 5,692	$ 6,867

Olefins and Polyolefins—Americas Segment

Overview—EBITDA declined in 2019 relative to 2018 primarily due to lower polyethylene results, partially offset by improved olefin 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 is a major building block of olefins and polyolefins and as such, ethylene sales volumes and prices and our internal cost of ethylene production are included in management's assessment of the segment's performance.

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.

Although prices of these raw materials are generally related to crude oil and natural gas prices, during specific periods the relationships among these materials and benchmarks may vary significantly. We have significant flexibility to vary the raw material mix and process conditions in our U.S. olefins plants in order to maximize profitability as market prices for both feedstocks and products change.

Strong supplies from the U.S. shale gas/oil boom resulted in ethane being a preferred feedstock in our U.S. plants in 2019. Ethane remained the preferred U.S. feedstock for ethylene despite higher prices driven by increased demand from newly-constructed U.S. olefins units and supply constraints in the Gulf Coast NGL fractionation and pipeline systems. In 2019 and 2018, we produced approximately 80% of our ethylene from ethane.

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

	Year Ended 31 December	
Millions of U.S. Dollars	**2019**	**2018**
Sales and other operating revenues	$ 8,435	$ 10,408
Share of profit of associates and joint ventures	46	58
EBITDA	2,302	2,762

Revenues—Revenues decreased by $1,973 million, or 19%, in 2019 compared to 2018. Average olefins and polyethylene sales prices were lower in 2019 compared to 2018 due to increased market supply stemming from new industry capacity additions and, to a lesser extent, a lower oil price environment. Polypropylene sales prices decreased with declining propylene feedstock prices. These lower sales prices were responsible for a revenue decrease of 18% in 2019. Lower sales volumes, driven mainly by planned downtime at our Matagorda, Texas and Clinton, Iowa facilities, accompanied by softer demand also led to a revenue decrease of 1% in 2019.

EBITDA—EBITDA decreased by $460 million, or 17%, in 2019 compared to 2018. Polyethylene results declined resulting in a 27% decrease in EBITDA driven by a $261 per ton reduction in price spreads over ethylene as a result of increased market supply. An offsetting increase in olefin results increased EBITDA by 8% as ethylene margins increased by approximately $75 per ton primarily due to lower feedstock costs partially offset by a lower propylene price. The segment recognized lower of cost or market charges of $25 million in 2019 primarily due to a decline in domestic polyethylene prices.

Olefins and Polyolefins—Europe, Asia, International Segment

Overview—EBITDA declined in 2019 compared to 2018 mainly as a result of lower combined polyolefin results, lower income from equity investments and unfavorable foreign exchange impacts, partially offset by higher olefin 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 is a major building block of our olefins and polyolefins and as such, ethylene sales volumes and prices and our internal cost of ethylene production are included in management's assessment of the segment's performance.

Ethylene Raw Materials—In Europe, heavy liquids are the primary raw materials for our ethylene production. In 2019 and 2018, we continued to benefit by sourcing advantaged NGLs as market opportunities arose.

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.

	Year Ended 31 December	
Millions of U.S. Dollars	**2019**	**2018**
Sales and other operating revenues	$ 9,504	$ 10,838
Share of profit of associates and joint ventures	172	225
EBITDA	1,062	1,163

Revenues—Revenues in 2019 decreased by $1,334 million, or 12%, compared to 2018. Average sales prices in 2019 were lower across most products as sales prices generally correlate with crude oil prices, which on average, decreased compared to 2018. These lower average sales prices were responsible for revenue decreases of 10%. Higher sales volumes in 2019 resulted in 2% higher revenue driven by an absence of planned maintenance compared to 2018. Foreign exchange impacts, on average, were unfavorable and led to a revenue decrease of 4% in 2019.

EBITDA—EBITDA decreased by $101 million, or 9%, in 2019 compared to 2018. Decreased polyethylene results led to a 5% decrease in EBITDA largely due to a decline in margins attributed to lower price spreads over ethylene of $35 per ton. A decline in polypropylene results decreased EBITDA by 4% as price spreads over propylene decreased $48 per ton. Joint venture equity income decreased largely due to reduced polyolefin spreads resulting in a 5% decrease in EBITDA. These decreases were partially offset by higher olefins results which led to a 5% increase of EBITDA. This increase was primarily due to increased volumes driven by improved reliability with planned and unplanned maintenance impacting 2018 results. In addition, unfavorable foreign exchange impacts reduced EBITDA by 5% in 2019.

Fourth quarter 2019 results decreased $147 million, or 51%, versus the third quarter 2019. This change was primarily driven by a decline in olefin results as ethylene margins decreased due to higher feedstock costs and a lower propylene price.

Intermediates and Derivatives Segment

Overview—EBITDA for our I&D segment was lower in 2019 compared to 2018, largely driven by margin and volume decreases primarily in our intermediate chemicals business.

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 31 December	
Millions of U.S. Dollars	**2019**	**2018**
Sales and other operating revenues	$ 7,834	$ 9,588
Share of profit of associates and joint ventures	7	6
EBITDA	1,557	2,011

Revenues—Revenues for 2019 decreased by $1,754 million, or 18%, compared to 2018. Lower average sales prices in 2019 for most products, which reflect the impacts of lower feedstock and energy costs, were responsible for a revenue decrease of 12% compared to 2018 which benefited from an elevated level of planned and unplanned industry outages. Lower sales volumes resulted in a 4% decrease in revenues in 2019. Foreign exchange impacts, on average, were unfavorable and led to a revenue decrease of 2%.

EBITDA—EBITDA decreased by $454 million, or 23%, in 2019 compared to 2018. Decreased Intermediate Chemicals results led to an EBITDA decrease of 25%. This decrease was a result of lower margins across most businesses, in particular styrene, as demand weakened in 2019. Lower Propylene Oxide and Derivatives results decreased EBITDA by 5% largely due to lower volumes as demand declined. These declines in EBITDA were partially offset by higher Oxyfuels and Related Products results mainly due to improved margins driven by price improvements and low-cost butane, resulting in a 8% increase in EBITDA. Unfavorable foreign exchange impacts also reduced EBITDA by an additional 2% in 2019.

Advanced Polymer Solutions Segment

Overview—EBITDA for our APS segment increased in 2019 compared to 2018, primarily due to the contribution of EBITDA stemming from the August 2018 acquisition of A. Schulman, partly offset by integration costs and lower volumes across most products.

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

Millions of U.S. Dollars	Year Ended 31 December 2019	Year Ended 31 December 2018
Sales and other operating revenues	$ 4,850	$ 4,024
EBITDA	424	400

Revenues—Revenues increased in 2019 by $826 million, or 21%, compared to 2018. Excluding the impacts of the August 2018 acquisition of A. Schulman, sales volumes declined in 2019 stemming from lower market demand for advanced polymer products, including lower automotive and roofing demand, which led to a 7% decrease in revenue in 2019. Lower average sales prices as well as unfavorable foreign exchange impacts, each resulted in a 4% decrease in revenue. These declines were offset by $1,304 million of additional revenues in the APS segment due to a full year of operating the A. Schulman assets in 2019 compared to a partial year in 2018 following the acquisition in August 2018.

EBITDA—EBITDA increased in 2019 by $24 million, or 6%, compared to 2018. Compounding and Solutions results improved resulting in a 27% increase of EBITDA. This increase was largely due to an additional $108 million of EBITDA contributed by the operations of A. Schulman in 2019. Advanced Polymers results reduced EBITDA by 9% largely due to lower volumes driven by reduced automotive and roofing demand. Further, transaction and integration costs related to the acquisition of A. Schulman were $47 million higher in 2019 which reduced EBITDA by 12% relative to 2018. Unfavorable foreign exchange impacts also reduced EBITDA by an additional 3% in 2019.

Refining Segment

Overview—EBITDA for our Refining segment decreased due to lower industry margins driven by a compressed Maya differential, lower gasoline crack spreads and lower byproduct margins compared to 2018.

The following table sets forth selected financial information and heavy crude processing rates for the Refining segment and the U.S. refining market margins for the applicable periods. Light Louisiana Sweet "LLS" is a light crude oil, while "Maya" is a heavy crude oil.

Millions of U.S. Dollars	Year Ended 31 December 2019	Year Ended 31 December 2018
Sales and other operating revenues	$ 8,251	$ 9,157
EBITDA	(65)	167
Thousands of barrels per day		
Heavy crude oil processing rates	263	231
Market margins, dollars per barrel		
Light crude oil-2-1-1	$ 12.44	$ 12.35
Light crude oil-Maya differential	5.14	7.50
Total Maya 2-1-1	$ 17.58	$ 19.85

Revenues—Revenues decreased by $906 million, or 10%, in 2019 compared to 2018. Lower product prices led to a revenue decrease of 7% relative to 2018, due to an average crude oil price decrease of approximately $6 per barrel in 2019. Although heavy crude oil processing rates increased during 2019, overall sales volumes decreased, driven by reduced rates on conversion units, due to crude selection and the optimization of refinery operations. This reduction in conversion rates resulted in a further revenue decrease of 3% during 2019.

EBITDA—EBITDA decreased by $232 million, or 139%, in 2019 compared to 2018. Lower refining margins resulted in a 200% decrease in EBITDA relative to 2018. Unusually low discounts for heavy sour crude oils on the U.S. Gulf Coast led to a lower light-to-heavy crude price differential and compression in the benchmark Maya 2-1-1 market margin. This compression, combined with the Houston refinery's configuration which limits the amount of light sweet crude that can be processed, created a challenging market for our Refining segment. Margins were further compressed by a negative byproduct impact largely driven by weakness in Naphtha and refinery grade propylene. This margin-driven decrease in EBITDA was partly offset by a 61% increase associated with the rise in heavy crude oil processing rates due to the completion of planned maintenance in 2018.

Fourth quarter 2019 EBITDA improved $106 million, or 126%, representing a significant improvement compared to the fourth quarter 2018 which experienced a loss of $84 million. Margin improvements resulted in a 76% increase in EBITDA as the Maya 2-1-1 crack spread increased by $8.55 per barrel to $19.44 per barrel. Heavy crude oil processing rates increased by 83 thousand barrels per day in the fourth quarter of 2019 due to the completion of planned maintenance in the second half of 2018. This volume driven improvement resulted in a 50% increase in EBITDA in the fourth quarter of 2019.

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 2019 and 2018, our Technology segment incurred approximately 50% and 55%, respectively, of all R&D costs. EBITDA for our Technology segment improved in 2019 compared to 2018 largely due to higher licensing revenues.

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

	Year Ended 31 December	
Millions of U.S. Dollars	**2019**	**2018**
Sales and other operating revenues	$ 663	$ 583
EBITDA	411	328

Revenues—Revenues increased by $80 million, or 14%, in 2019 compared to 2018. Higher licensing revenues resulted in an increase of 18% in 2019 compared to 2018. Increases in average catalyst sales prices resulted in revenue increases of 4% in 2019. Lower catalyst sales volumes, driven by the timing of customer orders, resulted in a 3% decrease in revenue in 2019. Foreign exchange impacts that, on average, were unfavorable led to a revenue decrease of 5%.

EBITDA—EBITDA in 2019 increased by $83 million, or 25%, compared to 2018. This increase was mainly driven by higher licensing revenues as several licensing agreements signed in 2018, primarily in China, were recognized in revenue during 2019.

2.1.2 Financial Condition

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

	Year Ended 31 December	
Millions of U.S. Dollars	**2019**	**2018**
Source (use) of cash:		
Operating activities	$ 5,186	$ 5,328
Investing activities	(1,496)	(3,541)
Financing activities	(3,163)	(2,920)

Operating Activities—Cash of $5,187 million generated by operating activities in 2019 reflected earnings adjusted for non-cash items, payments for employee bonuses, income taxes, and cash consumed by the main components of working capital-accounts receivable, inventories and accounts payable.

In 2019, the main components of working capital provided $310 million of cash driven by a decrease in accounts receivable and a decrease in inventory, partially offset by a decrease in accounts payable. The decrease in accounts payable was primarily driven by weaker demand in our APS segment and a decrease in certain raw material costs in our I&D segment. The decrease in inventory was a result of a decrease in the cost of finished goods, primarily due to lower feedstock and energy costs. The decrease in accounts receivable was driven by decreases in our APS, I&D and O&P-Americas segments as a result of unfavorable market conditions.

Cash of $5,328 million generated in 2018 primarily reflected profit for the year, adjusted for non-cash items and net cash generated by the main components of working capital. A $404 million non-cash reduction in unrecognized tax benefits is reflected in Other operating activities in 2018.

In 2018, the main components of working capital provided $111 million of cash. Lower accounts receivable due primarily to lower sales volumes in our O&P-Americas, O&P-EAI and I&D segments at year end and higher accounts payable due to higher feedstock prices were partially offset by an increase in inventory primarily due to the lower sales volumes at year end.

Investing Activities—Net cash flows from investing activities were $1,496 million in 2019 and $3,541 million in 2018.

We invest cash in investment-grade and other high-quality instruments that provide adequate flexibility to redeploy funds as needed to meet our cash flow requirements while maximizing yield.

We received proceeds of $511 million and $423 million in 2019 and 2018, respectively, upon the sale and maturity of certain of our Financial assets held at fair value through other comprehensive income. Additionally, in 2019 and 2018, we received proceeds of $332 million and $97 million, respectively, on the sale of our investments in equity securities at fair value through profit and loss. In 2019, we received proceeds of $527 million upon the maturity of certain of our repurchase agreements.

In 2019 and 2018 we invested $108 million and $50 million, respectively, in marketable securities that are held at fair value through other comprehensive income. We also invested $33 million and $64 million in equity securities at fair value through profit and loss in 2019 and 2018, respectively. See Note 4 to the Consolidated Financial Statements for additional information regarding these investments.

Upon expiration in 2018, we settled foreign currency contracts with notional values totaling €925 million which were designated as net investment hedges of our investments in foreign subsidiaries. Payments to and proceeds from our counterparties resulted in a net cash inflow of $30 million. See Note 4 to the Consolidated Financial Statements for additional information regarding these foreign currency contracts.

In August 2018, we acquired A. Schulman for $1,776 million, which is net of $81 million of cash acquired and a liability deemed as a component of the purchase price.

In October 2018, we received net cash proceeds of $37 million for the sale of our carbon black subsidiary in France.

Capital Expenditures—The following table summarizes capital expenditures for the periods presented:

	Year Ended 31 December	
Millions of U.S. Dollars	**2019**	**2018**
Capital expenditures by segment:		
O&P-Americas	$ 1,099	$ 1,079
O&P-EAI	235	459
I&D	1,064	409
APS	59	62
Refining	149	250
Technology	94	48
Other	16	9
Consolidated capital expenditures of continuing operations	$ 2,716	$ 2,316

In 2019 and 2018, our capital expenditures included construction related to our PO/TBA plant at our Houston, Texas facility and our *Hyperzone* polyethylene plant at our La Porte, Texas facility, turnaround activities at several sites and other plant improvement projects. The higher level of capital expenditures for our I&D segment in 2019 compared to 2018 is largely due to the construction of our PO/TBA plant.

In 2020, we expect to spend approximately $1.9 billion for capital expenditures and investment in our U.S. and European PO joint ventures. The lower level of expected capital expenditures in 2020 relative to 2019 is primarily due to the reduction in spend related to our *Hyperzone* polyethylene plant and our PO/TBA project. During the first quarter of 2020, we continued commissioning our *Hyperzone* project. We have postponed capital spending related to selected growth projects and maintenance activities, including slowing construction activities on our PO/TBA project in Houston. We currently expect that these actions will reduce our total capital expenditures for 2020 to $1.9 billion relative to our prior guidance of $2.4 billion. Please also see Section 2.1.3, "Outlook" and Section 2.2, "Risk Factors."

Financing Activities—Financing activities used cash of $3,163 million and $2,920 million during 2019 and 2018, respectively.

In 2019 and 2018, we made payments of $3,752 million and $1,854 million to acquire approximately 42.7 million and 19.2 million, respectively, of our outstanding ordinary shares. We also made dividend payments totaling $1,462 million and $1,554 million in 2019 and 2018, respectively. For additional information related to our share repurchases and dividend payments, see Note 24 to the Consolidated Financial Statements.

In September 2018, we repaid the $375 million 6.875% Senior Notes due June 2023 assumed in the acquisition of A. Schulman for a price of 105.156% of par.

In February 2019, LYB Americas Finance Company LLC ("LYB Americas Finance"), a wholly owned subsidiary of LyondellBasell N.V., entered into a 364-day, $2,000 million senior unsecured term loan credit agreement and borrowed the entire amount. The proceeds of this term loan, which is fully and unconditionally guaranteed by LyondellBasell N.V. were used for general corporate purposes and to redeem the remaining $1,000 million outstanding of our 5% Senior Notes due 2019 at par.

In March 2019, LYB Americas Finance, a wholly owned subsidiary of LyondellBasell N.V., entered into a three-year $4,000 million senior unsecured delayed draw term loan credit facility that matures in March 2022 ("Term Loan due 2022"). Proceeds under this credit agreement, which is fully and unconditionally guaranteed by LyondellBasell N.V., were used for general corporate purposes. In July 2019, we borrowed $1,000 million under this facility along with $500 million from our U.S. Receivables Facility to partially fund the share repurchase price paid pursuant to a modified Dutch Auction tender offer ("tender offer"). In December 2019, we borrowed $1,950 million from our Term Loan due 2022 to repay amounts outstanding under our commercial paper program and $500 million outstanding under our U.S. Receivables Facility.

In September 2019, LYB International Finance II B.V. ("LYB Finance II"), a wholly owned finance subsidiary of LyondellBasell N.V., issued €500 million of 0.875% guaranteed notes due 2026 (the "2026 Notes") at a discounted price of 99.642% and €500 million of 1.625% guaranteed notes due 2031 (the "2031 Notes") at a discounted price of 98.924%. We used the net proceeds from the 2026 Notes and the 2031 Notes to repay $1,000 million outstanding under our Term Loan due 2022, and a portion of borrowings from our commercial paper program.

In October 2019, LYB International Finance III LLC ("LYB Finance III"), a wholly owned finance subsidiary of LyondellBasell N.V., issued $1,000 million of 4.2% guaranteed notes due 2049 (the "2049 Notes") at a discounted price of 98.488%. Net proceeds from the sale of the notes of $974 million, along with commercial paper and operating cash, was used to repay $2,000 million of the indebtedness outstanding under our Term Loan due 2020.

Through the issuance and repurchase of commercial paper instruments under our commercial paper program, we made net repayments of $549 million in 2019 and received net proceeds of $810 million in 2018.

Additional information related to commercial paper and debt activity can be found in the Liquidity and Capital Resources section below and in Note 26 to the Consolidated Financial Statements.

In February 2019, we purchased the non-controlling interest in our subsidiary that holds our La Porte, Texas methanol facility for $63 million.

In 2019, we made payments of $305 million related to principal elements of leases, see Note 16 to the Consolidated Financial Statements. In 2018 payments related to principal elements of leases were included in Operating Activities.

In January 2020, we amended the terms of certain forward-starting interest rate swaps to extend their maturities. Concurrently with the amendment of the swaps, we posted collateral of $238 million related to the liability position held with our counterparties as of the amendment date. For additional information see Note 4 to the Consolidated Financial Statements.

Liquidity and Capital Resources

Overview

We plan to fund our ongoing working capital, capital expenditures, debt service and other funding requirements with 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. Cash and cash equivalents, cash from our short-term investments, cash from operating activities, proceeds from the issuance of debt, or a combination thereof, may be used to fund the purchase of shares under our share repurchase authorization.

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.

We believe that our current liquidity availability and cash from operating activities provide us with sufficient financial resources to meet our anticipated capital requirements and obligations as they come due.

As explained in Note 2 and Note 34 in the Consolidated Financial Statements, the Coronavirus Disease 2019 ("COVID-19" or the "virus") outbreak and resulting measures taken by various governments to contain the virus have impacted the global markets and macro-economic uncertainty continues. The effects of the virus could adversely affect our business, operating results and financial condition.

Cash and Liquid Investments

As of 31 December 2019, we had $1,135 million of unrestricted cash and cash equivalents as well as Financial assets classified as fair value through other comprehensive income and fair value through profit and loss. For additional information related to our marketable securities see the Investing Activities section above and Note 4 to the Consolidated Financial Statements.

At 31 December 2019, we held $363 million of cash in jurisdictions outside of the U.S., principally in the United Kingdom and China. There are currently no legal or economic restrictions that would materially impede our transfers of cash.

Credit Arrangements

At 31 December 2019, we had total debt, including current maturities, of $12,212 million, and $200 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 $2,919 million at 31 December 2019, which included the following:

- $2,229 million under our $2,500 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. A small portion of our availability under this facility is impacted by changes in the euro/U.S. dollar exchange rate. At 31 December 2019, we had $262 million of outstanding commercial paper, net of discount, no outstanding letters of credit and no outstanding borrowings under the facility; and

- $690 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. This facility had no outstanding borrowings or letters of credit at 31 December 2019.

Our $2,500 million senior revolving credit facility contains customary covenants and warranties, including specified restrictions on indebtedness and liens. In addition, we are required to maintain a leverage ratio at the end of every fiscal quarter of 3.50 to 1.00 or less for the period covering the most recent four quarters.

The U.S. Receivables Facility is subject to customary warranties and covenants, including limits and reserves and the maintenance of specified financial ratios. We are required to maintain a leverage ratio at the end of every fiscal quarter of 3.50 to 1.00, or less, for the period covering the most recent four quarters. Performance obligations under the facility are guaranteed by LyondellBasell N.V.

In March 2019, we entered into the Term Loan due 2022. Borrowings under the credit agreement bear interest at either a base rate or LIBOR rate, as defined, plus in each case, an applicable margin determined by reference to LyondellBasell N.V.'s current credit ratings. The credit agreement contains customary representations and warranties and contains certain restrictive covenants regarding, among other things, secured indebtedness, subsidiary indebtedness, mergers and sales of assets. In addition, we are required to maintain a leverage ratio at the end of every fiscal quarter of 3.50 to 1.00, or less, for the period covering the most recent four quarters.

In September 2019, we issued the 2026 Notes and the 2031 Notes. The 2026 Notes and 2031 Notes may be redeemed before the date that is three months prior to the scheduled maturity date at a redemption price equal to the greater of 100% of the principal amount of the notes redeemed and the sum of the present values of the remaining scheduled payments of principal and interest (discounted at the applicable comparable government bond rate plus 30 basis points in the case of the 2026 Notes and plus 35 basis points in the case of the 2031 Notes) on the notes to be redeemed. The notes may also be redeemed on or after the date that is three months 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 accrued and unpaid interest. The notes are also redeemable upon certain tax events.

In October 2019, we issued the 2049 Notes. The 2049 Notes may be redeemed before the date that is six months prior to the scheduled maturity date at a redemption price equal to the greater of 100% of the principal amount of the notes redeemed and the sum of the present values of the remaining scheduled payments of principal and interest (discounted at the applicable treasury yield plus 35 basis points) on the notes to be redeemed. The notes may also be redeemed on or after the date that is six months 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. The notes are also redeemable upon certain tax events.

We may repay or redeem our debt, including purchases of our outstanding bonds in the open market, using cash and cash equivalents, cash from our short-term investments and tri-party repurchase agreements, cash from operating activities, proceeds from the issuance of debt, proceeds from asset divestitures or a combination thereof. In connection with any repayment or redemption of our debt, 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.

For additional information, see Note 26 to the Consolidated Financial Statements.

Share Repurchases

Upon completion of the tender offer in July 2019, we repurchased 35.1 million ordinary shares at a tender offer price of $88.00 per share for a total of $3,099 million, including $6 million of fees and expenses related to the tender offer. In conjunction with the tender offer, we financed the share repurchase by borrowing $1,000 million from our Term Loan due 2022, $500 million from our U.S. Receivables Facility, and $1,280 million from our commercial paper program, with the remainder funded by operating cash.

In September 2019, our shareholders approved a proposal to authorize us to repurchase up to 33.3 million of our ordinary shares through March 12, 2021, 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 2019, we purchased approximately 42.7 million shares under our share repurchase authorizations for approximately $3,728 million.

The timing and amounts of additional shares repurchased 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 authorization, see Note 24 to the Consolidated Financial Statements.

Capital Budget

We have postponed capital spending related to selected growth projects and maintenance activities, including slowing construction activities on our PO/TBA project in Houston. We currently expect that these actions will reduce our total capital expenditures for 2020 to $1.9 billion relative to our prior guidance of $2.4 billion. Please also see Section 2.1.3, "Outlook" and Section 2.2, "Risk Factors."

Contractual and Other Obligations—The following table summarizes, as of 31 December 2019, our future minimum payments for long-term debt, including current maturities, short-term debt, and contractual and other obligations:

		Payments Due By Period			
Millions of U.S. Dollars	**Total**	**Less than 1 Year**	**1-3 Years**	**3-5 Years**	**More than 5 Years**
Total debt, nominal value	$ 12,318	$ 493	$ 3,835	$ 1,817	$ 6,173
Interest payment on total debt	6,306	468	841	616	4,381
Contract liabilities	124	103	18	—	3
Other	1,661	1,184	45	28	404
Deferred income taxes	1,981	260	288	258	1,175
Purchase obligations:					
Take-or-pay contracts	17,197	2,262	4,087	3,918	6,930
Other contracts	22,066	6,650	6,261	2,727	6,428
Lease liabilities	2,422	479	549	423	971
Total	$ 64,075	$ 11,899	$ 15,924	$ 9,787	$ 26,465

Total Debt—Our debt includes unsecured senior notes, guaranteed notes and various other U.S. and non-U.S. loans. See Note 26 to the Consolidated Financial Statements for a discussion of covenant requirements under our credit facilities and indentures and additional information regarding our debt facilities.

Interest on Total Debt—Our debt and related party debt agreements contain provisions for the payment of monthly, quarterly or semi-annual interest at a stated or variable rate of interest over the term of the debt. Interest on variable rate debt is calculated based on the rate in effect as of 31 December 2019.

Pension and other Postretirement Benefits—We maintain several defined benefit pension plans, as described in Note 28 to the Consolidated Financial Statements. Many of our U.S. and non-U.S. plans are subject to minimum funding requirements; however, the amounts of required future contributions for all our plans are not fixed and can vary significantly due to changes in economic assumptions, liability experience and investment return on plan assets. As a result, we have excluded pension and other postretirement benefit obligations from the Contractual and Other Obligations table above. Our annual contributions may include amounts in excess of minimum required funding levels. Contributions to our non-U.S. plans in years beyond 2020 are not expected to be materially different than the expected 2020 contributions disclosed in Note 28 to the Consolidated Financial Statements. At 31 December 2019, the projected benefit obligation for our pension plans exceeded the fair value of plan assets by $1,321 million. Subject to future actuarial gains and losses, as well as future asset earnings, we, together with our consolidated subsidiaries, will be required to fund the discounted obligation of $1,321 million, in future years. We contributed $97 million and $100 million to our pension plans in 2019 and 2018, respectively. We provide other postretirement benefits, primarily medical benefits to eligible participants, as described in Note 28 to the Consolidated Financial Statements. We pay other unfunded postretirement benefits as incurred.

Contract Liabilities—We are obligated to deliver products or services in connection with sales agreements under which customer payments were received before transfer of control to the customers occurs. These contract liabilities will be recognized in earnings when control of the product or service is transferred to the customer, which range from 1 to 20 years. The long-term portion of such advances totaled $21 million as of 31 December 2019.

Other—Other primarily consists of accruals for taxes and employee-related expenses.

Deferred Income Taxes—The scheduled settlement of the deferred tax liabilities shown in the table is based on the scheduled reversal of the underlying temporary differences. Actual cash tax payments will vary depending upon future taxable income. See Note 27 to the Consolidated Financial Statements for additional information related to our deferred tax liabilities.

Purchase Obligations—We are party to various obligations to purchase products and services, principally for raw materials, utilities and industrial gases. These commitments are designed to ensure sources of supply and are not expected to be in excess of normal requirements. The commitments are segregated into take-or-pay contracts and other contracts. Under the take-or-pay contracts, we are obligated to make minimum payments whether or not we take the product or service. Other contracts include contracts that specify minimum quantities; however, in the event that we do not take the contractual minimum, we are only obligated for any resulting economic loss suffered by the vendor. The payments shown for the other contracts assume that minimum quantities are purchased. For contracts with variable pricing terms, the minimum payments reflect the contract price at 31 December 2019.

Lease liabilities—We lease various facilities and equipment under noncancelable lease arrangements for various periods. See Note 16 to the Consolidated Financial Statements for related lease disclosures.

2.1.3 Outlook

The events surrounding the COVID-19 pandemic and the significant drop in the price of oil continue to evolve and impact global markets. The spread of the COVID-19 has resulted in authorities implementing numerous measures to try to contain the virus, such as travel bans and restrictions, quarantines, shelter-in-place orders and shutdowns. Consequently, economic conditions, including commodity prices, have been increasingly volatile. Many of our facilities and employees are based in areas impacted by the virus.

In response to the pandemic, LyondellBasell activated its global response plan. We prioritized the health and safety of our employees, contractors and global communities while maintaining business continuity. We have also postponed capital spending related to selected growth projects and maintenance activities, including slowing construction activities on our PO/TBA project in Houston. We currently expect that these actions will reduce our capital expenditures for 2020 to $1.9 billion relative to our prior guidance of $2.4 billion.

The extent of the impact of the pandemic and the drop in the oil price on our operational and financial performance will depend on future developments which are uncertain and cannot be predicted. An extended period of economic disruption could have a material adverse impact on our business, results of operations, access to sources of liquidity and financial condition. Although the full extent and duration are uncertain, the global economy began to exhibit clear signs of slowdown during the latter weeks of the first quarter of 2020. While we see strong demand for our polyolefins that are used in consumer packaging and medical applications, weak demand from markets for industrial and durable products is expected to continue. Our refining and oxyfuels and related products businesses will be impacted by significantly lower demand for transportation fuels. We have reduced production rates around the world in response to lower demand for our products, including temporarily idling production at several plants in our Advanced Polymer Solutions segment that produce compounds serving automotive markets. Lower volumes and margins are likely to adversely affect our financial results in the second quarter of 2020.

We continue to advance our joint venture arrangements in Asia as market indicators suggest that the Chinese economy will continue to grow at a greater rate than global GDP over the longer term. Additionally, the completion of our *Hyperzone* polyethylene plant in La Porte, Texas in 2020 will provide incremental capacity.

We believe that our foundations of safety leadership, operational excellence and cost discipline will continue to contribute to the resilience of our business portfolio. While it is too early to predict the magnitude and duration of the downturn, we believe we are well-positioned to face this volatile environment and prepare the company for an eventual recovery of the economy.

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.

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

Failure to appropriately manage safety, human health, product liability and environmental risks associated with our products, product life cycles and production processes could adversely impact employees, communities, stakeholders, our reputation and our results of operations. 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 procedures and controls to manage safety risks, issues could be created by events outside of our control, including natural disasters, severe weather events and acts of sabotage.

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 in Asia, the Middle East and North America may lead to periods of oversupply and lower profitability. A sizable number of expansions have recently started up in North America. 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.

Our operations are subject to risks inherent in 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, 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.

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.

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 recent years. 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.

The recent novel coronavirus (COVID-19) pandemic could materially adversely affect our financial condition and results of operations.

In December 2019, a novel strain of coronavirus, SARS-CoV-2, causing a disease referred to as COVID-19, was reported to have surfaced in Wuhan, China, resulting in shutdowns of manufacturing and commerce in the months that followed. Since then, COVID-19 has spread to multiple countries worldwide, including the United States and Europe, and has resulted in authorities implementing numerous measures to try to contain the disease, such as travel bans and restrictions, quarantines, shelter-in-place orders and shutdowns, among others. Many of our facilities and employees are based in areas impacted by the virus.

The spread of COVID-19 has caused us to modify our business practices (including implementing health screenings, limiting employee travel, mandatory work-from-home policies and cancellation of physical participation in meetings, events and conferences), and we may take further actions as required by government authorities or that we determine are in the best interests of our employees, customers, partners and suppliers. There is no certainty that such measures will be sufficient to mitigate the risks posed by the disease, and our ability to perform certain functions could be harmed.

In addition, while the potential impact and duration of the COVID-19 pandemic on the global economy and our business in particular may be difficult to assess or predict, the pandemic has resulted in, and may continue to result in, significant disruption of global financial markets, which may reduce our ability to access capital or our customers' ability to pay us for past or future purchases, which could negatively affect our liquidity. The COVID-19 pandemic could also reduce the demand for our products, and has already led us to reduce production rates for some of our products. Lower oil prices and reduced demand for transportation fuels are also affecting volumes and margins for certain of our other products. These impacts are expected to adversely affect our results during the second quarter of 2020. In addition, a recession or further financial market correction resulting from the spread of COVID-19 could adversely affect demand for our products.

The global pandemic of COVID-19 continues to rapidly evolve, and we will continue to monitor the COVID-19 situation closely. The ultimate impact of the COVID-19 pandemic or a similar health epidemic is highly uncertain and subject to change. The extent of the impact of the COVID-19 pandemic on our operational and financial performance, will depend on future developments, including, but not limited to, the duration and spread of the pandemic, its severity, the actions to contain the disease or treat its impact, related restrictions on travel, and the duration, timing and severity of the impact on customer spending, including any recession resulting from the pandemic, all of which are uncertain and cannot be predicted. An extended period of global supply chain and economic disruption as a result of the COVID-19 pandemic could have a material negative impact on our business, results of operations, access to sources of liquidity and financial condition, though the full extent and duration is uncertain. To the extent that the COVID-19 pandemic adversely impacts our business, results of operations, liquidity or financial condition, it may also have the effect of increasing many of the other risks described in this "Risk Factors" section.

Costs and limitations on 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.

Cost increases for raw materials also may increase working capital needs, which could reduce our liquidity and cash flow. Even if we increase our sales prices to reflect rising raw material and energy costs, demand for products may decrease as 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 growing concern over the reliability of water sources, including around the Texas 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 may 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 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, such as the U.S. or Europe. 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, which could have a material adverse effect on our results of operations.

Increased incidents of civil unrest, including terrorist attacks and demonstrations that have been marked by violence, have occurred in a number of countries 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.

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, including southern Europe. In addition, most of our European transactions and assets, including cash reserves 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.

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 the past, 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 hurricanes striking the Texas coast.

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.

Although we take precautions to enhance the safety of our operations and minimize the risk of disruptions, 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
- terrorist acts.

Some of these hazards may cause severe damage to or destruction of property and equipment or personal injury and loss of life and may result in 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. 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.

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

Increased global information security 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 sophisticated espionage or cyber-assault. 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.

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 increasingly 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 and interest 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.

We are a tax resident in the United Kingdom and are subject 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 primarily paid on the earnings generated in various jurisdictions, including the U.S., The Netherlands, Germany, France and Italy.

We closely monitor tax law changes and the potential impact to our results of operations. There continues to be increased attention to the tax practices of multinational companies, including certain provisions of H.R.1, also known as the U.S. Tax Cuts and Jobs Act (the "Tax Act"), the European Union's state aid investigations, proposals by the Organization for Economic

Cooperation and Development with respect to base erosion and profit shifting, and European Union tax directives and their implementation. Management does not believe that recent changes in income tax laws will have a material impact on our business, financial condition, or results of operations, although new or proposed changes to tax laws could affect our tax liabilities in the future.

Many of our businesses depend on our intellectual property. Our future success will depend in part on our ability to 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. These 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.

Shared control or lack of control of joint ventures may delay decisions or actions regarding our joint ventures.

A portion of our operations are conducted through joint ventures, where control may be exercised by or shared with unaffiliated third parties. We cannot control the actions of our joint venture partners, including any nonperformance, default or bankruptcy of joint venture 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, it could harm our brand, business, results of operations and financial condition.

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 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:

- emissions to the air;
- discharges onto land or surface waters or into groundwater; and
- the generation, handling, storage, transportation, treatment, disposal and remediation of hazardous substances and waste materials.

Many of these laws and regulations provide for substantial fines and potential criminal sanctions for violations. Some of these laws and regulations are subject to varying and conflicting interpretations. In addition, some of these laws and regulations require us to meet specific financial responsibility requirements. Any substantial liability for environmental damage could have a material adverse effect on our financial condition, results of operations and cash flows.

Although we have compliance programs and other processes intended to ensure compliance with all such regulations, we are subject to the risk that our compliance with such regulations could be challenged. Non-compliance with certain of these regulations could result in the incurrence of additional costs, penalties or assessments that could be material.

Our industry is subject to extensive government regulation, and existing, or future regulations may restrict our operations, increase our costs of operations or require us to make additional capital expenditures.

Compliance with regulatory requirements will result in higher operating costs, such as regulatory requirements relating to emissions, the security of our facilities, and the transportation, export or registration of our products. We generally expect that regulatory controls worldwide will become increasingly more demanding, but cannot accurately predict future developments.

Increasingly strict environmental laws and inspection and enforcement policies, could affect the handling, manufacture, use, emission or disposal of products, other materials or hazardous and non-hazardous waste. Stricter environmental, safety and health laws, regulations and enforcement policies could result in increased operating costs or capital expenditures to comply with such laws and regulations. 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") reduction. 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. While the U.S. notified the United Nations in August 2017 that it will be withdrawing from the Agreement, other regions in which we operate, including in particular the European Union, are preparing national legislation and protection plans to implement their emission reduction commitments under the Agreement. Furthermore, the European Union is considering accelerating its own commitments and achieve carbon neutrality by 2050. These actions could result in increased cost of purchased energy and increased costs of compliance for impacted locations.

Within the framework of the EU emissions trading scheme ("ETS"), we were allocated certain allowances of carbon dioxide for the affected plants of our European sites for the period from 2008 to 2012 ("ETS II period"). The ETS II period did not bring additional cost to us as the allowance allocation was sufficient to cover the actual emissions of the affected plants. We were able to build an allowance surplus during the ETS II period which was banked to the scheme for the period from 2013 to 2020 ("ETS III period"). We have incurred additional costs for the ETS III period, despite the allowance surplus accrued over the ETS II period, as allowance allocations were reduced for the ETS III period and more of our plants are affected by the scheme. We expect to incur additional costs in relation to future carbon or GHG emission trading schemes.

In the U.S., the Environmental Protection Agency ("EPA") has promulgated federal GHG regulations under the Clean Air Act affecting certain sources. The EPA has issued mandatory GHG reporting requirements, requirements to obtain GHG permits for certain industrial plants and GHG performance standards for some facilities. Although the EPA recently proposed to repeal and replace certain GHG requirements, additional GHG regulation may be forthcoming at the U.S. federal or state level that could result in the creation of additional costs in the form of taxes or required acquisition or trading of emission allowances.

Compliance with these or other changes in laws, regulations and obligations that create a GHG emissions trading scheme or GHG reduction policies generally could significantly increase our costs or reduce demand for products we produce. Additionally, compliance with these 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. Therefore, any future potential regulations and legislation could result in increased compliance costs, additional operating restrictions or delays in implementing growth projects or other capital investments, and could have a material adverse effect on our business and results of operations. In addition, climate changes, such as drought conditions or increased frequency and severity of hurricanes and floods, could have an adverse effect on our assets and operations.

We may be required to record material charges against our earnings due to any number of events that could cause impairments to 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. Any decision to permanently close facilities or exit a business likely would result in impairment and other charges to earnings.

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, even though we may reduce production at facilities, we may be required to continue to purchase or pay for utilities or raw materials under take-or-pay supply agreements.

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

In 2018, the European Union adopted a strategy for plastics in a circular economy that aims to increase significantly the recycling of plastic and target the plastic products most often found on beaches and in seas. In addition, local and other governments have increasingly proposed or implemented bans on plastic items such as disposable bags and straws, as well as other food packaging. Additionally, plastics have recently faced increased public backlash and scrutiny. Increased regulation of, or prohibition on, the use of plastics could increase the costs incurred by our customers to use such products or otherwise limit the use of these 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.

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 and the expansion of our business or other business opportunities may require significant amounts of capital. We believe that our cash from operations currently will be sufficient to meet these needs. However, 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 $2.5 billion revolving credit facility, which backs our commercial paper program, to meet our cash needs, to the extent available. As of 31 December 2019, we had no borrowings or letters of credit outstanding under the facility and $262 million, net of discount, outstanding under our commercial paper program, leaving an unused and available credit capacity of $2,229 million. We may also meet our cash needs by selling receivables under our $900 million U.S. Receivables Facility. As of 31 December 2019, subject to a borrowing base of eligible receivables, we had availability of $690 million under this facility. In the event of a default under our credit facility 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.

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

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 require increased toxicological testing and risk assessments of a wide variety of chemicals, including chemicals used or produced by us. For example, in the United States, the National Toxicology Program ("NTP") is a federal interagency program that seeks to identify and select for study chemicals and other substances to evaluate potential human health hazards. In the European Union, the Regulation on Registration, Evaluation, Authorisation and Restriction of Chemicals ("REACH") is regulation designed to identify the intrinsic properties of chemical substances, assess hazards and risks of the substances, and identify and implement the risk management measures to protect humans and the environment.

Assessments under NTP, REACH or similar programs or regulations in other jurisdictions may result in heightened concerns about the chemicals we use or produce and may result in additional requirements 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.

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.

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.

Nearly all of our current pension plans have projected benefit obligations that exceed the fair value of the plan assets. As of 31 December 2019, the aggregate deficit was $1,321 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.

Integration of acquisitions could disrupt our business and harm our financial condition and stock price.

We have made and may continue to make acquisitions in order to enhance our business. 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.

2.3 Our Strategy

We work every day to be the best operated, most respected company in our industry. We strive to consistently outperform the competition by safely and reliably delivering high quality products to customers; being the company of choice for employees and shareholders; and being a responsible, good neighbor in the communities where we operate.

We are progressing this vision based on a foundation of operational excellence, cost discipline, and prudent financial stewardship. In 2019, we advanced more substantial and proactive growth plans. We intend to extend our reach and apply these foundational strengths across a larger set of assets.

- **Operational excellence of existing assets:** The Company continues to benefit from strong operational reliability and efficiency in its existing asset base, grounded in differential industrial and process safety performance, environmental stewardship, and disciplined investments to maintain and improve these operations. We continue to realize volume improvements from several recent olefins and polyolefin capacity expansions in the U.S. driven by the ongoing feedstock advantage from shale gas and oil production.

- **Advancing organic projects with increased capabilities:** Our current project pipeline includes two world-scale plants in the Houston, Texas area: our *Hyperzone* high density polyethylene plant which we continued commissioning in the first quarter of 2020 and a PO/TBA plant which is under construction. In March 2020, we announced that we are slowing construction activities on our PO/TBA project. We have also signed a definitive agreement to expand in China through a joint venture with Liaoning Bora Enterprise Group and signed a Memorandum of Understanding to form a joint venture with Sinopec to further advance our Asian footprint in olefins and polyolefins and intermediates and derivatives, respectively. We continually evaluate potential projects to support further organic growth.

- **Enhanced abilities to evaluate and execute inorganic growth opportunities:** LyondellBasell's free cash flow and balance sheet provide a strong basis to generate additional value through acquisition. We will focus on where we can extend our strengths and skills to other assets and businesses, both in our current business lines and in areas that overlap, extend, or sit adjacent to our existing petrochemical and polymer footprint. We continue to actively manage our business portfolio with several small acquisitions and divestitures around the world while we evaluate opportunities.

- **Sustainability:** For the Company, sustainability means advancing solutions to address global challenges while meeting our stakeholders' needs and the highest operational standards. Our commitment to society and the environment is embedded in our company vision to be the best operated and most valued company in our industry, today and tomorrow. We are advancing our sustainability efforts in three key areas: sustainable and circular products, reducing plastic waste in the environment and addressing climate change. During 2019, we continued our investments in research and development to advance the efficiency and scalability of our proprietary molecular recycling technology, *MoReTec*, leading to the building of a new pilot plant in Ferrara, Italy to advance our technology towards commercial scale. In our efforts to reduce energy and carbon emissions, we continued to implement energy saving projects at many of our manufacturing sites and the construction, through our joint venture with Covestro, of a new bio plant and incinerator in which production waste will be treated and transformed into steam. The steam will be used as an energy source in the existing production plant. In 2019, together with more than 25 of our industry peers and other participants across the value chain that make, use, sell, process, collect and recycle plastics, we launched the Alliance to End Plastic Waste (the "Alliance"). The Alliance now includes more than 40 companies that together have committed over $1 billion with the goal of investing $1.5 billion over the next five years in collaborative partnerships to advance meaningful solutions that eliminate plastic waste in our environment. The Alliance's approach is based on four pillars: infrastructure that stops plastic waste from entering the environment; innovation in materials, technologies and business models that increase the value of plastic waste; engagement with partners in government, business and consumers to enable solutions; and meaningful projects to clean up plastic waste that has already escaped into our environment.

We understand what drives our core advantages and will continue the benchmarking and continuous improvement that extends these leading positions. Our Company has a resilient portfolio of businesses that can leverage geographic, feedstock and market diversity to achieve superior results. Our continued focus on value generating growth will be guided by advantaged positions and where LyondellBasell's strengths create tangible value.

Our Board is responsible for overseeing the overall course of our business and achievement of our strategy. Each year, the Company's management develops both an annual financial operating plan and a multi-year strategic business plan, each of which are reviewed by the Board. Members of the Board are updated regularly by our management regarding the Company's progress in achieving its financial and strategic goals.

2.4 Sustainability

LyondellBasell is committed to sustainable development and releases an annual corporate Sustainability Report that sets forth our approach to sustainability and shares our progress in managing our environmental footprint. We define sustainability as the responsible and ethical use of resources to improve the everyday quality of life in the world around us. Through our stewardship of natural resources and with a focus on technological advancements, we believe we can help improve the quality of life today and for future generations.

As a significant participant in the global economy, our objectives are to:

- Create value for our investors and customers;
- Protect the well-being of our employees, contractors and the communities in which we operate;
- Manage the safe use of our products;
- Protect the environment and preserve resources for future generations; and
- Supply products that enhance the quality of life worldwide.

We strive to create better environmental and social outcomes in the way we do business. Promoting safe, efficient, and ethical business practices provides better results not only for us, but also for the customers we serve and the communities in which we operate. Our business approach and drive for innovation are underpinned by key sustainability themes such as resource efficiency, safety, governance, and productive stakeholder dialogue. Whether addressing energy challenges or speaking with our local communities, we work continuously towards sustainable successful outcomes. We are committed to protecting the environment, human health and safety in the communities where we operate. We deliver on this commitment by:

- Producing the basic building blocks for products that enhance consumer safety, quality of life, convenience and energy conservation;
- Minimizing our impact on the environment; and
- Supporting a variety of community service activities.

We are dedicated to safety excellence. In 2019, LyondellBasell continued to operate with industry leading safety performance. The Company's safety performance in 2019, measured by total recordable incident rate ("TRIR") for employees and contractors, was 0.21. We utilize the U.S. Occupational Safety and Health Administration definition for TRIR, which is the number of injuries recorded per 200,000 hours worked.

Our operational excellence philosophy establishes uniform management system requirements for areas that have a direct impact on our operating performance. These management system requirements include programs for mechanical integrity and inspection, management of change, process hazard analysis, risk assessment, incident investigation and reporting, and the maintenance of process safety information. Other elements essential to a successful operational excellence program include effective communication and employee training.

Our process safety program is focused on the pro-active identification and management of hazards in our operations. It plays a significant role in our overall safety performance and in fulfilling our commitment to operate in a manner that protects our people, the environment and our business relationship with our customers.

Our product stewardship efforts promote the safe and responsible use of our products. We strive to understand the safety, health and environmental issues associated with the manufacture, distribution and use of our products and we share that understanding with our customers and other stakeholders.

2.5 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 2019 and 2018, our R&D expenditures were $97 million and $99 million, respectively. A portion of these expenses are related to technical support and customer service and are allocated to the other business segments. In 2019 and 2018, approximately 50% and 45% of all R&D costs were allocated to business segments other than Technology.

2.6 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 twelve 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, shall 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.

Below shows information for each member of our Board as of 15 April 2020.

Jacques Aigrain, French-Swiss, 65, Chairman of the Board of Directors, Non-Executive Director since 2011

Mr. Aigrain is our Chair of the Board and a Senior Advisor and former Partner of Warburg Pincus, a global private equity firm. Prior to joining Warburg Pincus in 2013, Mr. Aigrain served as Chief Executive Officer of Swiss Re, a publicly traded insurance company, and was Co-Global Head of M&A and Head of Financial Institutions at J.P. Morgan. He also has many years of experience as a director of public and multinational organizations, including The London Stock Exchange Group plc and WPP plc, a multinational advertising and public relations company. Mr. Aigrain's more than 30 years of financial services and management experience provide him with expertise in all areas of strategy, mergers and acquisitions, finance, and capital markets. Additionally, he brings substantial knowledge of board- and governance-related matters.

Lincoln Benet, American-British, 56, 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 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 experience with international finance, including corporate finance matters such as treasury, insurance, and tax.

Jagjeet Bindra, American, 72, Non-Executive Director since 2011

Mr. Bindra is a retired executive of Chevron, a multinational energy corporation, where he spent 32 years in senior leadership positions and retired as President of the company's worldwide manufacturing operations. Mr. Bindra holds a degree in chemical engineering and started his career at Chevron as a research engineer before progressing to increasingly senior positions, including the roles of Manager of Strategic Planning and Group Manager of Projects & Engineering Technology. His education and background provide him with extensive knowledge of global manufacturing, capital project management, engineering technology, strategic business planning, and health, safety, and environmental and operations matters. Mr. Bindra has served as a director of multiple private and publicly traded companies, including Edison International and its subsidiary, Southern California Edison, WorleyParsons, and Transocean Ltd., and he has broad knowledge of board and governance matters. Mr. Bindra currently serves as a member of the board of HPCL-Mittal Energy Limited (India).

Robin Buchanan, British, 68, Non-Executive Director since 2011

Mr. Buchanan is a director of Cicap Ltd, a global private equite firm, a former director of Schroders plc, a global asset management firm, and the former Chairman of PageGroup plc, a global specialist recruitment company. He was previously Dean and President of London Business School and UK Senior Partner and member of the worldwide board of directors of Bain & Company Inc., a global business consulting firm, where he continues to serve in an advisory role. He also serves as an advisor to Access Industries and Non-Executive Chairman of its Advisory Board, which advises on portfolio strategy. 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.

Stephen Cooper, American, 73, Non-Executive Director since 2010

Mr. Cooper has served as Chief Executive Officer and Director of Warner Music Group Corp., a recorded music and music publishing business, since 2011. He has also been a Managing Partner of Cooper Investment Partners, a private equity firm specializing in underperforming companies, since 2008. In the course of a long career as a financial advisor and corporate turnaround specialist, Mr. Cooper has served as the top executive of a number of publicly traded companies, including as Chief Executive Officer of Metro-Goldwyn-Mayer, Inc., a media company focused on film and television, and Hawaiian Telecom, the dominant telecom services provider in Hawaii. Mr. Cooper has expansive knowledge and experience relating to all matters of executive management, finance, and strategy, and due to his role as a sitting CEO he has deep insight into day-to-day business, management, and strategy issues.

Nance Dicciani, American, 72, Non-Executive Director since 2013

Ms. Dicciani is a retired senior executive and chemical engineer. She spent her early career in research and development at Air Products and Chemicals, and then joined Rohm and Haas, a specialty chemicals manufacturer, as business director for the Petroleum Chemicals Division. After 10 years with Rohm and Haas in which she rose to the level of Senior Vice President, Ms. Dicciani became President and Chief Executive Officer of Honeywell Specialty Materials, also a chemicals manufacturer. Ms. Dicciani served on the Executive Committees of the American Chemistry Council and the Society of Chemical Industry and was appointed by George W. Bush to the President's Council of Advisors on Science and Technology. Her background provides her with specific industry knowledge and an understanding of manufacturing, health, safety, and environmental matters; insight into the competitive landscape relevant to our industry; and a wealth of experience in all areas of executive management. Ms. Dicciani also has extensive experience in board and governance matters and has served as a director of several public companies, including Halliburton, an oilfield services company, and Linde, an industrial gases company.

Claire Farley, American, 61, Non-Executive Director since 2014

Ms. Farley is an advisor to KKR Energy Group and a retired executive in the oil and gas exploration and production industry. Ms. Farley has served in several roles with KKR Energy Group since 2011, including as Vice Chair from 2016 to 2017 and as a member of KKR Management LLC, the general partner of a global investment firm, from 2013 to 2015. Prior to joining KKR, Ms. Farley served as Chief Executive Officer of Randall & Dewey, an oil and gas asset transaction advisory firm. She became Co-President and then Senior Advisor at Jeffries & Company after Randall & Dewey became its oil and gas investment banking group, and then co-founded RPM Energy, a privately-owned oil and natural gas exploration and development company. Ms. Farley brings to the Board experience in business development, 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 service on the boards of companies including Anadarko Petroleum Corporation, Encana Corporation, and TechnipFMC.

Bella Goren, American, 59, Non-Executive Director since 2014

Ms. Goren has served in a wide range of executive roles in capital intensive and highly competitive global businesses, most recently as Chief Financial Officer of American Airlines, Inc. and its parent company, AMR Corporation, from 2010 to 2013. Her 27-year career at American and AMR spanned leadership roles in Revenue Management, Investor Relations, Operations, and Customer Service, including being the head of American's Asia Pacific Division and Customer Relationship Marketing. Ms. Goren was also President of AMR Services, an AMR Corporation subsidiary company with operations at 60 locations worldwide. Her experience and areas of expertise include strategic planning, management of complex international operations, business development, global asset management, and corporate finance. Ms. Goren is also a chemical engineer and began her career at DuPont. As a board member of major multinational companies, including MassMutual Financial Group and Gap Inc., she brings public company director experience and extensive knowledge of corporate governance matters.

Michael Hanley, Canadian, 54, Non-Executive Director since 2018

Mr. Hanley has 25 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 and in the role of audit committee chair, and an appreciation for corporate governance matters and the board's role in financial oversight. He is currently a member of the board of the Quebec chapter of the non-profit Canadian Institute of Corporate Directors, and is a member of the Quebec Order of Chartered Professional Accountants. Mr. Hanley serves as a director for BRP, Inc. and Shawcor Ltd.

Albert Manifold, Irish, 57, 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 CEO with a background in other senior management roles, Mr. Manifold has acquired extensive leadership experience in competitive industries. In addition, he has significant knowledge of corporate finance, capital markets, strategic planning, and international operations. Mr. Manifold is also a Fellow of the Institute of Certified Public Accountants in Ireland.

Bhavesh Patel, American, 52, Executive Director since 2018

Mr. Patel has served as our Chief Executive Officer since January 2015. From the time he joined the Company in 2010 until his appointment as CEO, he held the roles of Senior Vice President, Olefins and Polyolefins-Americas and Executive Vice President, Olefins and Polyolefins-Europe, Asia, International & Technology, with additional responsibility for all manufacturing operations outside of the Americas and the Company's Polypropylene Compounding business. Taken together with his previous tenure with Chevron Corp. and Chevron Phillips Chemical Company, Mr. Patel has nearly 30 years' experience in the chemicals, plastics, and refining industries, including extensive leadership experience on a global basis. This background gives him a detailed understanding of the Company's industries and operations. Mr. Patel serves as a director of Union Pacific Corporation.

Rudy van der Meer, Dutch, 75, Non-Executive Director since 2010

Mr. van der Meer's career includes a more than 30-year tenure with AkzoNobel N.V., a multinational paints, coatings, and specialty chemicals producer, where he retired as a senior executive. He has extensive industry experience, including with manufacturing, health, safety, and environmental and operations matters. Mr. Van der Meer has served on the boards of several Dutch multinational companies, providing him with a deep understanding of public company governance matters, including those relevant to our incorporation in the Netherlands. He served as Supervisory Director of James Hardie Industries S.E., an industrial fiber cement products and systems manufacturer. He also has served as Chairman of the Supervisory Boards of Coöperatie VGZ U.A., a health insurer, Royal Imtech N.V., a technical services provider, and Energie Beheer Nederland B.V., a natural gas exploration and production company.

Independence of Board Members

Our Board has adopted categorical standards that are used to assist in independence determinations. The categorical standards meet and in some instances exceed the requirements of the NYSE. 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 as well as with its independent registered public accounting firm. Our categorical standards are included in our Corporate Governance Guidelines and can be found on our website at www.LyondellBasell.com.

The Board has determined that there are no relationships or transactions that prohibit any of the non-executive directors from being deemed independent under the categorical standards and that each of our non-executive directors 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 none of these transactions or relationships affected the independence of any of the interested directors, the Board considered that all of the transactions are ordinary course and none of the dollar amounts involved were material to the Company or the relevant counterparty. Transactions and relationships considered included:

- **Access:** Mr. Benet is CEO of Access Industries, the Company's largest shareholder; Mr. Buchanan is an adviser to Access Industries and Non-Executive Chairman of its Advisory Board, which advises on portfolio strategy; and Mr. Cooper is CEO of Warner Music, a subsidiary of Access Industries.

- **Bindra:** The Company licenses certain technology and engineering services to, and makes small spot purchases of raw materials from HPCL-Mittal Energy Limited, where Mr. Bindra is a director.

- **Buchanan:** The Company has engaged Bain & Company, where Mr. Buchanan was previously a partner and continues in a limited and unrelated advisory role, for certain strategic planning and transaction advisory services.

- **Dicciani:** In February 2019, the Company purchased certain La Porte, Texas assets from Linde plc, where Ms. Dicciani is a director. The Company also purchases industrial gases from, and sells crude hydrogen to, Linde, and Linde provides technical services to certain company sites in Europe which license its technology. The Company sells temporary chemical diverters for well completion to Halliburton, where Ms. Dicciani is a director.

- **Farley:** The Company purchases measurement products and receives site engineering services from TechnipFMC, where Ms. Farley is a director. In 2019, the Company engaged TechnipFMC for a furnace construction project that was subsequently postponed.

- **Hanley:** The Company sells polypropylene, flame-spray products, and coating systems to Shawcor Ltd., where Mr. Hanley is a director.

- **Goren:** The Company purchases employee medical insurance from MassMututal Asia, an affiliate of MassMutual Financial Group, where Ms. Goren is a director.

- **Patel:** The company receives transportation services from Union Pacific Corporation, where Mr. Patel is a director.

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, Buchanan, and Cooper 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 six standing committees, each consisting entirely of independent directors: (1) Audit Committee, (2) Compensation Committee, (3) Nominating and Governance Committee, (4) HSE&O Committee, (5) Finance Committee, and (6) Executive Committee. Our Compensation Committee, Nominating and Governance Committee and HSE&O Committee meet in connection with each regularly scheduled Board meeting (other than the Board's strategy session held in July) and hold additional meetings as needed, while other Committees meet independently as the matters under their respective responsibilities require.

In 2019, eight of our directors attended 100%, and each of our remaining directors attended more than 85%, of the meetings of the Board and of each committee of which he or she was a member. Although the Company does not maintain a policy regarding Board members' attendance at its annual general meetings of shareholders, both our Chair and CEO attend the Company's annual general meeting each year.

In 2019, the Board held four regularly scheduled meetings, three special meetings, and two information sessions. The table below provides membership and meeting information for each of the Board's standing committees as of the date of this report.

Name	Audit	Compensation	Nominating & Governance	HSE&O	Finance	Executive
Jacques Aigrain			●		●	Chair
Lincoln Benet			●		Chair	●
Jagjeet Bindra	●			Chair		●
Robin Buchanan		●	●			
Steve Cooper				●		
Nance Dicciani		Chair			●	●
Claire Farley		●	Chair			●
Bella Goren	●	●				
Michael Hanley	Chair			●		●
Albert Manifold	●				●	
Bob Patel						
Rudy van der Meer			●	●		
2019 Meetings	5	6	3	3	7	2

(1) The Board, Compensation Committee, HSE&O Committee, and Nominating and Governance Committee each also met in person in September 2019 for an informal information session and held informal calls throughout the year.
(2) Members of the Executive Committee also held informal calls throughout the year and between meetings to discuss coordination among the Board and its committees.

Each of our committees has a written charter, approved by the Board. The charters can be found on our website at www.LyondellBasell.com.

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; and

- *Compliance*—Review plans, staffing and function 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 the rules of the U.S. Securities and Exchange Commission ("SEC"). Our Board has also determined that all Audit Committee members are financially literate in accordance with the NYSE listing standards and that Mr. Hanley, Ms. Goren, and Mr. Manifold qualify as audit committee financial experts under SEC rules.

Compensation Committee

The Compensation Committee is responsible for overseeing our executive compensation and talent management programs and developing the Company's compensation philosophy.

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

The Compensation 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 executive officer compensation; and

- *Company Compensation 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; and make recommendations to the Board on these subjects.

Our Board has determined that all Compensation 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 Compensation Committee serves or has served as an officer or employee of the Company or any of our subsidiaries and, during 2019, no executive officer served on the compensation committee or board of any entity that employed any member of our Compensation Committee or Board.

Nominating & 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:

- *Administrative*—Coordinate evaluations by committees and the full Board;

- *Directors and Director Nominees*—Identify and recommend candidates for membership on the Board and recommend committee memberships;

- *Director Compensation*—Evaluate and recommend director compensation; and

- *Corporate Governance*—Review the Company's governance profile and make necessary recommendations; review and propose modifications to the Company's governance documents and policies; and review and comment on shareholder proposals.

Health, Safety, Environmental & Operations Committee

The Health, Safety, Environmental & Operations ("HSE&O") Committee assists the Board in its oversight responsibilities by assessing the effectiveness of health, safety, and environmental programs and initiatives that support Company policies. The HSE&O Committee also reviews the Company’s material technologies and the risks relating to its technology portfolio, the physical security of the Company’s assets, and the Company’s performance in executing large capital projects and turnarounds.

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

- *Administrative*—Review the status of the Company's health, safety and environmental policies and performance, including processes to ensure compliance with applicable laws and regulations;

- *HSE Performance*—Review and monitor the Company's health, safety and environmental performance results, provide oversight of the programs, initiatives and activities in the areas of technology and sustainability; review with management environment, health, safety, product stewardship and other sustainability issues that can have a material impact on the Company; and review the status of related policies, programs and practices;

- *Audit*—Review and approve the scope of the 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; and

- *Operational Performance*—Assess the Company's operational performance; review the scope of the Company's operational excellence auditor program and monitor program results; and review and monitor the Company's progress on and results for capital projects and turnarounds.

Finance Committee

The Finance Committee is responsible for monitoring and assessing such matters as the Company's capital structure and allocation, debt portfolio, and tax and derivative strategies.

In fulfilling its duties, the Finance Committee has the following responsibilities:

- *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 or inorganic investments, review and discuss the 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.

Executive Committee

The Executive Committee consists of the chairs of each of the other Board committees. The role of the Executive Committee is to facilitate and improve communication and coordination among the Board and its committees. It does so by, among other things, collaborating on agenda setting and discussing ad-hoc issues.

2.6.1 Evaluation of the Board of Directors and its Individual Members

Our Board and its committees evaluate their own effectiveness in a robust self-assessment process overseen by the Nominating and Governance Committee. Each year, Board members respond to survey questions intended to solicit information to be used to improve the effectiveness of the Board and its committees. Survey results are supplemented by one-on-one interviews conducted by Board leadership, and the Nominating and Governance Committee periodically engages outside consultants to facilitate and refresh the evaluation process. An outside consultant was last engaged for the 2017 assessment cycle, and in 2018 the Board took steps to implement the feedback received and adjust the general process and areas of focus for the assessment accordingly.

For 2019, the Board conducted its evaluation process as described below.

Development and Approval of Evaluation Process and Topics

In September 2019, the Nominating and Governance Committee discussed and approved the overall process for the 2019 evaluation cycle, including one-on-one interviews with the Chair in addition to survey responses. The Chair of the Nominating and Governance committee worked with the Corporate Secretary to develop lists of potential topics and questions for distribution to the Board and each of its committees, which were approved by the Nominating and Governance Committee in November.

For 2019 the Committee also approved an individual evaluation process for the Chair, to be facilitated by the Chair of the Nominating and Governance Committee through additional survey questions specific to his role.

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; building corporate reputation; and matching risk with return. Committee members are also asked to consider whether each committee is functioning in compliance with its charter and keeping the Board adequately informed and reviews its 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.

Distribution of Surveys and Interview Process

In late 2019 and early 2020, Board members provided responses to the surveys anonymously, and also participated in one-on-one interviews with, and received individual feedback from, the Chair of the Board. In parallel, senior executives provided their views of Board effectiveness and interactions with management through confidential survey responses provided to the Corporate Secretary.

Reporting and Board Review of Results

The Corporate Secretary compiled feedback from the self-evaluation process, including feedback from management, which was discussed during the February 2020 Board and committee meetings in executive sessions. Consideration was given to what actions, if any, could enhance and further improve the functioning of the Board and its committees, as well as steps that can be taken to address specific requests or perceived areas for improvement.

2.6.2 Compensation of the Board of Directors

Non-Executive Members of the Board

The 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 Nominating and Governance Committee reviews director compensation, in consultation with Pearl Meyer & Partners, LLC ("Pearl Meyer"), the Board's independent compensation consultant, on an annual basis and recommends any changes in compensation determined advisable.

In connection with this annual review, the director compensation program is benchmarked against director pay within the Company's compensation peer group and at other large public companies. The Nominating and Governance Committee 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 a majority of our Board meetings.

Following its annual review, in November 2019, the Nominating and Governance Committee recommended no changes to director compensation and approved the continuation of the existing director compensation policy, as further described below. No changes have been made to the director compensation policy since 2015, apart from an increase in the annual retainer for the Board Chair in connection with the election of Mr. Aigrain as Chair in 2018 and the significant expansion of Chair duties (including in support of the Company's strategic growth initiatives) and time commitment and travel required for the role.

Members of our Board are subject to Share Ownership Guidelines. Under the Share Ownership Guidelines, non-executive Board members 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 $690,000 for all directors other than our Chair, whose ownership requirement is $1,950,000. Once a Board member has reached his or her required ownership level, he or she may not sell shares that would bring ownership below the threshold level.

The non-executive Board compensation program is set forth below. Our Articles of Association currently provide that the Board may set its own compensation, as long as the aggregate compensation paid to any individual member does not exceed $2 million in any single year.

Annual Retainer	
Cash	$115,000 ($325,000 for Board Chair)
RSUs	Valued at $170,000 ($325,000 for Board Chair)
Committee Retainers (excluding Executive Committee)	
Members	$10,000 ($15,000 for Audit Committee)
Chairs	$20,000 ($27,500 for Audit and Compensation Committee Chairs)

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 their board service.

Executive Director

The compensation that was paid to our executive director, Mr. Patel, during 2019 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; and
- Recognize and maintain the Company's market-leading position in HSE performance, costs, and business performance.

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

Base Salary: Base salaries provide executives with a regular fixed income in recognition for their job responsibilities. Executives' base salaries are determined when they are hired or promoted into their positions and are reviewed annually. Base salary increases are not guaranteed and must be approved by the Compensation Committee.

Short-term Incentives: Annual bonuses incentivize our executives by aligning their compensation with key annual objectives and the results that are achieved. Annual bonus opportunities are determined as a percentage of base salary. Based on Company and individual performance, executives will earn from 0-200% of the target bonus amount. The annual bonus payout is determined by the Compensation Committee based on corporate performance and achievement of individual goals.

Long-term Incentives: Long-term incentive awards encourage executives to increase shareholder value over the long term and support talent retention. The target value of long-term incentives awarded to our executive director is a set target value. The long-term incentive awards we grant include the following:

- **Performance Share Units ("PSUs")**—Vest over a three-year performance period and are converted to shares upon vesting. Awards can vest from 0-200% of target, depending on the Company's performance, and the ultimate value received is dependent on the Company's share price when the award vests. Performance for the PSUs is based solely on total shareholder return (TSR) relative to specified peers. PSUs accrue dividend equivalents during the performance period which are converted to additional units based on the stock price at the end of the performance period.

- **Restricted Stock Unit Awards ("RSUs")**—Vest in full after three years and receive one share for each unit at vesting. The ultimate value received is dependent on the Company's share price when the award vests. RSUs receive cash dividend equivalents at the same time and in the same amount as dividends paid to shareholders.
- **Stock Options**—Vest ratably over a three-year period and expire 10 years after the date of the grant. The exercise price is the fair market value on the date of grant.

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.
- Matching under the U.S. Deferral Plan—the Company makes contributions to the U.S. Deferral Plan for amounts that exceed the IRS limits under our 401(k) plan and our defined benefit pension plan. The value of the matching contributions is 11% for compensation in excess of the IRS limit.

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 Company aircraft or payment for spouse travel, relocation benefits, and the payment of business club memberships or dues.

Tax equalization payments are designed to make the executivedirector 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 on days worked in those jurisdictions. If, and only to the extent, those additional taxes cannot otherwise be offset against the executive's regular income tax liability (such as in the form of credits), the Company will reimburse the executive in an amount sufficient to make the tax liability equal to the full income tax for the executive's jurisdiction of residence only.

The primary use of Company aircraft is for business purposes. From time to time, the executive director's spouse, family members or personal guests may accompany him on Company 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.

Competitive Positioning

Annually, the Compensation 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 Compensation Committee strives to set total target direct compensation and each individual component of compensation near the median compensation levels of our peer group companies. 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 both in absolute terms and relative to peers.

The Compensation 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 2019 compensation decisions was collected from the 2018 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 our executives.

The Committee reviews the peer group and survey data to determine the median compensation and then sets base salary and targets for the current year. This generally involves establishing an annual bonus target and the target value of long-term incentive awards. Median compensation is used as a reference point for pay recommendations. Actual pay and targets vary from median based on industry experience; experience and performance in his 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.

CEO Pay Ratio

Pursuant to the rules established by the SEC, we were required to undertake an analysis of the ratio of the compensation paid to our CEO to the ratio of the median of the total annual compensation of all employees in 2019:

- The annual total compensation of the global median employee of our company (other than Mr. Patel, our CEO), was $86,466;
- The annual total compensation of Mr. Patel, our CEO, was $15,943,313; and
- Based on this information, the ratio of the annual total compensation of our CEO to the annual total compensation of the global median employee is 184 to 1.

For 2019, we identified a new global median employee due to a substantial increase in our employee population as a result of our acquisition of A. Schulman in August 2018. The global median employee for fiscal year 2019 was identified by examining the 2019 total compensation for all regular full- and part-time employees who were actively employed by the Company as of 31 December 2019 and students and interns who were hired for partial periods during 2019. For these employees, we calculated annual compensation using methodology and guidelines consistent with the approach used to determine our median employee for 2017 and 2018:

- To find the annual total compensation of all of our employees (other than our CEO), we considered all gross and net components of compensation (including short-term and long-term incentives) received by each employee and documented in the year-end payroll records for 2019.
- Compensation for full- and part-time employees hired during 2019 and still active as of 31 December 2019 was annualized. Compensation for all students and interns hired for partial periods during 2019 was not annualized.
- Annual compensation for expatriate employees and employees involved in permanent cross-border transfers during 2019 was calculated using all relevant country payroll records.

After identifying the global median employee, we calculated 2019total compensation for the selected employee using the same methodology as for compensation of the CEO.

2.7 Corporate Governance and Risk Management

2.7.1 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 applicable 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 and Corporate Governance Guidelines, which are available on our website. 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 http://www.commissiecorporategovernance.nl/. 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.

Any material changes in our corporate governance structure and/or our compliance with the Code will be discussed at LyondellBasell's 2020 annual general meeting of shareholders as a separate agenda item. 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 annual report for the relevant year.

2.7.2 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 has established a report procedure, which provides guidance for employees to report, anonymously if desired, alleged violations of the Code of Conduct or other Company policies. Alleged violations of the Code of Conduct can be reported by LyondellBasell employees as well as third parties by calling a telephone hotline or submitting information via the internet.

The Code of Conduct, including complaints received based on the complaint procedure, is regularly discussed with the Audit Committee.

The Code of Conduct and information on how to submit complaints are posted in the Investor Relations section of our website at www.LyondellBasell.com under "Corporate Governance".

Compliance with the Code of Conduct is monitored on a regular basis, and mandatory training courses on our Code of Conduct are conducted annually for all employees worldwide.

2.7.3 Conflicts of Interest

The Company has a Related Party Transaction Approval Policy, described below, that requires Audit Committee approval of certain transactions between the Company and related parties. During 2019, no transactions occurred that could have given the appearance of conflicts of interests or that effectively involved conflicts of interests. 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.

2.7.4 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.

The disinterested members of the Audit Committee determine the fairness of any related party transaction to the Company by considering whether the terms of the transaction are no less favorable than those which could be obtained from non-related parties. The following is a description of related party transactions in existence since the beginning of fiscal year 2019.

Access Industries

In 2010, we entered into certain agreements with affiliates of Access Industries, including a registration rights agreement that 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 nominated Messrs. Benet, Buchanan and Cooper pursuant to the agreement. The Company entered into these agreements with Access Industries before it became publicly traded and the Related Party Transaction Policy was adopted. Subsequent amendments to the nomination agreement are approved by our disinterested directors.

Anadarko Petroleum Corporation

On an ongoing basis and in the ordinary course of business, the Company makes spot purchases of natural gas and natural gas liquids, which are raw materials used to manufacture the Company's products, from Anadarko Petroleum Corporation. Claire Farley, a director, was a member of Anadarko's board of directors until its acquisition by Occidental Petroleum in August 2019. In July 2014, the Audit Committee approved the Company making spot purchases from Anadarko as it deems appropriate, noting that those transactions were on terms no less favorable than those which could be obtained from non-related parties. The Company purchased approximately $92 million of natural gas and natural gas liquids from a subsidiary of Anadarko Petroleum in 2019.

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 if investors including Access Industries. The Audit Committee has reviewed and approved, most recently in October 2018, the Company's contracts with Calpine which were determined to be fair to the Company and more advantageous than those offered by other parties. In 2019, the Company purchased approximately $70 million of power, steam, and water from Calpine and sold approximately $15 million of excess gas and raw water to Calpine.

Plasto-Cargal Group

From time to time, the Company’s Advanced Polymer Solutions segment sells certain additives to Plasto-Cargal Group, a manufacturer of plastic container and film products, in which Access Industries holds an indirect minority investment. Sales are conducted in the ordinary course and no approval is required under the Company’s Related Party Transaction Approval Policy; however, the Audit Committee has reviewed and approved the continuation of such transactions, which totaled approximately $0.5 million for 2019.

Indemnification

We 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 Board members, including our CEO, contractually obligating us to indemnify them.

2.7.5 Dutch Corporate Governance Code

As a Dutch company, our governance practices are governed by the Code, a copy of which is available at http://www.commissiecorporategovernance.nl. 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.

2.1.5 and 2.1.6

Diversity

The Company's Board currently consists of twelve directors, three of whom are female. The Board believes that diversity, including with respect to gender, nationality, experience and background is important and beneficial to a well-functioning board. Subject to the availability of suitable candidates at the time of appointments, the Company aims to reach a well-balanced mix of men and women on the Board. The Company understands that under Dutch law, a board of directors is considered balanced if at least 30% of the members are men and if at least 30% of the members are women. While we have not yet achieved this target, the Nominating and Governance Committee, as well as its outside consultants, include women and minority candidates in each pool from which director candidates are selected.

The Company has not implemented a diversity policy. However, the Board and its Nominating & Governance Committee evaluates the Company's diversity initiatives and efforts to recruit and retain diverse employees and directors and specifically considers diversity of views and experiences pursuant to its corporate governance guidelines available at www.LyondellBasell.com/en/investors/corporate-governance/.

2.1.7

Our Board currently consists of twelve directors, three of whom (Messrs. Benet, Buchanan and Cooper) have been 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 disinterested Board members. The Board believes that each of the Access-nominated directors brings with him a level of skill, experience and qualifications that benefit the workings of the Board and therefore the Company's stakeholders generally.

2.2.2

Members of the Board are appointed 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 2019, Messrs. Aigrain, Bindra, Buchanan, Cooper and van der Meer were nominated and elected to serve on the Board, each having served as director for eight years or more. 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 renominations 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.

2.2.4.ii

We do not maintain a schedule of retirement for our directors. Our Corporate Governance Guidelines and Rules for the Board of Directors, which are available on our website at www.LyondellBasell.com/en/investors/corporate-governance/, 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. In 2019, Albert Manifold joined our Board, replacing a retiring director. 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.

3.1.2.v

The number of options and restricted stock units that we grant to our executives are 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.

3.1.2.vi

In contrast to best practices provision 3.1.2.vi under 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 Compensation 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.

3.1.2.vii

The stock options we grant to our executive officers are exercisable before the third anniversary of the date of grant, which is contrary to best practices provision 3.1.2.ii in the Code. We believe our vesting schedules are in line with the practices of our peer group used for executive compensation purposes and necessary to attract and retain the best people.

3.2.1

Mr. Patel, our CEO and executive director, is party to an employment agreement that provides for severance payments that are in excess of one year's base salary. Executives other than Mr. Patel 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 (or, in the case of Mr. Patel, 1.5 times such amount (or 2.5 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.

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 prepared by an outside independent consultant. All of 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.

4.2.2

We do not maintain a policy on bilateral contacts with our shareholders. We engage with shareholders through a number of different forums, including investor conferences, our bi-annual investor day presentation, individual meetings and calls, our annual general meeting of shareholders, and by responding to shareholder correspondence. We maintain a flexible approach to shareholder engagement and prioritize our ability to respond to each communication received from shareholders on a case-by-case basis to accommodate both shareholder preferences as well as Company objectives. Such a policy is not customary for NYSE-listed issuers.

2.7.6 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 Annual 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 1 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. In 2019, the Company held an extraordinary general meeting on September 12 to approve the repurchase of up to 10% of our outstanding shares.

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 policy 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 should achieve high levels of participation at the meeting.

2.7.7 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 5 April 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 annual 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 (2/3) of the valid votes cast, such two-third (2/3) majority representing more than one-half (1/2) 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 (2/3) of the valid votes cast, such two-third (2/3) majority representing more than one-half (1/2) of the issued capital. If the proportion of the share capital of at least one-half (1/2) 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.

2.7.8 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 related to the COVID-19 pandemic). 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 realizing its business and strategic objectives. Risk areas with a low-risk appetite and thus a low acceptable 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.

The management of the Company 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, LyondellBasell uses a formal risk management approach, consisting of a set of risks definitions which are discussed amongst senior management of LyondellBasell 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 LyondellBasell's 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 annual reports in respect of the financial year ("2019 Annual Reports"): (i) a Statutory Annual 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 Annual 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 2019 Annual Reports include risk factors that are specific to the petrochemical industry, LyondellBasell and ownership of its shares. LyondellBasell also provides sensitivity analyses by providing:

- 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 2.7.10), 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 31 December 2019, 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 confirms the effectiveness of the Company's internal control over financial reporting in its Consent of Independent Registered Public Accounting Firm as included in our 2019 Annual Report on Form 10-K for the year ended 31 December 2019.

For the Statutory Annual 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 Annual 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.

LyondellBasell currently has a 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

While the Company's CEO is responsible for assessing and managing the Company's day-to-day risks and related control systems, the Board has broad oversight of the Company's risk profile and risk management. In this oversight role, the Board is responsible for satisfying itself that the risk management processes designed and implemented by management are functioning and that necessary steps are taken to foster a culture of risk-adjusted decision-making throughout the organization. The Company believes that this division of responsibilities has been effective in achieving sound risk management, and that the Board's involvement has ensured effective oversight.

The primary means by which our Board oversees our risk management structures and policies is through its regular communications with management. At each Board meeting, executive officers are asked to report to the Board and, when appropriate, specific committees. These presentations provide members of the Board with direct communication with members of management and the information necessary for a full understanding of the Company's risk profile, including information regarding the Company's 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 strategies more generally.

In recent years, members of the Board have participated in dedicated workshops, interviews, and surveys with the Company’s enterprise risk management organization and outside consultants. Board members identify and rank the Company’s primary risks, which are compared with those identified by management. In September 2019, feedback from Board member surveys and interviews was discussed during an interactive, in-person workshop that focused the Board on key topics of emerging risk identified through the process. The direct line of communication between the Board and members of management facilitated at Board meetings and through these workshops allows the Board to further evaluate and assess the management of the Company’s day-to-day risks.

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

- The Audit Committee oversees of the integrity of the Company's financial statements; The qualifications, performance and independence of our independent accountants; the performance of the Company's internal audit function and compliance program; the Company's monitoring, control and reporting of significant corporate risk exposure, including information technology and cybersecurity risks; related party transactions; and our system of disclosure and internal controls.
- The Compensation Committee oversees the Company's compensation programs; evaluates whether our compensation programs and practices create excessive risk or any changes to those programs are warranted; and monitors management retention, recruitment, and succession planning.
- The Nominating & Governance Committee reviews the Company's corporate governance practices and develops, reviews and recommends corporate governance guidelines and policies.
- The Health, Safety, Environmental & Operations ("HSE&O") Committee reviews and monitors compliance with health, safety and environmental matters; provides oversight of the Company's technology and the execution of large capital projects and turnarounds; discusses the Company's HSE and Operational Excellence programs and safety and environmental incidents and statistics; reviews the Company's sustainability report; and plans and initiatives to continuously improve health, safety, environmental and operational results.
- The Finance Committee provides oversees strategic transactions, including those that may impact our capital position; reviews our tax strategy and planning; and reviews our capital structure, capital allocation, dividend policy, share repurchase programs, debt profile, and hedging strategies.

The Company has an enterprise risk management function, with a group of employees dedicated to enterprise-wide risk management activities. The CEO and CFO are responsible for overseeing these risk management programs, including assessing risk tolerances, evaluating whether such tolerances are aligned with the Company's strategic goals, and defining our overall risk profile. The CEO has delegated to an internal Risk Management Committee the authority to review and approve transactions that are in furtherance of the Company's approved strategies.

In addition to the CEO, the standing members of the Risk Management Committee include the CFO and the Chief Legal Officer. Through a variety of policies and procedures, senior management and their leadership teams identify, monitor, mitigate, and report on risks and develop risk management plans aligned with the Company's enterprise risk management framework.

The results of the risk management processes and updates on the material risks are reported to the Board and its committees on a regular basis. In addition, the Audit Committee is responsible for ensuring that an effective risk assessment process is in place, and reports are made to the Audit Committee in accordance with NYSE requirements.

Risk Management and Control Systems

The management of the Company, including our executive director, is primarily responsible for the design, implementation and operation of the Company's internal risk management and control systems. The purpose of these systems is to effectively 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 comply with 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 Enterprise Risk Management 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 is responsible for analyses and mitigation activities related to 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, group-level 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 are an evergreen process conducted throughout the year incorporating the business segments, manufacturing operations and the critical business support functions.

We use various other measures to ensure compliance with 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&O 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.

2.7.9 Audit of Financial Reporting

Financial Reporting

LyondellBasell has comprehensive internal procedures in place for the preparation and publication of annual 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 2020 Dutch statutory accounts at the 2020 Annual 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 2019. 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 2020 Annual 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. The external auditor and the Audit Committee are involved in drawing up the work schedule and audit scope of the audit department. The head of internal audit regularly provides updates on his findings to the Audit Committee.

2.7.10 Statements of the Board of Directors

The management of the Company is responsible for the preparation of the Annual Accounts and the Annual Report of LyondellBasell N.V. for the year ended 31 December 2019 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 4.10 "Risk Management," the Board confirms that to the best of its knowledge:

- The LyondellBasell N.V. 2019 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. 2019 Annual 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 31 December 2019 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 2.7.8, "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 Annual 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 Annual Report. The Annual Report provides sufficient insights into any important deficiencies in the effectiveness of the internal risk management and control systems that were detected during the 2019 financial 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 31 December 2019, the end of the period covered by this annual report.

Changes in Internal Control over Financial Reporting

There have been no changes in our internal control over financial reporting in our fourth fiscal quarter of 2019 that have materially affected, or are reasonably likely to materially affect, our 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 2020 Annual Meeting. The Board recommends that shareholders adopt these financial statements.

The Board of Directors,

/s/ Jacques Aigrain (Chair)

/s/ Lincoln Benet

/s/ Jagjeet S. Bindra

/s/ Robin Buchanan

/s/ Stephen F. Cooper

/s/ Nance K. Dicciani

/s/ Claire S. Farley

/s/ Isabella D. Goren

/s/ Michael S. Hanley

/s/ Bhavesh V. Patel

/s/ Albert J. Manifold

/s/ Rudy M.J. van der Meer

London, 15 April 2020

CONSOLIDATED FINANCIAL STATEMENTS

CONSOLIDATED STATEMENT OF INCOME

Millions of U.S. Dollars, except per share data	Note	Year ended 31 December 2019	2018
Revenue	5	$ 34,911	$ 39,133
Cost of sales	6	29,711	32,707
Gross profit		5,200	6,426
Selling costs	6	395	327
Administrative expenses	6	817	847
Other (income) expense, net	10	26	(168)
Operating profit		3,962	5,420
Finance income		21	45
Finance costs	11	(360)	(436)
Share of profit of investments accounted for using the equity method	17	142	194
Profit before income tax		3,765	5,223
Income tax expense	12	(663)	(571)
Profit for the year		$ 3,102	$ 4,652
Attributable to:			
Profit attributable to			
-Owners of the Company		$ 3,102	$ 4,652
-Non-controlling interests		—	—
Total		$ 3,102	$ 4,652
Earnings per share:			
-Basic	13	$ 8.75	$ 11.94
-Diluted	13	8.75	11.92

The notes on pages 60 to 127 are an integral part of these Consolidated Financial Statements.

CONSOLIDATED STATEMENT OF COMPREHENSIVE INCOME

		Year Ended 31 December	
Millions of U.S. Dollars	**Note**	**2019**	**2018**
Profit for the year		$ 3,102	$ 4,652
Other comprehensive income (expense), net of tax			
Items that will not be reclassified subsequently to profit or loss:			
Remeasurements of post-employment benefits obligations	28	(323)	94
Tax on (benefit from) re-measurements of post-employment benefits obligations	12	87	(26)
		(236)	68
Items that may be reclassified subsequently to profit or loss:			
Unrealized gains (losses) on financial instruments at fair value through other comprehensive income		1	—
Income tax (expense) benefit on financial assets at fair value through other comprehensive income	12	—	—
		1	—
Net movement on cash flow hedges	4	(205)	55
Amount reclassed out of OCI to net income		(10)	8
Income tax (expense) benefit on cash flow hedges	12	46	(14)
		(169)	49
Net movement on net investment hedge		—	17
Income tax (expense) benefit on net investment hedges	12	—	(4)
		—	13
Currency translation of foreign operations		(8)	(75)
Income tax (expense) benefit on currency translation of foreign operations	12	(8)	(15)
		(16)	(90)
Other comprehensive income (loss), net of tax		(420)	40
Total comprehensive income		$ 2,682	$ 4,692
Attributable to:			
-Owners of the Company		$ 2,682	$ 4,692
-Non-Controlling interest		—	—
		$ 2,682	$ 4,692

The notes on pages 60 to 127 are an integral part of these Consolidated Financial Statements.

CONSOLIDATED STATEMENT OF FINANCIAL POSITION

ASSETS

Millions of U.S. Dollars	**Note**	**31 December 2019**	**31 December 2018**
Non-current assets:			
Intangible assets	14	$ 2,597	$ 2,613
Property, plant and equipment	15	15,069	13,402
Right-of-use assets	16	1,458	—
Investments in associates and joint ventures	17	1,203	1,192
Deferred income tax assets	27	81	65
Derivative financial instruments	20	255	118
Trade and other receivables	22	141	194
Total non-current assets		20,804	17,584
Current assets:			
Inventories	21	4,278	4,468
Trade and other receivables	22	3,694	4,602
Financial assets at fair value through other comprehensive income	20	162	567
Financial assets at fair value through profit or loss	20	34	325
Derivative financial instruments	20	54	79
Income tax receivable		171	12
Cash and cash equivalents	23	939	415
Total current assets		9,332	10,468
Total assets		$ 30,136	$ 28,052

The notes on pages 60 to 127 are an integral part of these Consolidated Financial Statements.

EQUITY AND LIABILITIES

Millions of U.S. Dollars	**Note**	**31 December 2019**	**31 December 2018**
Equity attributable to the owners of the Company:	24		
Share capital		$ 19	$ 22
Share premium		6	10
Other reserves		(1,489)	(1,069)
Retained earnings		9,491	13,100
Treasury shares		(580)	(2,206)
		7,447	9,857
Non-controlling interests	25	19	23
Total equity		7,466	9,880
Non-current liabilities:			
Borrowings	26	11,740	7,662
Lease liabilities	16	1,232	—
Deferred income tax liability	27	1,981	2,021
Retirement benefit obligations	28	1,737	1,408
Derivative financial instruments	20	130	121
Provisions	30	201	169
Accruals and deferred income		279	277
		17,300	11,658
Current liabilities:			
Trade and other payables	29	4,109	4,442
Income tax payable		239	74
Borrowings	26	472	1,901
Lease liabilities	16	275	—
Derivative financial instruments	20	205	55
Provisions	30	70	42
		5,370	6,514
Total liabilities		22,670	18,172
Total equity and liabilities		$ 30,136	$ 28,052

The notes on pages 60 to 127 are an integral part of these Consolidated Financial Statements.

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 1 January 2018		$ 31	$ 10,024	$ (15,749)	$ (1,093)	$ 15,342	$ 8,555	$ 1	$ 8,556
Adoption of accounting standard		—	—	—	(16)	34	18	—	18
Transactions with owners:									
Shares purchased	24	—	—	(1,878)	—	—	(1,878)	—	(1,878)
Common Stock dividends paid relating to 2018	24	—	—	—	—	(1,554)	(1,554)	—	(1,554)
Preferred Stock dividend paid		—	—	—	—	(2)	(2)	—	(2)
Employee share-based payments:									
-Issuance of shares	13	—	27	37	—	(2)	62	—	62
-Tax credits relating to share-based awards		—	—	—	—	(8)	(8)	—	(8)
Cancellation of treasury shares		(9)	(10,013)	15,384	—	(5,362)	—	—	—
Acquisition of A. Schulman Inc.		—	—	—	—	—	—	22	22
Purchase of non-controlling interest		—	(28)	—	—	—	(28)	—	(28)
Total transactions with owners		22	10	(2,206)	(1,109)	8,448	5,165	23	5,188
Comprehensive income for the period:									
Profit/(loss) for the year		—	—	—	—	4,652	4,652	—	4,652
Other comprehensive income/ (expense):									
Financial derivatives		—	—	—	62	—	62	—	62
Remeasurements of post employment benefit obligation	13/ 28	—	—	—	68	—	68	—	68
Currency translation differences		—	—	—	(90)	—	(90)	—	(90)
Total Comprehensive income/ (loss) for the period		—	—	—	40	4,652	4,692	—	4,692
Balance at 31 December 2018		$ 22	$ 10	$ (2,206)	$ (1,069)	$ 13,100	$ 9,857	$ 23	$ 9,880

The notes on pages 60 to 127 are an integral part of these Consolidated Financial Statements.

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 1 January 2019		$ 22	$ 10	$ (2,206)	$ (1,069)	$ 13,100	$ 9,857	$ 23	$ 9,880
Adoption of accounting standards		—	—	—	—	92	92	—	92
Transactions with owners:									
Shares purchased	24	—	—	(3,728)	—	—	(3,728)	—	(3,728)
Common Stock dividends paid relating to 2019	24	—	—	—	—	(1,462)	(1,462)	—	(1,462)
Preferred stock dividends paid		—	—	—	—	(7)	(7)	—	(7)
Employees share-based payments:									
-Issuance of shares		—	33	42	—	(3)	72	—	72
-Tax credits related to share-based awards	12	—	—	—	—	5	5	—	5
Cancellation of Treasury shares		(3)	(37)	5,312	—	(5,272)	—	—	—
Purchase of non-controlling interest		—	—	—	—	(64)	(64)	—	(64)
Distribution to Non-Controlling interest		—	—	—	—	—	—	(4)	(4)
Total transactions with owners		19	6	(580)	(1,069)	6,389	4,765	19	4,784
Comprehensive income for the period:									
Profit for the year		—	—	—	—	3,102	3,102	—	3,102
Other comprehensive income/ (expense):									
Financial derivatives		—	—	—	(169)	—	(169)	—	(169)
Remeasurements of post employment benefit obligation	12/ 28	—	—	—	(236)	—	(236)	—	(236)
Currency translation differences		—	—	—	(16)	—	(16)	—	(16)
Financial Instruments at Fair Value through Other comprehensive income		—	—	—	1	—	1	—	1
Total Comprehensive income/ (loss) for the period		—	—	—	(420)	3,102	2,682	—	2,682
Balance at 31 December 2019		$ 19	$ 6	$ (580)	$ (1,489)	$ 9,491	$ 7,447	$ 19	$ 7,466

The notes on pages 60 to 127 are an integral part of these Consolidated Financial Statements.

CONSOLIDATED STATEMENT OF CASH FLOWS

Millions of U.S. Dollars	Note	Year Ended 31 December 2019	Year Ended 31 December 2018
Cash flows from operating activities:			
Profit before income tax		$ 3,765	$ 5,223
Adjustments for:			
Depreciation, amortization and impairments	6	1,685	1,285
Share-based compensation	8	48	39
Finance cost, net		338	392
Other (income) expense, net	10	26	(168)
Share of profit of investments accounted for using the equity method	17	(142)	(194)
Changes in working capital relating to:			
(Increase)/decrease in trade receivables		339	427
(Increase)/decrease in inventories		169	(93)
Increase/(decrease) in trade payables		(198)	(223)
Other, net		(18)	242
Cash generated from operations		6,012	6,930
Interest paid		(423)	(393)
Net income taxes paid		(403)	(1,209)
Net cash from operating activities		5,186	5,328
Cash flows from investing activities:			
Purchase of property, plant and equipment		(2,716)	(2,316)
Payments for repurchase agreements		527	—
Purchases of equity securities at FVTPL		(33)	(64)
Proceeds from the sale and maturities of equity securities at FVTPL		332	97
Purchase of marketable securities held at FVOCI		(108)	(50)
Proceeds from sale and maturities of marketable securities held at FVOCI	4	511	423
Purchases of business, associates and joint ventures		(22)	(1,814)
Net proceeds from sale of business, associates and joint ventures	10	5	37
Proceeds from settlement of net investment hedges		—	1,108
Payments for settlement of net investment hedges		—	(1,078)
Interest received		19	19
Dividends received from associates and joint ventures	17	157	229
Other, net		(168)	(132)
Net cash used in investing activities		(1,496)	(3,541)
Cash flows from financing activities:			
Repurchase of Company ordinary shares	24	(3,752)	(1,854)
Repayments of borrowings	26	(3,001)	(408)
Proceeds from borrowings	26	5,031	97
Proceeds from issue of short-term debt	26	2,504	—
Repayments of short-term debt		(1,526)	(3)
Payment of equity and debt issuance cost		(22)	9
Net proceeds from commercial paper	26	(549)	810
Dividends paid	24	(1,462)	(1,554)
Preferred stock dividend paid		(7)	(2)
Purchase of non-controlling interest		(63)	—
Principal elements of lease payments		(305)	—
Other, net		(11)	(15)
Net cash used in financing activities		(3,163)	(2,920)
Net increase (decrease) in cash and cash equivalents		527	(1,133)
Cash and cash equivalents at beginning of period		415	1,579
Exchange rate differences		(4)	(31)
Cash and cash equivalents at end of the period	23	$ 938	$ 415

The notes on pages 60 to 127 are an integral part of these 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 15 October 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 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 31 December 2019 of LyondellBasell N.V. were approved for issue by the Board of Directors on 15 April 2020.

The Consolidated Financial Statements are subject to adoption by the Annual General Meeting of Shareholders on 29 May 2020.

2 Summary of Significant 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.

Implications of COVID-19

The events surrounding the COVID-19 pandemic continue to evolve and impact global markets. The spread of the virus has resulted in authorities implementing numerous measures to try to contain the virus, such as travel bans and restrictions, quarantines, shelter-in-place orders and shutdowns. Consequently, economic conditions, including commodity prices, have been increasingly volatile. Many of our facilities and employees are based in areas impacted by the virus.

In response to the pandemic, LyondellBasell activated its global response plan. We prioritized the health and safety of our employees, contractors and global communities while maintaining business continuity. We have also postponed capital spending related to selected growth projects and maintenance activities, including slowing construction activities on our PO/TBA project in Houston.

While we see strong demand for our polyolefins that are used in consumer packaging and medical applications, weak demand from markets for industrial and durable products is expected to continue. Our refining and oxyfuels and related products businesses will be impacted by significantly lower demand for transportation fuels. We have also reduced production levels at other sites around the world.

The extent of the impact of the pandemic and the drop in the oil price on our operational and financial performance will depend on future developments which are uncertain and cannot be predicted. An extended period of economic disruption could have a material adverse impact on our business, results of operations, access to sources of liquidity and financial condition.

While it is too early to predict the magnitude and duration of the downturn, we believe we are well-positioned to face this volatile environment and prepare the company for an eventual recovery of the economy. We believe that our current liquidity availability and cash from operating activities provide us with sufficient financial resources to meet our anticipated capital requirements and obligations as they come due.

New and Amended Standards Adopted

We have applied the following standards and amendments for the first time for annual reporting period commencing 1 January 2019:

IFRS 16, Leases—IFRS 16, issued in January 2016, requires all leases to be recorded on the Consolidated Statement of Financial Position by lessees by recognizing a right-of-use asset ("ROU") asset and the related lease liability at the commencement of the lease. Subsequently, the lease costs will be recognized in the Consolidated Statement of Income over the lease term in the form of depreciation of the ROU asset and finance charges.

We adopted IFRS 16 on 1 January 2019, using the modified retrospective approach, without restating comparative information. We applied the practical expedient that allows us to grandfather our previous assessments of existing contracts if they are or contain leases. We elected to not apply lease accounting to leases with lease term of 12 months or less. We did not elect the hindsight practical expedient in determining the lease term of existing leases.

The adoption of IFRS 16 resulted in the recording of additional ROU assets and lease liabilities of $1,525 million and $1,545 million respectively, as of 1 January 2019. We also reduced Trade and other payables by $20 million respectively. Operating cash flows will be higher as cash payments for the principal portion of the lease liability are classified within financing activities. Only part of the payments that reflects interest can continue to be presented as operating cash flows. The new standard did not materially impact our Consolidated Statement of Income. The adoption of IFRS 16 did not have a significant impact on our tax position because we adopted the approach that the leased assets and liabilities are integrally linked and the resulting (net) deferred taxes are immaterial. Subsequent changes to the net carrying value of the ROU asset and lease liability will result in deferred tax liabilities or deferred tax assets that are not expected to be material. Comparative financial information has not been restated and continues to be reported under the accounting standards in effect for those periods. (see Note 16).

IFRIC 23, Uncertainty over Income Tax Treatments—IFRIC 23, issued in June 2017 addresses the accounting for income taxes when there is uncertainty over income tax treatments. Under IFRIC 23, where it is considered probable that a particular tax treatment will be accepted by the tax authorities, the accounting for income taxes is done on a consistent basis with the income tax filings. However, where it is not considered probable that a particular tax treatment will be accepted, the effect of the uncertainty is reflected in the income tax accounting by estimating the tax payable (or receivable) using either the most likely amount method or the expected value method. We adopted the guidance retrospectively as of 1 January 2019. We released tax liabilities for uncertain tax positions of $93 million through Retained earnings.

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 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.

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 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 Companies 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. They 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—Items included in the financial statements of each of LyondellBasell N.V.'s entities are measured using the currency of the primary economic environment in which the entity operates ("the functional currency") and then translated to the U.S. dollar reporting currency ("the reporting currency") through OCI 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 OCI (currency translation of foreign operations).

Transactions and Balances—Foreign currency transactions are recorded in the entity's 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.

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 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 not treated as a separate performance obligation.

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 and fulfilment of the performance obligation occurs 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.

Segment Reporting

Our operations are managed through six operating segments. Our operating segments are managed by senior executives who report to our CEO and discrete financial information for each of the segments is available. Our CEO uses the operating results of each of the six operating segments for performance evaluation and resource allocation and, as such, is the chief operating decision maker.

Share-Based Compensation

The Company recognizes compensation expense for equity-classified share-based compensation awards over the vesting period based on the fair value of the award at the grant date. The fair value of stock options is determined using the Black-Scholes model. The fair value of performance share units is determined using a Monte Carlo model.

Compensation for liability-classified share-based awards are recognized on a straight-line basis over the vesting period as a liability and re-measured, at fair value, at the end of reporting period.

Leases

The Company leases storage tanks, terminal facilities, land, office facilities, railcars, pipelines, barges, plant equipment and other equipment. Rental contracts have terms ranging from 1 year to 30 years. While extension clauses that are included in our leases do not materially impact our ROU asset or lease liability, certain leases include options to extend the lease for up to 20 years. 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, which do not have a material impact on our Consolidated financial statements..

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 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 following:

– the amount of initial measurement of lease liability,
– any initial direct costs, and
– restoration costs.

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—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:

– 5-8 years for know-how assets
– 5 years for technology patents and licenses
– 15-25 for emission allowances
– 15 years for customer relationships

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. Research and development expenditures that do not meet the aforementioned criteria are recognized as expense as incurred. Development costs that have a finite useful life and that have been capitalized are amortized on a straight-line basis over the period of expected useful life from the date that services can be offered. The expected useful life is generally 10 years. Capitalized development projects are impaired if the recoverable amount falls below the carrying value of the related asset.

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.

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 of the asset is the higher of fair value less costs to sell and value in use. For the purposes of assessing impairment, assets are grouped at the lowest levels for which there are separately identifiable cash flows (cash-generating units) which for the Company is generally at the plant group level (or, at times, individual plants in certain circumstances where we have isolated production units with separately identifiable cash flows). Non-financial assets other than goodwill that have been impaired are reviewed for possible reversal of the impairment at each reporting date.

Goodwill and other assets that have an indefinite useful life are tested for impairment annually. Goodwill is allocated to cash-generating units for the purpose of impairment testing. The allocation is made to those cash-generating units or groups of cash-generating units that are expected to benefit from the business combination in which the goodwill arose. The cash generating units to which goodwill has been allocated are tested for impairment annually, or more frequently 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.

Derivative Financial Instruments and Hedging Activities

Pursuant to our risk management policies, we selectively enter into derivative transactions to manage volatility related to market risks associated with changes in commodity pricing, currency exchange rates and interest rates. Derivatives used for these purposes are generally 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 earnings. For derivatives designated as net investment hedges and cash flow hedges, the effective portion of the gains and losses is recorded in OCI. The ineffective portion of net investment hedges and cash flow hedges is recorded in earnings. For net investment hedges, gains and losses accumulated in equity are included in the income statement when the foreign currency operation is partially disposed of or sold. For cash flow hedges, gains and losses accumulated in equity are included in earnings when the hedged item affects profit or loss. For derivatives that have been designated as fair value hedges, the gains and losses of the derivatives and hedged instruments are recorded in earnings.

Derivatives are initially recognized at fair value on the inception date and are subsequently re-measured at fair value as of each reporting date. The method of recognizing the resulting gain or loss depends on whether the derivative is designated as a hedging instrument, and if so, the nature of the item being hedged. The Company designates certain derivatives as either:

a. hedges of the fair value of recognized assets or liabilities (fair value hedge); or
b. hedges of a particular risk associated with a recognized asset or liability or a highly probable forecasted transaction (cash flow hedge); or
c. hedges of a net investment in a foreign operation (net investment hedge).

At the inception of the transaction, the Company documents the relationship between the hedging instrument and the hedged item, its risk management objectives and strategy for undertaking various hedging transactions. The Company also documents its assessment, both at hedge inception and on an ongoing basis, of whether the derivative that is used in the hedging transaction is highly effective in offsetting changes in the fair value or cash flow of the hedged item.

The fair values of various derivative instruments used for hedging purposes are disclosed in Note 20. The full fair value of the derivatives is classified as a non-current asset or liability if the remaining maturity of the derivative is more than 12 months and as a current asset or liability if the remaining maturity is less than 12 months.

(a) Fair value hedges

Our fair value hedges consist of fixed-for-floating interest rate swaps. We use the long-haul, quantitative method to assess hedge effectiveness using a regression analysis approach. 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.

The Company applies fair value hedge accounting for hedging the changes in fair value of fixed-rate borrowings. The gain or loss relating to the effective and ineffective portion of interest rate swaps hedging fixed rate borrowings as well as changes in value of the fixed-rate borrowings attributable to interest rate risk are recognized as Finance costs.

We evaluate the effectiveness of the hedging relationship quarterly and calculate the changes in the fair value of the derivatives and the underlying hedged item basis adjustments separately. If the hedge no longer qualifies for hedge accounting, the adjustment to the carrying amount of the hedged item is amortized over its remaining term utilizing the effective interest method.

(b) Cash flow hedges

Our cash flow hedges include cross currency swaps, forward starting interest rate swaps, and commodity futures.

Cash flow hedges utilizing commodity futures may use the critical terms match approach or long-haul, quantitative method to assess hedge effectiveness. We use the dollar offset method under the hypothetical derivative method to measure ineffectiveness.

For our forward starting interest rate swaps, we use the long-haul, quantitative method to assess hedge effectiveness under the hypothetical derivative approach. We use the dollar offset method under the hypothetical derivative method to measure hedge ineffectiveness.

When a hedging instrument expires or is sold, or when a hedge no longer qualified for hedge accounting, any cumulative gain or loss existing in Equity at that time remains and is recognized in the Consolidated Statement of Income when the forecast transaction ultimately is recognized in the Consolidated Statement of Income. When a forecast transaction is no longer expected to occur, the cumulative gain or loss that was reported in Equity is immediately transferred to the Consolidated Statement of Income in the line item the hedged forecast transaction would have been recorded to within the Consolidated Statement Income.

(c) Net investment hedges

Our net investment hedges include foreign currency derivatives and foreign currency denominated debt. Our foreign currency derivative contracts may consist of cross currency basis swaps and foreign currency forward exchange contracts.

For all our hedging instruments, we use the spot method to assess hedge effectiveness resulting in changes to their value from changes in spot foreign exchange rates over the hedge accounting designation to be recorded within OCI while the effect of the initial forward points and cross currency basis spread are excluded from the assessment of hedge effectiveness. For our cross currency basis swaps, the associated interest receipts and payments are recorded to Finance costs. For our foreign currency forward contracts, we amortize initial forward point values on a straight-line basis to Finance cost over the term of the hedging instrument designation. We monitor over hedging conditions quarterly and rebalance the hedge designation as required to remove any overhedged condition, recording any incurred ineffectiveness just prior to rebalance.

Cash flows related to our foreign currency contracts designated as net investment hedges are reported in Cash flows from investing activities in the Consolidated Statement of Cash Flows. Cash flows related to our foreign currency denominated debt designated as net investment hedges are reported in Cash flows from financing activities and related interest payments are reported in Cash flows from operating activities in the Consolidated Statement of Cash Flows.

Classification and Measurement of Financial Assets

Financial assets and financial liabilities are initially measured at fair value. Financial assets held with the objective to collect the contractual cash flows that are solely payments of principal and interest thereon are carried at amortized cost. Financial assets held with the objective for both collecting contractual cash flows and selling the financial assets are subsequently carried at fair value through other comprehensive income ("FVOCI"). All other financial assets including equity securities are measured subsequently at fair value through profit or loss ("FVTPL").

Financial liabilities other than contingent consideration in a business combination, held for trading, or designated as at FVTPL, are measured subsequently at amortised cost using the effective interest method.

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.

When available, quoted market prices are used to determine fair value and such measurements are classified within Level 1. In some cases where market prices are not available, observable market-based inputs are used to calculate fair value, in which case the measurements are classified within Level 2. If quoted or observable market prices are not available, fair value is based upon internally-developed models that use, where possible, current market-based parameters such as interest rates, yield curves and currency rates. These measurements are classified within Level 3.

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.

Due to the short maturity, the fair value of all non-derivative financial instruments included in Current assets and Current liabilities except precious metal financings approximates the applicable carrying value. Short-term loans receivable, which represent our repurchase agreements, and short-term and long-term debt are recorded at amortized cost in the Consolidated Statement of Financial Position.

We use the following inputs and valuation techniques to estimate the fair value of our financial instruments:

Basis Swaps—The fair value of our basis swap contracts is calculated using the present value of future cash flows discounted using observable inputs such as known notional value amounts, yield curves, and spot and forward exchange rates.

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 with the foreign currency leg revalued using published spot and future exchange rates on the valuation date.

Forward-Starting Interest Rate Swaps—The fair value of our forward-starting interest rate swaps is calculated using the present value of future cash flows method and based on observable inputs such as benchmark interest rates.

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

Commodity and Embedded Derivatives—The fair values of our commodity derivatives classified as Level 1 and embedded derivatives are measured using closing market prices at the end of the reporting period obtained from the New York Mercantile Exchange 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 foreign currency derivatives is based on forward market rates.

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

Loans Receivable—The fair value of our investments in tri-party repurchase agreements are based on discounted cash flows, which consider prevailing market rates for the respective instrument maturity in addition to corroborative support from the minimum underlying collateral requirements.

Short-term Debt—The fair values of short-term borrowings related to precious metal financing arrangements are determined based on the current market price of the associated precious metal.

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

Impairment of Financial Assets

We measure the loss allowance for trade receivables at an amount equal to lifetime expected credit loss ("ECL") using historical, loss rates for the respective risk categories and incorporating forward-looking estimates.

We measure the loss allowance for debt security instruments 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 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.

We have receivables for tri-party repurchase agreements in which we make purchases of securities where the counterparty has an obligation to repurchase and we have an obligation to sell back the same securities at a predetermined date for a price equal to the purchase price plus interest. These securities are held by a third-party custodian and have a minimum collateral value of 102% securing the counterparties' obligation to repurchase the securities. Because we consider this collateral in the measurement of ECL, we record no ECL for such repurchase agreements.

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. Cash and cash equivalents exclude restricted cash.

Although, we have no current requirements for compensating balances in a specific amount at a specific point in time, we may maintain compensating balances at our discretion for some of our banking services and products.

Income Taxes

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 balance sheet date, 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 net tax 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 balance sheet date 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, 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 using the same accounting methodology as 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.

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.

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 12 and 27), the determination of the value in use of cash-generating units for use in goodwill impairment testing (see Note 14), the depreciation rates for property, plant and equipment (see Note 15) and intangible assets (see Note 14), the discount rate used to determine the provision for retirement benefit obligations and periodic pension cost (see Note 28) and the more likely than not assessment required to determine if a provision should be recognized and measured (see Notes 30 and 31).

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 included 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 new technological developments, new chemical industry entrants with significant raw material or other cost advantages, uncertainties associated with the European, U.S. and other world economies, the cyclical nature of the chemical and refining industries, and uncertainties associated with regulatory governmental actions.

Goodwill-As of 31 December 2019, we recognized $1,680 million of goodwill. Of this amount $1,357 million was recognized as a result of the acquisition of A. Schulman in August 2018, which is included in our APS segment, and is mainly attributed to acquired workforce and expected synergies. The remaining goodwill at 31 December 2019 represents the tax effect of the differences between the tax and book bases of our assets and liabilities resulting from the revaluation of those assets and liabilities to fair value in connection with the Company's acquisition of LyondellBasell Subholdings B.V. and LyondellBasell Finance Company on 30 April 2010. Goodwill is allocated to a group of cash-generating units and tested for impairment annually or more frequently if events or changes in circumstances indicate impairment. The recoverable amount of the cash-generating units is determined on value-in-use basis using pre-tax cash flows as per management approved 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, incurrence of 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 arising from the arrangement 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. To manage the volatility related to these exposures, we selectively enter into derivative transactions pursuant to our risk management policies.

Commodity Price Risk

A substantial portion of our products and raw materials are commodities whose prices fluctuate as market supply and demand fundamentals change. Accordingly, product margins and the level of our profitability tend to fluctuate with changes in the business cycle. Natural gas, crude oil and refined products, along with feedstocks for ethylene and propylene production, constitutes the main commodity exposures. We try to protect against such instability through various business strategies including provisions in sales contracts which allows us to pass on higher raw material costs to our customers through timely price increases and through the use of commodity swap and futures contracts.

Cash Flow Hedges—In 2019 and 2018, we entered into commodity futures to mitigate the risk of variability in feedstock and product sales prices. During the year ended 31 December 2019, we paid $20 million in the settlement of commodity future contracts that hedge the risk of variability in feedstock prices with a notional amount of $336 million. Additionally, we received $26 million in settlement of commodity future contracts that hedged the risk of variability in product sales prices with a notional amount of $437 million. As of 31 December 2019, we had no commodity future contracts outstanding and designated as cash flow hedges. As of 31 December 2018, we had commodity future contracts outstanding and designated as cash flow hedges with a notional and fair value of $472 million and $12 million, respectively.

We recorded pre-tax losses of $6 million and pre-tax gains of $12 million in other comprehensive income related to our commodity futures contracts designated as cash flow hedges during the years ended 31 December 2019 and 2018, respectively. In addition, we reclassified pre-tax gains of $6 million and pre-tax losses of $8 million from other comprehensive into earnings during the year ended 31 December 2019 and 2018, respectively.

We use Value at Risk ("VaR"), stress testing and scenario analysis for risk measurement and control purposes. VaR estimates the maximum potential loss in fair market values for our commodity derivative instruments, given a certain move in prices over a certain period of time, using specified confidence levels. Utilizing a Monte Carlo simulation with a 95 percent confidence level over a 3-day time horizon, the effect on our pre-tax income and cash flows for the years ended 31 December 2019 and 2018 would be immaterial.

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.

A significant portion of our reporting entities use the euro as their functional currency. Our reporting currency is the U.S. dollar. The translation gains or losses that result from the process of translating the euro denominated financial statements to U.S. dollars are deferred in other comprehensive income (OCI) until such time as those entities may be liquidated or sold. Changes in the value of the U.S. dollar relative to the euro can therefore have a significant impact on comprehensive income.

Some of our operations enter into transactions that are not denominated in their functional currency. 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.

We maintain risk management control systems intended to monitor foreign currency risk attributable to intercompany 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 any natural offsets thereby reducing the overall impact of changes in foreign currency rates on our earnings. At 31 December 2019, a 10% fluctuation compared to the U.S. dollar in the underlying currencies that have no central bank or other currency restrictions related to non-hedged monetary net assets would result in an additional impact to earnings of approximately $2 million.

Our policy is to maintain an approximately balanced position in foreign currencies to minimize exchange gains and losses arising from changes in exchange rates. To minimize the effects of our net currency exchange exposures, we enter into foreign currency spot and forward contracts and, in some cases, cross-currency swaps.

For foreign currency forward and swap contracts that economically hedge recognized foreign currency monetary assets and liabilities in foreign currencies, hedge accounting is not applied. Changes in the fair value of such forward and swap contracts, which are reported in the Consolidated Statement of Income, are offset in part by the currency remeasurement results recognized within earnings on the assets and liabilities.

We enter into foreign currency forward contracts to reduce the effects of our net currency exchange exposures. At 31 December 2019, these foreign currency contracts, which will mature between January 2020 and September 2020, inclusively, had an aggregated notional amount of $780 million and the fair value was a net asset of $4 million. At 31 December 2018, we had an aggregated notional amount of $1,764 million and the fair value was a net liability of $4 million. A 10% fluctuation compared to the U.S. dollar would have had a resulting additional impact to earnings of approximately $31 million.

Net Investment Hedges—We enter into foreign currency contracts and foreign currency denominated debt to reduce the volatility in equity attributable to owners of the Company resulting from changes in currency exchange rates of our foreign subsidiaries with respect to the U.S. dollar. At 31 December 2019 and 31 December 2018, we had outstanding foreign currency contracts with an aggregate notional value of €617 million ($650 million) designated as net investment hedges. We also had outstanding foreign-currency denominated debt designated as a net investment hedge, with notional amounts totaling €750 million ($842 million) and €750 million ($858 million), as of 31 December 2019 and 2018, respectively.

In 2018, foreign currency contracts with an aggregate notional value of €925 million expired related to €800 million entered in 2018 and €125 million entered in prior years that were designated as net investment hedges. Upon settlement of these foreign currency contracts in 2018, we paid €925 million ($1,078 million at the expiry spot rate) to our counterparties and received $1,108 million from our counterparties.

At 31 December 2019, we recognized less than $1 million loss in other comprehensive income relating to the cost of hedging and $3 million gain in profit or loss relating to ineffectiveness. At 31 December 2018, we recognized $17 million gain in other comprehensive income relating to the cost of hedging and $2 million gain in profit or loss relating to ineffectiveness.

Cross-Currency Swaps—We have cross-currency swap contracts that reduce our exposure to the foreign currency exchange risk associated with certain intercompany loans. Under the terms of these contracts, which have not been designated as hedges, we will make interest payments in euros and receive interest in U.S. dollars. Upon the maturities of these contracts, we will pay the principal amount of the loans in euros and receive U.S. dollars from our counterparties. Each reporting period, the swaps are marked to market to arrive at their fair value. The resulting gains and losses are classified as Other (income) expense, net.

Cross-currency swaps with a notional value of $2,300 million are outstanding as of 31 December 2019 and these foreign currency contracts matured from 2021 to 2027. Cross currency swaps had a net asset fair value of $205 million and $96 million as at 31 December 2019 and 2018, respectively. At 31 December 2019 a 10% fluctuation compared to the U.S. dollar would have had a resulting additional impact to earnings of approximately $238 million. Finance costs in the Consolidated Statement of Income reflected loss of $45 million and $106 million for the periods ended 31 December 2019 and 2018, respectively, related to changes in currency exchange rates and cross-currency swaps.

Interest Rate Risk

Interest rate risk management is viewed as a trade-off between cost and risk. The cost of interest is generally lower for short-term debt and higher for long-term debt, and lower for floating rate debt and higher for fixed rate debt. However, the risk associated with interest rates is inversely related to the cost, with short-term debt carrying a higher refinancing risk and floating rate debt having higher interest rate volatility. Our interest rate risk management strategy attempts to optimize this cost/risk/reward trade-off.

We are exposed to interest rate risk with respect to our fixed and variable rate debt. Fluctuations in interest rates impact the fair value of fixed-rate debt as well as pre-tax earnings stemming from interest expense on variable-rate debt. To minimize earnings at risk as part of our interest rate risk strategy, we target to maintain floating rate debt, through the use of interest rate swaps, equal to our cash and cash equivalents, marketable securities and tri-party repurchase agreements, as those assets are invested in floating rate instruments.

Cash Flow Hedges—A pre-issuance interest rate strategy is utilized to mitigate the risk that benchmark interest rates (i.e. U.S. Treasury, mid-swaps, etc.) will increase between the time a decision has been made to issue debt and when the actual debt offering is issued. In February 2019, we entered into forward-starting interest rate swaps with a total notional amount of $1,000 million expiring in February 2020 (the "Swaps"). As of 31 December 2019, the Swaps, were designated as cash flow hedges to mitigate the risk of variability in interest rates of future expected debt issuance by July 2023 and April 2024. In January 2020, we amended the terms of the Swaps to extend their maturities to July 2023 and April 2024. Concurrently with the amendment of the Swaps, we posted collateral of $238 million related to the liability position held with our counterparties as of the amendment date.

We recorded pre-tax losses of $199 million and pre-tax gains of $43 million in other comprehensive income related to our forward-starting interest rate swaps designated as cash flow hedges during the years ended 31 December 2019 and 2018, respectively. In addition, we reclassified pre-tax gains of $4 million from other comprehensive into earnings. There were no reclassifications pre-tax gains or losses from other comprehensive into earnings during the year ended 31 December 2018.

In 2018, we entered into forward-starting interest rate swaps with a total notional amount of $500 million to mitigate the risk of variability in interest rates for an expected debt issuance by November 2021. These swaps were designated as cash flow hedges and will be terminated upon debt issuance.

At 31 December 2019, the total notional amount of our interest rate contracts designated as cash flow hedges, which have maturity dates ranging from 2020 to 2021, was $1,500 million and the fair value was a net liability of $225 million. At 31 December 2018, the total notional amount of our interest rate contracts designated as cash flow hedges was $1,500 million and the fair value was a net asset of $2 million. We estimate that a 10% change in market interest rates as of 31 December 2019, would change the fair value of our forward-starting interest rate swaps outstanding and would have had a resulting impact on Other comprehensive income of approximately $66 million.

In February 2019, concurrent with the redemption of $1,000 million of our then outstanding 5% senior notes due 2019, we received $4 million in settlement of $1,000 million of forward-starting interest rate swaps that we designated as cash flow hedges of forecasted interest payments. There were no other settlements of our forward-starting interest rate swap agreements in 2019 or 2018.

The ineffectiveness recorded for this hedging relationship was $26 million and less than $1 million for the years ended 31 December 2019 and 2018, respectively.

As of 31 December 2019, on a pre-tax basis, $3 million is scheduled to be reclassified from other comprehensive income as an increase to interest expense over the next twelve months.

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.

In February 2019, concurrent with the redemption of $1,000 million of our outstanding 5% senior notes due 2019, we paid $5 million in settlement of $1,000 million of fixed-for-floating interest rate swaps.

In 2018, we entered into a euro fixed-for-floating interest rate swap to mitigate the change in the fair value of €125 million ($147 million) of our €750 million notes payable due 2022 associated with the risk of variability in the 6-month EURIBOR rate (the benchmark interest rate). The fixed-rate and variable-rate are settled annually and semi-annually, respectively.

At 31 December 2019, the total notional amount of interest rate swaps designated as fair value hedges, which have maturity dates ranging from 2021 to 2027, was $2,140 million and their fair value was a net asset of $41 million. At 31 December 2018, the total notional amount of interest rate swaps designated as fair value hedges was $3,143 million and their fair value was net liability of $42 million.

For the years ended 31 December 2019 and 2018, the pre-tax effect of the periodic receive fixed interest and pay variable interest associated with our fixed-for-floating interest rate swaps resulted in an additional interest expense of $6 million and $5 million, respectively.

Fixed-rate debt—At 31 December 2019, after giving consideration to the $2,140 million of fixed-rate debt that we have effectively converted to floating through these U.S. dollar fixed-for-floating interest rate swaps, approximately 64% of our debt portfolio, on a gross basis, incurred interest at a fixed-rate and the remaining 36% of the portfolio incurred interest at a variable-rate. We estimate that a 10% change in market interest rates as of 31 December 2019, would change the fair value of our interest rate swaps outstanding and would have had a resulting impact on our pre-tax income of approximately $15 million.

Variable-rate debt—Our variable rate debt consists of our $2,500 million Senior Revolving Credit Facility, our $900 million U.S. Receivables Facility and our Commercial Paper Program. At 31 December 2019, there were no outstanding borrowings under our Senior Revolving Credit Facility nor U.S. Receivables facility. Our Commercial Paper Program had outstanding borrowings of $262 million and $809 million at 31 December 2019 and 2018, respectively. Based on our average variable-rate debt outstanding per year, we estimate that a 10% change in interest rates would have had a $1 million impact on earnings in 2019.

Cash Concentration

Our cash equivalents are placed in high-quality commercial paper, money market funds and time deposits with major international banks and financial institutions.

Marketable Securities—We invest cash in investment-grade securities for periods not exceeding three years. Investments in securities with original maturities of three months or less are classified as Cash and cash equivalents. At 31 December 2019 and 2018, we had marketable securities classified as Cash and cash equivalents of $389 million and $19 million, respectively.

We also have investments in marketable securities classified as fair value through other comprehensive income (FVOCI). Investments classified as FVOCI are carried at fair value with unrealized gains and losses recorded in OCI. Credit impairment losses/reversals are recognised through earnings with an offset to OCI.

Repurchase Agreements—We invest in tri-party repurchase agreements. Under these agreements, we make cash purchases of securities according to a pre-agreed profile from our counterparties. The counterparties have an obligation to repurchase, and we have an obligation to sell, the same or substantially the same securities at a pre-defined date for a price equal to the purchase price plus interest. These securities, which pursuant to our policy are held by a third-party custodian and must generally have a minimum collateral value of 102%, secure the counterparty's obligation to repurchase the securities. Depending upon maturity, these tri-party repurchase agreements are treated as short-term loans receivable and are reflected in current Trade and other receivables or as long-term receivables reflected in non-current Trade and other receivables on our Consolidated Statement of Financial Position. There were no repurchase agreements outstanding as of 31 December 2019. As of 31 December 2018, the balance of our investment was $544 million.

Investments in Marketable Securities—The following table summarizes the amortized cost, gross unrealized gains and losses, and fair value of our FVOCI securities that are outstanding as of 31 December 2019 and 2018.

Millions of U.S. Dollars	Cost	Gross Unrealized Gains	Gross Unrealized Losses	Fair Value
Financial Assets at Fair Value through other comprehensive income				
Bonds at 31 December 2019	$ 162	$ —	$ —	$ 162
Bonds at 31 December 2018	567	—	—	567

No allowance for credit losses related to our FVOCI securities was recorded for the year ended 31 December 2019 and 2018.

As of 31 December 2019, our bonds classified as FVOCI securities had maturities between 3 and 45 months.

The proceeds from maturities and sales of our FVOCI securities during the years ended 31 December 2019 and 2018 are summarized in the following table.

	31 December	
Millions of U.S. Dollars	2019	2018
Proceeds from maturities of securities	$ 331	$ 423
Proceeds from sales of securities	180	—

The gross realized gains and losses associated with the sale of FVOCI securities during the year ended 31 December 2019, were less than $1 million. No gain or loss was realized in connection with the sale of our FVOCI securities during the year ended 31 December 2018. We use the specific identification methods to identify the cost of the securities we sell and the amounts we reclassify out of Other comprehensive income into earnings.

Investments in Equity Securities—Our equity securities primarily consist of our limited partnership investments, which include investments in, among other things, equities and equity related securities, debt securities, credit instruments, supply chain finance, global interest rate products, currencies, commodities, futures, options, warrants and swaps. As of 31 December 2019, we had investments in equity securities with a notional amount and a fair value of $34 million. These investments may be redeemed on a weekly basis. As of 31 December 2018, we had investments with a notional amount of $322 million and a fair value of $325 million. The fair value of the investments held as of 31 December 2018 , used net asset value ("NAV") per share of the respective pooled fund investment.

We received proceeds of $332 million and $97 million related to the sale of our investments in equity securities during the years ended 31 December 2019 and 2018, respectively.

The following table summarizes the portion of unrealized gains and losses for the equity securities classified at FVTPL that are outstanding as of 31 December:

Millions of U.S. dollars	2019	2018
Net gains recognized during the period	$ 9	$ 11
Less: Net gains recognized during the period on securities sold	9	5
Unrealized gains recognized during the period	$ —	$ 6

Capital Risk Management

Capital includes equity attributable to the equity holders of the parent. A discussion of credit risk can be found in Note 19.

The primary objective of the Group's capital management is to ensure that it maintains a strong credit rating and healthy capital ratios in order to support its business and maximize shareholder value.

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 31 December 2019, we had unrestricted cash and cash equivalents of $939 million ($415 million in 2018). In addition at 31 December 2019, we had total unused availability under our credit facilities of $2,919 million ($2,517 million in 2018) and $196 million marketable securities classified as FVOCI and FVTPL ($892 million in 2018). As of 31 December 2019, there were no tri-party repurchase agreements classified as other receivables ($544 million in 2018).

We may repay or redeem our debt, including purchases of our outstanding bonds in the open market, using cash on hand, cash from operating activities, proceeds from the issuance of debt, proceeds from asset divestitures, or a combination thereof. In connection with any repayment or redemption of our debt, we may incur cash and non-cash charges, which could be material in the period in which they are incurred.

We plan to fund our ongoing working capital, capital expenditures, debt service and other funding requirements with 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. Cash and cash equivalents, cash from our marketable securities, cash from operating activities, proceeds from the issuance of the debt; or a combination thereof, may be used to fund the purchase of shares under our share repurchase authorization.

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.

We believe that our current liquidity availability and cash from operating activities provide us with sufficient financial resources to meet our anticipated capital requirements and obligations as they come due.

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

Millions of U.S. Dollars	Total obligations	Less than 1 year	Between 1 to 2 years	Between 2 to 5 years	Over 5 years
31 December 2019					
Borrowings	$ 12,318	$ 493	$ 1,022	$ 4,630	$ 6,173
Interest payment on total borrowings	6,306	468	468	989	4,381
Trade and other payables	4,109	4,109	—	—	—
Commodity derivatives	34	34	—	—	—
Lease liabilities	1,756	329	279	610	538
	$ 24,523	$ 5,433	$ 1,769	$ 6,229	$ 11,092

Millions of U.S. Dollars	Total obligations	Less than 1 year	Between 1 to 2 years	Between 2 to 5 years	Over 5 years
31 December 2018					
Borrowings (excluding finance lease liabilities)	$ 9,720	$ 1,908	$ 39	$ 2,723	$ 5,050
Interest payment on total borrowings	5,155	382	357	936	3,480
Trade and other payables	4,442	4,442	—	—	—
Commodity derivatives	15	15	—	—	—
	$ 19,332	$ 6,747	$ 396	$ 3,659	$ 8,530

Fair Value Estimates

The following table summarizes financial assets and liabilities outstanding at 31 December that are measured at fair value on a recurring basis.

Millions of U.S. Dollars	31 December 2019 Notional Amount	31 December 2019 Fair Value	31 December 2018 Notional Amount	31 December 2018 Fair Value
Assets -				
Derivatives designated as hedges:				
Foreign currency	$ —	$ 2	$ —	$ 2
Interest Rates	1,940	63	743	34
Commodities	—	—	472	12
Derivatives not designated as hedges				
Commodities	3	—	35	5
Foreign currency	2,580	244	2,599	144
Non-derivatives:				
Debt securities	162	162	567	567
Equity securities	34	34	322	325
	$ 4,719	$ 505	$ 4,738	$ 1,089
Liabilities -				
Derivatives designated hedges				
Foreign currency	$ 650	$ 44	$ 650	$ 54
Interest Rates	1,700	231	3,900	61
Derivatives not designated hedges:				
Commodities	224	34	67	15
Foreign Currency	500	26	1,465	46
	$ 3,074	$ 335	$ 6,082	$ 176

Commodity derivatives designated as hedges are classified as Level 1. All other financial assets and liabilities in the tables above are classified as Level 2. Equity securities at 31 December 2018, are measured at fair value using the net asset value per share, or its equivalent, and is classified as Level 2 in the fair value hierarchy. As of 31 December 2018, the fair value of commodity derivatives designated as hedges, includes the net of a $60 million derivative asset and a $48 million derivative liability.

Financial Instruments Not Measured at Fair Value on a Recurring Basis—The following table presents the carrying value and estimated fair value of our financial instruments that are not measured at fair value on a recurring basis as of 31 December 2019 and 2018. Due to the short maturity, the fair value of all non-derivative financial instruments included in Current assets and Current liabilities approximates the applicable carrying value and are excluded from the table below. Short-term loans receivable, which represent our repurchase agreements, and current and non-current borrowings are recorded at amortized cost in the Consolidated Statement of Financial Position. The carrying and fair value of current and non-current borrowings exclude finance lease liabilities and commercial paper.

Millions of U.S. Dollars	31 December 2019 Carrying Value	31 December 2019 Fair Value	31 December 2018 Carrying Value	31 December 2018 Fair Value
Non-derivatives:				
Assets:				
Short-term loans receivables	$ —	$ —	$ 544	$ 544
Liabilities:				
Current borrowings	$ 472	$ 507	$ 1,901	$ 1,915
Non-Current borrowings	11,740	12,692	7,662	7,639
Total	$ 12,212	$ 13,199	$ 9,563	$ 9,554

All financial instruments in the table above are classified as Level 2. There were no transfers between Level 1 and Level 2 for any of our financial instruments during the years ended 31 December 2019 and 2018.

5 Revenue

Contract Balances—Contract liabilities were $124 million and $138 million at 31 December 2019 and 2018, respectively. Revenue recognized in each reporting period included in the contract liability balance at the beginning of the period was immaterial.

Disaggregation of Revenues—We participate globally across the petrochemical value chain and are an industry leader in many of our product lines. Our chemical 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, while our plastic products are typically used in large volume applications. Our refining business consists of our Houston refinery, which processes crude oil into refined products such as gasoline, diesel and jet fuel.

Revenues disaggregated by key products are summarized below:

Millions of U.S. dollars	2019	2018
Sales and other operating revenues:		
Olefins & co-products	$ 2,957	$ 3,679
Polyethylene	6,075	7,444
Polypropylene	5,185	5,824
Propylene oxide & derivatives	1,924	2,378
Oxyfuels and related products	3,116	3,399
Intermediate chemicals	2,516	3,568
Compounding and solutions	4,100	3,094
Advanced polymers	750	930
Refined products	7,599	8,221
Other	689	596
Total	$ 34,911	$ 39,133

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

Millions of U.S. dollars	2019	2018
Sales and other operating revenues:		
United States	$ 16,349	$ 18,671
Germany	2,708	2,949
Italy	1,435	1,582
France	1,345	1,460
Mexico	1,634	2,308
Japan	1,039	1,257
China	1,225	1,137
The Netherlands	929	1,050
Other	8,247	8,719
Total	$ 34,911	$ 39,133

Transaction Price Allocated to the Remaining Performance Obligations—We have elected to exclude contracts which have an initial term of one year or less from this disclosure. 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 influence, including volatility in commodity markets, industry production capacities and operating rates, planned and unplanned industry operating interruptions, foreign exchange rates and worldwide geopolitical trends.

6 Expenses by Nature

Millions of U.S. Dollars	Note	2019	2018
Change in inventories of finished goods and work in progress		$ (230)	$ 128
Raw materials and utilities		23,938	26,920
Employee benefit expenses	7	2,803	2,651
Depreciation, amortization, and impairment charges	15	1,685	1,285
Distribution expenses		1,231	1,396
Other expenses		1,496	1,501
Total cost of sales, selling costs, and administration expenses		$ 30,923	$ 33,881

7 Employee Benefit Expenses

Millions of U.S. Dollars	Note	2019	2018
Wages and salaries		$ 2,078	$ 2,025
Social security		335	310
Share-based compensation granted to directors and employees	8	48	39
Pension costs - defined benefit obligations	28	134	111
Pension costs - defined contribution obligations		61	53
Other post-employment benefits - defined benefit obligations	28	14	14
Other employee benefits		133	99
Total cost of employee benefits		$ 2,803	$ 2,651

8 Share-Based Compensation Granted to Directors and Employees

We are authorized to grant restricted stock units, stock options, performance share units, and other cash and stock awards under our Long-Term Incentive Plan ("LTIP"). The Compensation 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 22,000,000 shares. As of 31 December 2019, there were 4,034,158 shares remaining available for issuance assuming maximum payout for performance share units awards.

Our share-based compensation awards, which are subject to customary partial or accelerated vesting or forfeiture in the event of certain termination events, are accounted for as equity awards with compensation cost 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 step-vested awards. When options are exercised and awards are paid out shares are issued from our treasury shares.

Total share-based compensation expense and the associated tax benefits are as follows for the years ended 31 December:

Millions of U.S. Dollars	2019	2018
Compensation expense:		
Restricted stock units	$ 21	$ 15
Stock options	7	7
Performance share units	20	17
	$ 48	$ 39
Tax benefit:		
Restricted stock units	$ 5	$ 4
Stock options	2	2
Performance share units	4	4
	$ 11	$ 10

Restricted Stock Unit Awards ("*RSUs*")—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 holders of RSUs are entitled to nonforfeitable dividend equivalents settled in the form of cash payments. Total dividend equivalent payments for RSUs amounted to $2 million per year for 2019 and 2018, respectively, and are recognized as dividends in Retained earnings.

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 31 December 2019 and 2018 was $87.36 and $108.52, respectively. The total fair value of RSUs vested during 2019 and 2018 was $13 million per year, respectively.

The following table summarizes RSU activity:

	2019		2018	
	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 1 January	462	$ 95.69	377	$ 85.17
Granted	338	87.36	213	108.52
Vested	(147)	86.22	(115)	84.27
Forfeited	(40)	95.67	(13)	101.67
Outstanding at 31 December	613	$ 93.37	462	$ 95.69

As of 31 December 2019, the unrecognized compensation cost related to RSUs was $26 million, which is expected to be recognized over a weighted average period of 2 years.

Stock Option Awards ("Stock Options")—Stock Options allow employees the opportunity in the future to purchase ordinary shares of stock 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).

In 2010, when the majority of our options were granted, we did not possess exercise patterns similar to our situation. The option grants that have been made since 2010 have been limited in number and have occurred during periods of substantial share price volatility. As historical data about employees' exercise behavior is limited, the expected term of all options granted is an estimate based on a weighted average expected option life for the entire participant group. The resulting expected weighted average life of the options granted is the mid-point between the vesting date and the contractual term of the options.

Weighted average fair values of Stock Options granted and the assumptions used in estimating those fair values are as follows:

	31 December	
	2019	2018
Weighted average fair value:	$ 15.76	$ 21.58
Fair value assumptions:		
Dividend yield	4.2%	4.0%
Expected volatility	27.2-28.1%	27.8-29.0%
Risk-free interest rate	1.5-2.6%	2.6-2.9%
Weighted average expected term, in years	6.0	6.0

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 1 January 2018	1,019	82.93	—	—
Granted	336	109.03	—	—
Exercised	(64)	69.36	—	—
Forfeited	(9)	100.91	—	—
Expired	(1)	109.09	—	—
Outstanding at 31 December 2018	1,281	$ 90.30	7.4 years	$ 4
Exercisable at 31 December 2018	557	$ 83.00	6.5 years	$ 3
Outstanding at 1 January 2019	1,281	90.30	—	—
Granted	604	89.78	—	—
Exercised	(18)	70.33	—	—
Forfeited	(64)	94.39	—	—
Expired	(21)	98.82	—	—
Outstanding at 31 December 2019	1,782	$ 90.08	7.3 years	$ 13
Exercisable at 31 December 2019	942	$ 87.25	6.2 years	$ 9

The aggregate intrinsic value of Stock Options exercised during the years ended 31 December 2019 and 2018 was less than $1 million and $3 million, respectively.

As of 31 December 2019, the unrecognized compensation cost related to Stock Options was $6 million, which is expected to be recognized over a two-year period. During 2019, cash received from the exercise of Stock Options was $1 million and the tax benefit associated with these exercises was less than $1 million.

Performance Share Units Awards ("PSUs")—A target number of PSUs are granted to participants at the beginning of each performance period. These awards cliff vest after a three-year performance cycle and are settled in shares of common stock, where the ultimate payout can be between 0% and 200% of the target shares granted. Each unit is equivalent to one share of our common stock.

For PSUs granted beginning in 2017, the final number of shares payable was determined after the performance period based on the relative Total Shareholder Return ("TSR"). TSR is an objective calculation that takes into account our TSR rank within its peer group and whether our specific TSR is positive or negative. The fair value of PSUs is estimated on the grant date using a Monte-Carlo simulation.

For PSUs granted prior to 2017, the final number of shares payable was determined at the end of the performance period by the Compensation Committee based generally on subjective criteria established at the beginning of the performance period. These share awards were treated as liability awards and fair value adjustments were based on the market price of the underlying stock on the date of payment.

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 units for PSUs granted in 2016 are recorded as compensation expense while PSUs granted beginning in 2017 were recorded in Retained earnings.

The weighted average fair value of PSUs granted in each respective year and the assumptions used in the Monte Carlo simulation to estimate those fair value are as follows:

	2019	2018
Weighted average fair value	$ 76.35	$ 89.32
Fair value assumptions:		
Expected volatility of LyondellBasell N.V. common stock	24.11%	27.15%
Expected volatility of peer companies	14.57-40.55%	17.45-42.99%
Average correlation coefficient of peer companies	0.50	0.50
Risk-free interest rate	2.48%	2.40%

The following table summarizes PSU activity, which assumes target payout at 100%:

	Equity Awards				Liability Awards			
	2019		2018		2019		2018	
	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)	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 1 January	430	$ 91.33	224	$ 93.28	349	$ 78.01	532	$ 82.35
Granted	307	76.35	219	89.32	—	—	—	—
Vested	—	—	—	—	(349)	78.01	(175)	90.24
Forfeited	(54)	82.27	(13)	91.36	—	—	(8)	77.92
Outstanding at 31 December	683	$ 85.32	430	$ 91.33	—	$ —	349	$ 78.01

The total fair value of PSUs vested during 2019 and 2018 was $22 million and $25 million, respectively. As of 31 December 2019, the unrecognized compensation cost related to PSUs was $23 million, which is expected to be recognized over a weighted average period of two years.

Employee Stock Purchase Plan

We have an Employee Share Purchase Plan ("ESPP") which includes a 10% discount and a look-back provision. These provisions allow participants to purchase our stock at a 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.

9 Directors' Remuneration

The Company is managed by its Board of Directors consisting of non-executive directors and at least one executive director, including our CEO.

Executive Director Remuneration

Mr. Patel is the sole executive member of our Board of Directors. He receives a base salary, annual bonus, and grants of share-based awards under the Company's Long-Term Incentive Plan. The share-based awards include performance share units, stock options, and restricted stock units. Information on these awards can be found in Note 8, Share-Based Compensation Granted to Directors and Employees.

The following table summarizes the compensation expense recorded in our Financial Statements associated with Mr. Patel for the years ended 31 December 2019 and 2018.

Thousands of U.S. Dollars	Salary	Share-Based Compensation (1)	Short-Term Incentives (2)	Pension Service Cost	All other Compensation (3)	Total
2019	$ 1,575	$ 11,504	$ 2,072	$ 12	$ 435	$ 15,598
2018	1,574	10,328	5,896	13	271	18,082

(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); and (iii) cost discipline. The corporate wide results paid out at 69% of target for 2019 and 180% of target for 2018. For 2019, the Compensation Committee exercised its discretion to reduce Mr. Patel's annual bonus payout due to certain challenges in global projects performance.

(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; Company reimbursement, and gross-up on that reimbursement, of state taxes owed for work performed by Mr. Patel in those states on behalf of the Company; executive physicals; payment of professional fees for tax filings; payment of business club memberships and dues; and financial planning allowances; and the incremental cost of spousal travel, and gross-up on that payment, when Mr. Patel's spouse accompanied him on business travel.

The following tables show the equity compensation activity for Mr. Patel during 2019:

Overview of stock options

Year of Issue	Out-standing at 1 Jan 2019	In 2019 Granted	Exercised	Forfeited/ Expired	Out-standing at 31 Dec 2019	Vested in 2019	Exercise price	Expiration Date
2014	2,418	—	—	—	2,418	—	$ 85.80	20/02/2024
2015	70,211	—	—	—	70,211	—	89.94	17/02/2025
2015	227,058	—	—	—	227,058	56,765	76.15	12/01/2025
2016	101,108	—	—	—	101,108	33,702	77.93	16/02/2026
2017	130,572	—	—	—	130,572	43,524	92.69	16/02/2027
2018	136,656	—	—	—	136,656	45,552	109.09	21/02/2028
2019	—	190,596	—	—	190,596	—	88.50	21/02/2029
Total	668,023	190,596	—	—	858,619	179,543		

Overview of restricted stock units

Year of Issue	Outstanding at 1 Jan 2019	In 2019 Granted	Vested	Forfeited	Outstanding at 31 Dec 2019	Share price at grant date
2015	47,275	—	23,638	—	23,637	$ 76.15
2016	26,066	—	26,066	—	—	77.93
2017	30,344	—	—	—	30,344	92.69
2018	27,071	—	—	—	27,071	109.09
2019	—	34,782	—	—	34,782	88.50
Total	130,756	34,782	49,704	—	115,834	

Overview of performance share units[(1)]

Year of Issue	Outstanding at 1 Jan 2019	In 2019 Granted	Vested	Forfeited	Outstanding at 31 Dec 2019	Share Price at grant date
2016[(2)]	58,599	—	42,192	16,407	—	$ 77.93
2017	60,687	—	—	—	60,687	92.69
2018	54,142	—	—	—	54,142	109.09
2019	—	69,563	—	—	69,563	88.50
Total	173,428	69,563	42,192	16,407	184,392	

(1) The PSUs granted in 2016 include dividend equivalent units in the form of additional PSUs. PSUs granted in 2017, 2018 and 2019 received $11.70, $8.15 and $4.15, respectively, of accumulated and accrued dividend equivalents per outstanding unit which will be converted to additional PSUs at the end of the performance period ending 31 December 2019, 2020 and 2021 as of that date and subject to the same terms and conditions as the original award.

(2) Performance share units that were granted in 2016 were issued in 2019 at less than 100% of the target value.

Non-Executive Director Remuneration

Non-executive members of our Board of Directors receive cash and equity compensation, in the form of restricted stock units, for their service on the Board and its committees. Additionally, Directors can elect to receive the cash component of their compensation in Company shares. The compensation program for our non-executive Directors is shown in the table below.

Annual retainer:	
Cash	$115,000 ($325,000 for Chairman of the Board)
Restricted stock units	Valued at $170,000 ($325,000 for Chairman of the Board)
Committee retainers:	
(excluding Executive Committee)	
Members	$10,000 ($15,000 for Audit Committee)
Chairs	$20,000 ($27,500 for Audit and Compensation Chair)
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 31 December 2019 and 2018.

	2019				2018			
Thousands of U.S. Dollars	Fees Earned or Paid in Cash (1)	Stock Compen-sation (2)	All Other Compen-sation (3)	Total	Fees Earned or Paid in Cash (1)	Stock Compen-sation (2)	All Other Compen-sation (3)	Total
Jacques Aigrain *Chairman of the Board*	$ 341	$ 390	$ 20	$ 751	$ 277	$ 194	$ 10	$ 481
Lincoln Benet	145	170	10	325	145	166	5	316
Jagjeet S. Bindra	150	170	12	332	150	166	27	343
Robin W. T. Buchanan	—	315	—	315	135	166	5	306
Stephen F. Cooper	—	357	2	359	—	309	2	311
Nance K. Dicciani	—	394	2	396	—	315	2	317
Claire S. Farley	—	341	2	343	150	166	17	333
Isabella D. Goren	140	170	22	332	140	166	27	333
Michael Hanley(4)	113	229	19	361	7	13	—	20
Albert Manifold(5)	82	100	5	187	—	—	—	—
Rudy M. J. van der Meer	135	170	14	319	135	166	4	305
Former Director								
Robert G. Gwin (6)	—	—	2	2	196	431	22	649
Bruce A. Smith(7)	—	173	2	175	—	330	2	332

(1) Includes retainers for services earned or paid through 31 December 2019 and 2018. Mr. Buchanan, Mr. Cooper, Ms. Dicciani, Ms. Farley, Mr. Smith and Mr. Hanley each elected to receive all or a portion of the cash component of their 2019 compensation in the form of shares of our stock. For 2018, Mr. Cooper, Mr. Smith, Ms. Dicciani and Mr. Hanley each elected to receive all or a portion of the cash compensation of their 2018 compensation in the form of shares of our stock.

(2) Represents annual grants of RSUs for all directors and shares of stock issued in lieu of cash compensation. The annual grants of RSUs are made in conjunction with the Board's regularly scheduled meeting in May of each year. The RSUs vest one year from the date of grant and are entitled to dividend equivalents settled in the form of cash payments. In 2019, the annual grant for each director, other than Mr. Aigrain and Mr. Manifold, was 2,197 shares. Mr. Aigrain received 4,199 shares as Chairman of the Board, and Mr. Manifold received 2,290 shares as he was elected the day after the Board's regularly scheduled meeting. These awards are the only stock awards outstanding at 2019 fiscal year-end for the non-executive Board members. In 2018, the annual grant for each director, other than Mr. Aigrain. Mr. Gwin, the prior Chairman of the Board, and Mr. Hanley, was 1,517 shares. Mr. Aigrain received an additional pro-rated RSU grant in November 2018, representing additional compensation for his service as Chairman paid retroactive to his assumption of the role of Vice Chair on 1 June 2018. Mr. Aigrain and Mr. Gwin received 3,179 shares and 2,765 shares, respectively. Mr. Hanley received a pro-rata RSU grant of 914 shares upon his appointment to the Board in November 2018. In accordance with *IFRS 2, Share based payments*, the grant date fair value of the awards is the number of shares granted times the fair market

value of our shares on that date. See Note 8 to the Consolidated Financial Statements for the year ended 31 December 2019 for a description accounting for equity-based compensation.

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 2019 were as follows: Mr. Buchanan - 1,632 shares, Mr. Cooper - 1,686 shares, Ms. Dicciani - 2,063 shares, Ms. Farley - 1,927 shares, Mr. Smith - 690 shares and Mr. Hanley - 513 shares. In 2018, the shares issued in lieu of cash compensation were as follows: Mr. Cooper - 1,439 shares, Ms. Dicciani - 1,507 shares, Mr. Smith - 1,657 shares and Mr. Hanley - 68 shares.

(3) Includes $5,000 for each intercontinental trip taken for work performed for the Company. In 2019, Mr. Buchanan, Mr. Cooper, Ms. Dicciani, Ms. Farley, and Mr. Hanley elected to receive all or portion of the cash component of the travel fees in the form of shares of our stock. In 2018, Mr. Cooper, Ms. Dicciani and Mr. Smith elected to receive shares as compensation for their travel fees. Also includes benefits in kind related to tax preparation and advice related to the 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.

(4) Mr. Hanley was appointed to the Board on 30 November 2018.

(5) Mr. Manifold was elected to the Board on 31 May 2019.

(6) Mr. Gwin retired from the Board on 30 November 2018. Pursuant to the terms of his RSU award, the Board exercised its discretion to accelerate the vesting of Mr. Gwin's outstanding RSUs.

(7) Mr. Smith retired from the Board on 31 May 2019.

10 Other (Income) Expense, Net

Millions of U.S. Dollars	2019	2018
(Gains)/losses on financial derivatives	$ (109)	$ (107)
(Gains)/losses on foreign exchange	115	(20)
(Gains)/losses on sale of investment	(5)	(38)
Other	25	(3)
Other (income) expense, net	$ 26	$ (168)

(Gains)/losses on financial derivatives—The amounts reported as losses on financial derivatives in 2019 and 2018 are related to our cross-currency swaps.

(Gains)/losses on sale of investments—In November 2019, we sold our 40% interest in our associate NOC Asia Ltd. and received proceeds of $5 million. The net cash proceeds is reflected in Cash flows from investing activities in the Consolidated Statement of Cash Flows. In connection with the sale, we recognized a gain of $5 million, which is reflected in Other Income.

In October 2018, we received net cash proceeds of $37 million, upon the sale of our wholly owned, carbon black subsidiary in France. The net cash proceeds is reflected in Cash flows from investing activities in the Consolidated Statement of Cash Flows. In connection with the sale, we recognized a gain of $36 million, which is reflected in Other Income.

11 Finance Costs

Millions of U.S. Dollars	2019	2018
Interest expense on borrowings	$ 367	$ 331
Provisions for unwinding of discount	1	1
Foreign exchange (gain) loss from borrowings and cash	(85)	98
Interest expense on leases	68	—
Other	9	6
Total finance costs	$ 360	$ 436

12 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, including primarily the U.S., The Netherlands, Germany, France and Italy.

We monitor income tax developments and the potential impact to our results of operations. In 2017, the U.S. enacted "H.R.1", also known as the “Tax Cuts and Jobs Act” (the "Tax Act") materially impacting our Consolidated Financial Statements by, among other things, the decreasing tax rate, and significantly affecting future periods.

Under the Tax Act, U.S. Treasury was provided expanded regulatory authority. Based on regulations proposed to date, we do not believe there will be further material impact to our financial statements. However, we will continue to analyze the effects of the new law as additional regulations are proposed and finalized.

In prior years, the Company recognized deferred tax liabilities for all taxable temporary differences associated with investments in foreign operations because it concluded it was probable that the taxable temporary differences would reverse in the foreseeable future. In 2019 as a result of the U.S. Section 245A temporary regulations following the Tax Act, 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. Prior to the issuance of the retroactive temporary regulations, the non-U.S. earnings on the permanent reinvestment could have been distributed tax free. In prior years, the Company did not assert permanent reinvestment of our foreign operations. As it is no longer probable that this taxable temporary difference will reverse in the foreseeable future and the Company is able to control the timing of such temporary difference we have not recognized any deferred tax liabilities.

Interest income earned by certain of our European subsidiaries through intercompany financings is either untaxed or taxed at rates substantially lower than the U.S. statutory rate. In 2016, the U.S. Treasury issued final Section 385 debt-equity regulations that impact our internal financings beginning in 2017. In October 2019 the U.S. Treasury announced that it intended to propose modifying these debt-equity regulations, but the scope of such changes is uncertain and new regulations could impact our internal financings in future years. In addition, there has been increased attention, both in the U.S. and globally, to the tax practices of multinational companies, including the European Union’s state aid investigations, proposals by the Organization for Economic Cooperation and Development with respect to base erosion and profit shifting, and European Union tax directives and their implementation. Other than the Tax Act, management does not believe that recent changes in income tax laws will have a material impact on our Consolidated Financial Statements, although new or proposed changes to tax laws could affect our tax liabilities in the future.

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

Millions of U.S. Dollars	Note	2019	2018
Current tax on profits for the year		$ 536	$ 322
Deferred tax - origination and reversal of temporary difference	27	127	249
Income tax expense		$ 663	$ 571

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:

Millions of U.S. Dollars	2019	2018
Profit before tax	$ 3,765	$ 5,223
Tax calculated at domestic tax rates applicable to profits in the respective countries	896	1,275
Tax effects of:		
Exempt income	(200)	(340)
Liquidation loss	(54)	—
Patent box ruling	(65)	—
Uncertain tax positions	38	(366)
Other	48	2
Tax charge	$ 663	$ 571

The weighted average applicable tax rates for 2019 and 2018 were 23.8% and 24.4%, respectively. The decrease was primarily attributable to a change in the geographical mixture of the profit before tax. Our effective income tax rate of 17.6% in 2019 and 10.9% in 2018 resulted in tax provisions of $663 million and $571million, respectively. Compared to 2018, the 2019 effective income tax rate increased primarily due to a reduction of tax exempt income and a favorable impact of an audit settlement impacting specific uncertain tax positions which resulted in a $404 million non-cash benefit to our effective tax rate for 2018.

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

Millions of U.S. Dollars	2019	2018
Current tax:		
Currency translation differences	$ (1)	$ 13
Deferred tax:		
Retirement benefit obligation	(87)	26
Currency translation differences	9	6
Derivatives	(46)	14
Other	—	—
	$ (125)	$ 59

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

Millions of U.S. Dollars	Note	2019	2018
Current tax			
Share-based payments		$ —	$ —
Deferred tax:			
Share-based payments	27	(5)	8
		$ (5)	$ 8

13 Earnings per Share

Basic earnings per share—Basic earnings per share is calculated by dividing the profit attributable to equity holders of the Company by the weighted average number of ordinary shares in issue during the period excluding ordinary shares purchased by the Company and held as treasury shares. The Company has unvested restricted stock units that are considered participating securities for earnings per share.

Millions of U.S. Dollars, except per share data	2019	2018
Profit attributable to LyondellBasell N.V.	$ 3,102	$ 4,652
Dividends on A.Schulman Special Stock	(7)	(2)
Profit attributable to participating securities	(6)	(6)
Profit attributable to equity holders of the Company	3,089	4,644
Basic weighted average common stock outstanding	353	389
Basic earnings per share	$ 8.75	$ 11.94

Diluted earnings per share—Diluted earnings per share is calculated by adjusting the weighted average number of ordinary shares outstanding to assume conversion of all dilutive potential ordinary shares.

Millions of U.S. Dollars, except per share data	2019	2018
Profit attributable to LyondellBasell N.V.	$ 3,102	$ 4,652
Dividends on A.Schulman Special Stock	(7)	(2)
Profit attributable to participating securities	(6)	(6)
Undistributed earnings allocated to non-vested shareholders	—	(5)
Profit attributable to equity holders of the Company	3,089	4,639
Basic weighted average common stock outstanding	353	389
Effect of dilutive securities:		
Stock options	—	—
Dilutive potential shares	353	389
Diluted earnings per share	$ 8.75	$ 11.92
Participating securities	—	—
Interim dividend per share of common stock	$ 4.15	$ 4.00

14 Intangible Assets

Millions of U.S. Dollars	Capitalized Developments Projects	Know-how	Technology Patent and Licenses	Goodwill	Emission Allowances	Customer Relationships	Favorable Contracts and Other Intangibles	Total
Balance at 1 January 2018	$ 95	$ —	$ —	$ 346	$ 318	$ —	$ 204	$ 963
Additions	4	84	104	1,271	13	300	13	1,789
Retirements	—	—	—	—	(9)	—	(2)	(11)
Amortization	(10)	(4)	(7)	—	(65)	(7)	(26)	(119)
Transfers	—	—	—	—	20	—	—	20
Exchange differences	(4)	(1)	(1)	(18)	(1)	(1)	(3)	(29)
At 31 December 2018	$ 85	$ 79	$ 96	$ 1,599	$ 276	$ 292	$ 186	$ 2,613
At 31 December 2018								
Cost	$ 163	$ 83	$ 103	$ 1,599	$ 807	$ 299	$ 616	$ 3,670
Accumulated amortization and impairment	(78)	(4)	(7)	—	(531)	(7)	(430)	$ (1,057)
Closing balance	$ 85	$ 79	$ 96	$ 1,599	$ 276	$ 292	$ 186	$ 2,613
Balance at 1 January 2019	$ 85	$ 79	$ 96	$ 1,599	$ 276	$ 292	$ 186	$ 2,613
Additions	3	—	—	86	82	—	9	180
Retirements	—	—	(9)	—	(13)	—	—	(22)
Amortization	(10)	(12)	(21)	—	(63)	(25)	(32)	(163)
Exchange differences	(2)	1	(1)	(5)	(1)	—	(3)	(11)
Transfers	—	—	—	—	—	—	—	—
At 31 December 2019	$ 76	$ 68	$ 65	$ 1,680	$ 281	$ 267	$ 160	$ 2,597
At 31 December 2019								
Cost	$ 164	$ 84	$ 102	$ 1,680	$ 874	$ 299	$ 580	$ 3,783
Accumulated amortization and impairment	(88)	(16)	(37)	—	(593)	(32)	(420)	(1,186)
Closing balance	$ 76	$ 68	$ 65	$ 1,680	$ 281	$ 267	$ 160	$ 2,597

Research and development—Amortization expense is generally recorded as part of Cost of sales. Research and development expenditures recognized as expense for 2019 and 2018 were $97 million and $99 million, respectively.

Goodwill—On 21 August 2018, we acquired all of the outstanding common stock of A. Schulman Inc., a Delaware corporation for an adjusted aggregate purchase price of $1,933 million. The purchase price was allocated based on the fair value of the acquired assets and liabilities, redeemable non-controlling interests and non-controlling interests assumed. During 2019, we made certain measurement period adjustments resulting in a $86 million increase of goodwill with corresponding adjustments to property, plant and equipment, contingencies and deferred taxes.

Goodwill is allocated and monitored by management into the following groups of cash generating units ("CGU"):

Millions of U.S. Dollars	2019	2018
Intermediates and Derivatives	$ 178	$ 178
Olefins and Polyolefins - Americas	131	131
Olefins and Polyolefins - Europe, Asia, International	24	24
Technology	8	8
Advanced Polymers solutions	1,339	1,258
Total	$ 1,680	$ 1,599

The recoverable amount of a CGU is determined based on value-in-use calculations. These calculations use pre-tax cash flow projections based on management approved 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. Based on this analysis, the recoverable amounts of each of our cash generating units or groups of cash generating units were substantially in excess of their carrying value. Accordingly, no goodwill impairment was recognized in 2019 or 2018.

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

- Gross margin,
- Pre-tax discount rates,
- Market share assumptions, and
- Growth rate used to extrapolate cash flows beyond the budget period.

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.

Pre-tax discount rates—Pre-tax discount rates ("discount rates") represent the current market assessment of the risks specific to each cash generating unit, regarding the time value of money and individual risks of the underlying assets which have not been incorporated in the cash flow estimates. The discount rate calculation is based on the nature of the assets and activities of the Company's business and its operating segments 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 are based on forecasts of demand for our products taking into consideration changes in 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

With regard to the assessment of value in use, management believes that no reasonably possible change in any of the above key assumptions would cause the carrying value to materially exceed its recoverable amount.

The key assumptions used for value-in-use calculations are as follows:

	2019		**2018**	
	Pre-tax Discount Rate	**Growth Rate**	**Pre-tax Discount Rate**	**Growth Rate**
Intermediates and Derivatives	9%	2%	10%	2%
Olefins and Polyolefins - Americas	9%	2%	10%	2%
Olefins and Polyolefins - EAI	9%	2%	11%	2%
Technology	10%	2%	12%	3%
Advanced Polymers Solutions	10%	2%	13%	2%

15 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	Asset Under Construction	Joint Operations	Total
Balance at 1 January 2018	$ 313	$ 6,818	$ 519	$ 874	$ 1,378	$ 2	$ 18	$ 1,422	$ 366	$ 11,710
Additions	60	336	143	—	14	9	2	2,332	125	3,021
Transfers	—	688	38	351	308	1	4	(1,486)	96	—
Disposals	—	(18)	—	—	—	—	—	—	(18)	(36)
Depreciation	—	(538)	(40)	(286)	(234)	—	(10)	—	(46)	(1,154)
Impairment	—	(3)	—	—	—	—	—	—	—	(3)
Exchange differences	(9)	(84)	(78)	(72)	119	(1)	(3)	(12)	4	(136)
At 31 December 2018	$ 364	$ 7,199	$ 582	$ 867	$ 1,585	$ 11	$ 11	$ 2,256	$ 527	$ 13,402
At 31 December 2018										
Cost	$ 364	$ 11,679	$ 924	$ 1,750	$ 2,639	$ 25	$ 60	$ 2,256	$ 951	$ 20,648
Accumulated depreciation and impairment	—	(4,480)	(342)	(883)	(1,054)	(14)	(49)	—	(424)	(7,246)
Closing balance	$ 364	$ 7,199	$ 582	$ 867	$ 1,585	$ 11	$ 11	$ 2,256	$ 527	$ 13,402
Balance at 1 January 2019	$ 364	$ 7,199	$ 582	$ 867	$ 1,585	$ 11	$ 11	$ 2,256	$ 527	$ 13,402
Additions	—	23	—	—	—	—	—	2,896	22	2,941
Transfers	5	1,006	140	222	352	42	9	(1,835)	59	—
Disposals	—	(11)	—	—	(1)	—	(1)	—	—	(13)
Depreciation	—	(561)	(41)	(283)	(244)	—	(6)	—	(45)	(1,180)
Impairment	(1)	(4)	—	—	—	—	—	—	—	(5)
Exchange differences	(8)	(91)	27	(3)	49	(41)	3	(6)	(6)	(76)
At 31 December 2019	$ 360	$ 7,561	$ 708	$ 803	$ 1,741	$ 12	$ 16	$ 3,311	$ 557	$ 15,069
At 31 December 2019										
Cost	$ 360	$ 12,215	$ 1,089	$ 1,866	$ 2,968	$ 26	$ 69	$ 3,311	$ 1,026	$ 22,930
Accumulated depreciation and impairment	—	(4,654)	(381)	(1,063)	(1,227)	(14)	(53)	—	(469)	(7,861)
Closing balance	$ 360	$ 7,561	$ 708	$ 803	$ 1,741	$ 12	$ 16	$ 3,311	$ 557	$ 15,069

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

Millions of U.S. Dollars	2019	2018
Cost of sales	$ 1,605	$ 1,224
Selling costs	37	13
Administrative expenses	43	48
Total	$ 1,685	$ 1,285

16. Leases

We adopted *IFRS 16, Leases* on 1 January 2019. The adoption resulted in a ROU asset and Lease liability of $1,525 million and $1,545 million respectively. For further information related to the adoption of the new standard, see Note 2 to the consolidated financial statements. Below is a reconciliation of the Lease commitments as disclosed at 31 December 2018 to the lease liability as at 1 January 2019:

Millions of U.S. dollars		
Operating lease commitments disclosed as at 31 December 2018	$	2,475
Lease entered into but not yet commenced		(647)
Short-term leases not included in Lease liability		(22)
		1,806
Imputed interest		(261)
Lease liabilities recognized at 1 January 2019	$	1,545

We lease storage tanks, terminal facilities, land, office facilities, railcars, pipelines, barges, plant equipment and other equipment. As of 31 December 2019, our Right-of-use assets were $1,458 million. Lease liabilities totaled $1,507 million of which $275 million are current. These values were derived using a weighted average discount rate of 4.2%.

Our leases have remaining lease terms ranging from less than 1 year to 30 years and have a weighted-average remaining lease term of 7 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 1 January 2019	$ 1,007	$ 230	$ 65	$ 127	$ 53	$ 43	$ 1,525
Additions	146	80	5	11	41	7	290
Depreciation	(177)	(85)	(5)	(28)	(14)	(19)	(328)
Terminations and other	(29)	—	—	—	—	—	(29)
Balance at 31 December 2019	$ 947	$ 225	$ 65	$ 110	$ 80	$ 31	$ 1,458

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 1 January 2019	$	1,545
Cash Flows		(305)
Additions - Leases		290
Other non-cash movements		(23)
Balance as at 31 December 2019	$	1,507

Maturities of Lease liabilities are as follows:

	31 December	
Millions of U.S. dollars	**2019**	
2020	$	329
2021		279
2022		236
2023		201
2024		173
Thereafter		538
Total lease payments		1,756
Less: Imputed interest		(249)
Total	$	1,507

The following table presents the components of Lease cost:

Millions of U.S. dollars	**2019**	
Lease costs		
Amortization of right-of-use assets	$	328
Interest on lease liabilities		68
Short-term lease costs		152
Variable lease costs		61
Net lease costs	$	609

Cash paid for Lease liabilities representing principal payments and interest totaled to $305 million and $64 million, respectively, for the year ended 31 December 2019.

As of 31 December 2019, we have entered into additional finance leases, with an undiscounted value of $539 million, primarily for storage tanks related to our new PO/TBA plant at our facility in Houston, Texas. These leases, which will commence between the first quarter of 2020 and 2022, have lease terms ranging from 2 to 20 years.

17 Investments in Associates and Joint Ventures

The Company does not have any joint ventures or associates that are considered individually material. None of the associates and joint ventures is listed on a stock exchange.

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

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

	31 December			
Millions of U.S. Dollars	**2019**		**2018**	
Associates	$	331	$	328
Joint ventures		872		864
	$	1,203	$	1,192

The amounts recognized on our Consolidated Statement of Income are as follows:

Millions of U.S. Dollars	2019	2018
Associates	$ 8	$ 28
Joint ventures	134	166
	$ 142	$ 194

Associates

The changes in our Associates investments are as follows:

Millions of U.S. Dollars	2019	2018
Opening balance	$ 328	$ 347
Share in profit of associates, net of tax	8	28
Business combinations	—	2
Dividends received	(24)	(32)
Divestitures	—	(11)
Currency exchange differences	19	(6)
Closing balance	$ 331	$ 328

In November 2019, we sold our 40% interest in our associate NOC Asia Ltd. and received proceeds of $5 million.

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 are as follows:

Millions of U.S. Dollars	2019	2018
Opening balance	$ 864	$ 1,017
Classification of Al-Waha Petrochemicals Ltd as joint operation	—	(113)
Share in profit of joint ventures, net of tax	134	166
Dividends received	(133)	(197)
Business combinations	—	14
Purchase of joint ventures	—	17
Currency exchange differences	7	(48)
Other	—	8
Closing balance	$ 872	$ 864

In October 2018, we amended our offtake agreement with Al-Waha Petrochemicals Ltd. that became a joint operation.

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

Principal Subsidiaries

Information about principal subsidiaries at 31 December 2019 is set out in Appendix A.

18 Financial Assets and Liabilities by Category

	2019				2018			
Millions of U.S. Dollars	Financial assets at amortized cost	Assets Held at Fair Value	Deriva-tives Used for Hedging	Total	Financial assets at amortized cost	Assets Held at Fair Value	Deriva-tives Used for Hedging	Total
Financial assets at 31 December								
Trade and other receivables excluding prepayments	$ 3,698	$ —	$ —	$ 3,698	$ 4,638	$ —	$ —	$ 4,638
Derivative financial instruments	—	244	65	309	—	149	48	197
Financial Assets at FVOCI	—	162	—	162		567		567
Financial Assets at FVTPL	—	34	—	34	—	325	—	325
Cash and cash equivalents	939	—	—	939	415	—	—	415
Total	$ 4,637	$ 440	$ 65	$ 5,142	$ 5,053	$ 1,041	$ 48	$ 6,142

	Other Financial Liabilities at Amortized Cost	Liabilities at Fair Value through Profit and Loss	Deriva-tives Used for Hedging	Total	Other Financial Liabilities at Amortized Cost	Liabilities at Fair Value through Profit and Loss	Deriva-tives Used for Hedging	Total
Financial liabilities at 31 December								
Borrowings	$ 12,212	$ —	$ —	$ 12,212	$ 9,563	$ —	$ —	$ 9,563
Lease liabilities	1,507	—	—	1,507	—	—	—	—
Derivative financial instruments	—	60	275	335	—	61	115	176
Trade and other payables	4,109	—	—	4,109	4,442	—	—	4,442
Total	$ 17,828	$ 60	$ 275	$ 18,163	$ 14,005	$ 61	$ 115	$ 14,181

19 Credit Quality of Financial Assets

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. FVOCI investments consist of bonds with counterparties whose credit rating is investment grade and other high-quality instruments. FVTPL investments consists mainly of limited partnership investments, which include investments in, among other things, equities and equity related securities, debt securities, credit instruments, supply chain finance, global interest rate products, currencies, commodities, futures, options, warrants and swaps. These investments are with counterparties whose credit rating is investment grade and other high-quality instruments.

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 have continued 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 largest counterparty risk amounted to $68 million and $95 million at 31 December 2019 and 2018, respectively.

20 Derivative and Other Financial Instruments

	31 December		
Millions of U.S. Dollars	**2019**	**2018**	**Statement of Financial position classification**
Assets			
Derivatives -			
Designated as hedges:			
Commodities	$ —	$ 12	Derivative financial instruments
Foreign currency	2	2	Derivative financial instruments
Interest rates	63	34	Derivative financial instruments
Not designated as hedges:			
Commodities	—	5	Derivative financial instruments
Foreign currency	244	144	Derivative financial instruments
Non-derivatives:			
Debt securities	162	567	Financial assets at fair value through other comprehensive income
Equity securities	34	325	Financial assets at fair value through profit or loss
Total	$ 505	$ 1,089	
Liabilities			
Derivatives -			
Designated as hedges:			
Foreign currency	$ 44	$ 54	Derivative financial instruments
Interest rates	231	61	Derivative financial instruments
Not designated as hedges:			
Commodities	34	15	Derivative financial instruments
Foreign currency	26	46	Derivative financial instruments
Total	$ 335	$ 176	

For further details on derivatives, reference is made to Note 4 Financial Risk Management.

21 Inventories

	31 December	
Millions of U.S. Dollars	**2019**	**2018**
Finished goods	$ 2,505	$ 2,745
Parts and materials	630	597
Raw materials and supplies	1,143	1,126
Total inventories	$ 4,278	$ 4,468

Cost of inventories of $23,708 million and $27,048 million in 2019 and 2018, respectively, has been recognized as expense and included in Cost of sales.

22 Trade and Other Receivables

	31 December	
Millions of U.S. Dollars	**2019**	**2018**
Trade receivables	$ 2,998	$ 3,368
Trade receivables on related parties	121	148
Less: provision for impairment of trade receivables	(18)	(18)
Trade receivables, net	3,101	3,498
Social security and other taxes	187	231
Prepaid expenses	137	158
Repurchase agreements	—	544
Other	410	365
Total	3,835	4,796
Less: non-current portion	(141)	(194)
Current portion	$ 3,694	$ 4,602

The carrying value of the 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 provision for doubtful trade receivables is determined based on aging and reviewed periodically. The creation and release of provisions for impaired receivables have been included in Selling costs in the Consolidated Statement of Income.

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

Millions of U.S. Dollars	**2019**	**2018**
Amounts undue	$ 2,970	$ 3,294
Past due 0-90 days	129	203
Past due 91-180 days	2	1
	$ 3,101	$ 3,498

The aging of the gross trade receivables provided for at 31 December was as follows:

	2019		2018	
Millions of U.S. Dollars	**Gross**	**Provision**	**Gross**	**Provision**
Amounts undue	$ —	$ —	$ —	$ —
Past due 0-90 days	—	—	—	—
Past due 91-180 days	18	18	18	18
	$ 18	$ 18	$ 18	$ 18

At 31 December 2019 and 2018, trade receivables of an initial value of $18 million were impaired and fully provided for. The movement in the provision for doubtful accounts is as follows:

Millions of U.S. Dollars	**2019**	**2018**
Balance, 1 January	$ 18	$ 17
(Write off) additions, net	—	1
Balance, 31 December	$ 18	$ 18

Trade receivables secured by letters of credit were $102 million and $98 million at 31 December 2019 and 2018, respectively. The carrying amounts of trade and other receivables are denominated in the following currencies at 31 December:

Millions of U.S. Dollars	2019	2018
USD	$ 2,523	$ 3,872
EUR	816	483
Other	496	441
	$ 3,835	$ 4,796

For further details on trade receivables, reference is made to Note 4 Financial Risk Management.

23 Cash and Cash Equivalents

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

Millions of U.S. Dollars	2019	2018
Cash at bank and on hand	$ 550	$ 396
Short-term deposits	389	19
	$ 939	$ 415

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.

24 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.

For a breakdown of Equity attributable to equity holders, reference is made to the Consolidated Statement of Changes in Equity. For a detail of the non-distributable reserves, reference is made 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 2019:			
March	$ 1.00	$ 372	4 March 2019
June	1.05	388	10 June 2019
September	1.05	351	4 September 2019
December	1.05	351	2 December 2019
	$ 4.15	$ 1,462	
For the year 2018:			
March	$ 1.00	$ 395	5 March 2018
May	1.00	392	11 June 2018
September	1.00	389	5 September 2018
December	1.00	378	10 December 2018
	$ 4.00	$ 1,554	

In February, May, August, and November 2019, we paid a cash dividend of $15.00 per share to A. Schulman Special Stock shareholders of record as of 15 January 2019, 15 April 2019, 15 July 2019, and 15 October 2019 respectively. In 2019 and 2018, we paid a total of $7 million and $2 million, respectively, related to dividends on A. Schulman Special Stock.

Share Repurchase Authorization—In May 2019, our shareholders approved a proposal to authorize us to repurchase up to 37.0 million of our ordinary shares through 30 November 2020 ("May 2019 Share Repurchase Authorization"), which superseded the remaining authorization under our June 2018 Share Repurchase Authorization.

Upon the completion of the tender offer in July 2019, we repurchased 35.1 million ordinary shares, under the May 2019 Share Repurchase Authorization, at a tender offer price of $88.00 per share for a total of $3,099 million, including $6 million of fees and expenses related to the tender offer. The remaining 1.9 million shares under the May 2019 Share Repurchase Authorization were repurchased from the open market in August 2019.

In September 2019, our shareholders approved a proposal to authorize us to repurchase up to 33.3 million ordinary shares through 12 March 2021 ("September 2019 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.

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

	2019		
	Shares Repurchased	Average Purchase Price	Total Purchase Price, Including Commissions
Millions of U.S. Dollars, except shares and per share amounts			
2018 Share Repurchase Authorization	5,648,900	$ 86.38	$ 488
May 2019 Share Repurchase Authorization	37,032,594	87.50	3,240
	42,681,494	$ 87.35	$ 3,728

	2018		
	Shares Repurchased	Average Purchase Price	Total Purchase Price, Including Commissions
2017 Share Repurchase Authorization	4,004,753	$ 106.05	$ 425
2018 Share Repurchase Authorization	15,215,966	95.49	1,453
	19,220,719	$ 97.69	$ 1,878

Due to the timing of settlements, total cash paid for share repurchases for the years ended 31 December 2019 and 2018 was $3,752 million and $1,854 million, respectively.

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

	31 December	
	2019	2018
Ordinary shares outstanding:		
Beginning balance	375,696,661	394,512,054
Share-based compensation	295,984	307,335
Employee stock purchase plan	165,743	121,398
Purchase of ordinary shares	(42,681,505)	(19,244,126)
Ending balance	333,476,883	375,696,661

During 2019 and 2018, following approval by our management and shareholders, we canceled 60,164,652 and 178,229,883 ordinary shares, respectively, held in our treasury account in accordance with cancellation requirements under Dutch law.

Purchase of ordinary shares during 2019 and 2018 includes 11 shares and 23,407 shares, respectively, that were returned to us at no cost resulting from unclaimed distributions to creditors.

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

	31 December	
	2019	2018
Ordinary shares held as Treasury shares:		
Beginning balance	24,513,619	183,928,109
Share-based compensation	(295,984)	(307,335)
Employee stock purchase plan	(165,743)	(121,398)
Purchase of ordinary shares	42,681,505	19,244,126
Treasury shares canceled	(60,164,652)	(178,229,883)
Ending balance	6,568,745	24,513,619

25 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.

In February 2019, we increased our interest in our subsidiary La Porte Methanol Company, L.P., from 85% to 100%, for cash consideration of $63 million.

26 Borrowings

The carrying amounts of borrowings and the fair value of borrowings as of 31 December are as follows:

	2019		2018	
Millions of U.S. Dollars	**Carrying Value**	**Fair Value**	**Carrying Value**	**Fair Value**
Non-current:				
Senior Notes due 2021, $1,000 million, 6.0%	$ 998	$ 1,062	$ 974	$ 1,056
Senior Notes due 2024, $1,000 million, 5.75%	995	1,126	993	1,069
Senior Notes due 2055, $1,000 million, 4.625%	973	1,072	973	839
Guaranteed Notes due 2022, €750 million 1.875%	841	872	855	881
Guaranteed Notes due 2023, $750 million, 4.0%	744	795	742	750
Guaranteed notes due 2031, €500 million 1.625%	552	581	—	—
Guaranteed Notes due 2026 €500 million, 0.875%	555	566	—	—
Guaranteed Notes due 2027, $300 million, 8.1%	300	385	300	359
Guaranteed Notes due 2027, $1,000 million, 3.5%	1,023	1,050	964	913
Guaranteed Notes due 2043, $750 million, 5.25%	723	896	722	717
Guaranteed Notes due 2044, $1,000 million, 4.875%	980	1,127	980	896
Guaranteed notes due 2049, $1,000 million, 4.2%	975	1,053	—	—
Term Loan due 2022, $4,000 million	1,950	1,976	—	—
Other	131	131	159	159
Total	11,740	12,692	7,662	7,639
Current:				
Senior Notes due 2019, $2,000 million, 5.0%	—	—	988	996
Other	472	507	913	919
Total	472	507	1,901	1,915
Total borrowings	$ 12,212	$ 13,199	$ 9,563	$ 9,554

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 1 January 2018	$ 88	$ 8,619	$ 8,707
Transfer from Non-Current to Current	961	(961)	—
Net Cash Flows	810	(1)	809
Foreign Exchange Adjustments	25	(70)	(45)
Other Non-cash movements	17	75	92
Balance as at 31 December 2018	1,901	7,662	9,563
Net Cash Flows	(1,440)	3,979	2,539
Foreign Exchange Adjustments	12	83	95
Other Non-cash movements	(1)	16	15
Balance as at 31 December 2019	$ 472	$ 11,740	$ 12,212

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 31 December		Year Ended 31 December	
Millions of dollars	Inception Year	2019	2018	2019	2018
Senior Notes due 2019, 5.0%	2014	$ (11)	$ (25)	$ —	$ 11
Senior Notes due 2021, 6.0%	2016	(21)	8	(1)	20
Guaranteed Notes due 2027, 3.5%	2017	(58)	22	(37)	21
Guaranteed Notes due 2022, 1.875%	2018	(1)	(1)	(2)	(1)
Total		$ (91)	$ 4	$ (40)	$ 51

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:

	31 December	
Millions of U.S. Dollars	2019	2018
USD	$ 10,107	$ 8,521
EUR	1950	861
Other	155	181
	$ 12,212	$ 9,563

Long-term Debt

Guaranteed Notes due 2049—In October 2019, LYB International Finance III, LLC ("LYB Finance III"), a wholly owned finance subsidiary of LyondellBasell N.V., as defined in Rule 3-10(b) of Regulation S-X, issued $1,000 million of 4.2% guaranteed notes due 2049 at a discounted price of 98.488%. Net proceeds from the sale of the notes which totaled $974 million were used to repay indebtedness outstanding under our Term Loan due 2020 discussed below.

These unsecured notes, which are fully and unconditionally guaranteed by LyondellBasell N.V., rank equally in right of payment to all of LYB Finance III's existing and future unsecured indebtedness and to all of LyondellBasell N.V.'s existing and future unsubordinated indebtedness. There are no significant restrictions that would impede LyondellBasell N.V., as guarantor, from obtaining funds by dividend or loan from its subsidiaries.

The indenture governing these notes contains 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.

The notes may be redeemed before the date that is six months prior to the scheduled maturity date at a redemption price equal to the greater of 100% of the principal amount of the notes redeemed or the sum of the present values of the remaining scheduled payments of principal and interest (discounted at the applicable treasury yield plus 35 basis points) on the notes to be redeemed. The notes may also be redeemed on or after the date that is six months 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. The notes are also redeemable upon certain tax events.

Three-Year Term Loan due 2022—In March 2019, LYB Americas Finance Company LLC ("LYB Americas Finance"), a wholly owned subsidiary of LyondellBasell N.V., entered into a three-year $4,000 million senior unsecured delayed draw term loan credit facility that matures in March 2022. Proceeds under this credit agreement, which is fully and unconditionally guaranteed by LyondellBasell N.V., were used for general corporate purposes.

In July 2019, we borrowed $1,000 million under this facility to fund a portion of the share repurchase price paid pursuant to a modified Dutch Auction tender offer ("tender offer"). The remainder of the repurchase price was funded with through borrowings of $500 million from our U.S. Receivables Facility, $1,280 million from our commercial paper program and the remainder from operating cash. See Note 24 to the Consolidated Financial Statements for additional information on the tender offer.

In September 2019, we repaid $1000 million with proceeds from the 2026 and 2031 Notes.

In December 2019, we borrowed $1,950 million from this facility to repay amounts outstanding under our commercial paper program and $500 million outstanding under our U.S. Receivables Facility.

Borrowings under the credit agreement bear interest at either a base rate or LIBOR rate, as defined, plus in each case, an applicable margin determined by reference to LyondellBasell N.V.'s current credit ratings.

The credit agreement contains customary representations and warranties and contains certain restrictive covenants regarding, among other things, secured indebtedness, subsidiary indebtedness, mergers and sales of assets. In addition, we are required to maintain a leverage ratio at the end of every fiscal quarter of 3.50 to 1.00, or less, for the period covering the most recent four quarters.

Borrowings under the credit agreement were available through 31 December 2019, subsequent to which no further borrowings may be made under the agreement.

Guaranteed Notes due 2026 and 2031—In September 2019, LYB International Finance II B.V. ("LYB Finance II"), a wholly owned finance subsidiary of LyondellBasell N.V., as defined in Rule 3-10(b) of Regulation S-X, issued €500 million of 0.875% guaranteed notes due 2026 (the "2026 Notes") at a discounted price of 99.642%, and €500 million of 1.625% guaranteed notes due 2031 (the "2031 Notes") at a discounted price of 98.924%. In September 2019, we used the net proceeds from the sale of the notes to repay $1,000 million of indebtedness outstanding under the $4,000 million three-year Term Loan due 2022 and a portion of borrowings from our commercial paper program.

These unsecured notes, which are fully and unconditionally guaranteed by LyondellBasell N.V., rank equally in right of payment to all of LYB Finance II's existing and future unsecured indebtedness and to all of LyondellBasell N.V.'s existing and future unsubordinated indebtedness. There are no significant restrictions that would impede LyondellBasell N.V., as guarantor, from obtaining funds by dividend or loan from its subsidiaries.

The indenture governing these notes contains 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.

The notes may be redeemed before the date that is three months prior to the scheduled maturity date at a redemption price equal to the greater of 100% of the principal amount of the notes redeemed and the sum of the present values of the remaining scheduled payments of principal and interest (discounted at the applicable comparable government bond rate plus 30 basis points in the case of the 2026 Notes and 35 basis points in the case of the 2031 Notes) on the notes to be redeemed. The notes may also be redeemed on or after the date that is three months 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 accrued and unpaid interest. The notes are also redeemable upon certain tax events.

Guaranteed Notes due 2027—In March 2017, LYB Finance II issued $1,000 million of 3.5% guaranteed notes due 2027 at a discounted price of 98.968%. In March 2017, the net proceeds from these notes, together with available cash, were used to redeem $1,000 million aggregate principal amount of our outstanding 5% senior notes due 2019.

These unsecured notes, which are fully and unconditionally guaranteed by LyondellBasell Industries N.V., rank equally in right of payment to all of LYB Finance II'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.

The indenture governing these notes contains 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.

The notes may be redeemed before the date that is three months prior to the scheduled maturity date at a redemption price equal to the greater of 100% of the principal amount of the notes redeemed and the sum of the present values of the remaining scheduled payments of principal and interest (discounted at the applicable treasury yield plus 20 basis points) on the notes to be redeemed. The notes may also be redeemed on or after the date that is three months 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 accrued and unpaid interest.

Senior Notes due 2019-—In February 2019, proceeds from the 364-day term loan due 2020 were used to redeem the remaining $1,000 million outstanding of our 5% Senior Notes due 2019 at par. In conjunction with the redemption of these notes, we recognized non-cash charges of less than $1 million for unamortized debt issuance costs and $8 million for the write-off of the cumulative fair value hedge accounting adjustment related to the redeemed notes.

Senior Notes due 2021 and 2024—We have outstanding $1,000 million of 6% senior notes due 2021 and $1,000 million aggregate principal amount of 5.75% senior notes due 2024.

The indentures governing the 5.75% and 6% Senior Notes contain limited covenants, including those restricting our ability and the ability of our subsidiaries to incur indebtedness secured by any property or assets, enter into certain sale and lease-back transactions with respect to any assets or enter into consolidations, mergers or sales of all or substantially all of our assets.

These notes may be redeemed and repaid, in whole or in part, at any time and 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.

Guaranteed Notes due 2022—In March 2016, LYB Finance II issued €750 million of 1.875% guaranteed notes due 2022 at a discounted price of 99.607%.

These unsecured notes, which are fully and unconditionally guaranteed by LyondellBasell N.V., rank equally in right of payment to all of LYB Finance II's existing and future unsecured indebtedness and to all of LyondellBasell N.V.'s existing and future unsubordinated indebtedness. There are no significant restrictions that would impede LyondellBasell N.V., as guarantor, from obtaining funds by dividend or loan from its subsidiaries.

The indenture governing these notes contains 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.

The notes may be redeemed before the date that is three months prior to the scheduled maturity date at a redemption price equal to the greater of 100% of the principal amount of the notes redeemed and the sum of the present values of the remaining scheduled payments of principal and interest (discounted at the applicable comparable government bond rate plus 35 basis points) on the notes to be redeemed. The notes may also be redeemed on or after the date that is three months 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 accrued and unpaid interest. The notes are also redeemable upon certain tax events.

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%. These unsecured notes rank equally in right of payment to all of LyondellBasell N.V.'s existing and future unsubordinated indebtedness.

The indenture governing these notes contains 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.

The notes may be redeemed before the date that is six months prior to the scheduled maturity date at a redemption price equal to the greater of 100% of the principal amount of the notes redeemed and the sum of the present values of the remaining scheduled payments of principal and interest (discounted at the applicable Treasury Yield plus 35 basis points) on the notes to be redeemed. The notes may also be redeemed on or after the date that is six months 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.

Guaranteed Notes due 2044—In February 2014, LYB International Finance B.V. ("LYB Finance"), a wholly owned finance subsidiary of LyondellBasell N.V., as defined in Rule 3-10(b) of Regulation S-X, issued $1,000 million of 4.875% guaranteed notes due 2044 at a discounted price of 98.831%.

These unsecured notes, which are fully and unconditionally guaranteed by LyondellBasell N.V., rank equally in right of payment to all of LYB Finance's existing and future unsecured indebtedness and to all of LyondellBasell's existing and future unsubordinated indebtedness. There are no significant restrictions that would impede the Guarantor from obtaining funds by dividend or loan from its subsidiaries. Subsidiaries are generally prohibited from entering into arrangements that would limit their ability to make dividends to or enter into loans with the Guarantor.

The indenture governing these notes contains 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.

The notes may be redeemed before the date that is six months prior to the scheduled maturity date at a redemption price equal to the greater of 100% of the principal amount of the notes redeemed and the sum of the present values of the remaining scheduled payments of principal and interest (discounted at the applicable treasury yield plus 20 basis points) on the notes to be redeemed. The notes may also be redeemed on or after the date that is six months 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.

Guaranteed Notes due 2023 and 2043—In July 2013, LYB Finance issued $750 million of 4% guaranteed notes due 2023 and $750 million of 5.25% guaranteed notes due 2043 at discounted prices of 98.678% and 97.004%, respectively.

These unsecured notes, which are fully and unconditionally guaranteed by LyondellBasell N.V., rank equally in right of payment to all of LYB Finance's existing and future unsecured indebtedness and to all of LyondellBasell's existing and future unsubordinated indebtedness. There are no significant restrictions that would impede the Guarantor from obtaining funds by dividend or loan from its subsidiaries. Subsidiaries are generally prohibited from entering into arrangements that would limit their ability to make dividends to or enter into loans with the Guarantor.

The indenture governing these notes contains 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.

The notes may be redeemed and repaid, in whole or in part, at any time and from time to time prior to maturity at a redemption price equal to the greater of 100% of the principal amount of the notes redeemed, and the sum of the present values of the remaining scheduled payments of principal and interest on the notes to be redeemed. Such interest will be discounted to the date of redemption on a semi-annual basis at the applicable treasury yield plus 25 basis points in the case of the 4% Notes due 2023 and plus 30 basis points in the case of the 5.25% Notes due 2043.

Guaranteed Notes due 2027, $300 million—We have outstanding $300 million aggregate principal amount of 8.1% Guaranteed Notes due 2027. These notes, which are guaranteed by LyondellBasell Industries Holdings B.V., a subsidiary of LyondellBasell 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.

The 2027 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 N.V. subsidiaries.

Short-term Debt

Term Loan due 2020—In February 2019, LYB Americas Finance entered into a 364-day, $2,000 million senior unsecured term loan credit agreement and borrowed the entire amount. The proceeds of this term loan, which was fully and unconditionally guaranteed by LyondellBasell N.V. were used for general corporate purposes, including the repayment of debt. In October 2019, we repaid the $2,000 million of indebtedness outstanding under this term loan using $974 million net proceeds from the sale of the Guaranteed Notes due 2049, $726 million of borrowings of commercial paper and the remainder from operating cash. This repayment terminated our commitment under the credit agreement.

Senior Revolving Credit Facility—Our $2,500 million senior revolving credit facility which expires June 2022 may be used for dollar and euro denominated borrowings, has a $500 million sublimit for dollar and euro denominated letters of credit, a $1,000 million uncommitted accordion feature, and supports our commercial paper program. The aggregate balance of outstanding borrowings, including amounts outstanding under our commercial paper program, and letters of credit under this facility may not exceed $2,500 million at any given time. Borrowings under the facility bear interest at either a base rate or LIBOR rate, plus an applicable margin. Additional fees are incurred for the average daily unused commitments. At 31 December 2019, we had no borrowings or letters of credit outstanding under this facility.

The facility contains customary covenants and warranties, including specified restrictions on indebtedness and liens. In addition, we are required to maintain a leverage ratio at the end of every fiscal quarter of 3.50 to 1.00 or less for the period covering the most recent four quarters. We are in compliance with these covenants as of 31 December 2019.

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 $2,500 million Senior Revolving Credit Facility. Proceeds from the issuance of commercial paper may be used for general corporate purposes, including dividends and share repurchases. Interest rates on the commercial paper outstanding at 31 December 2019 are based on the terms of the notes and range from 1.87% to 1.99%. At 31 December 2019, we had $262 million of outstanding commercial paper.

U.S. Receivables Facility—In July 2018, we amended our $900 million U.S. Receivables Facility to, among other things, extend the term of the facility to July 2021. The facility 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 Balance Sheets. We are responsible for servicing the receivables. We pay variable interest rates on our secured borrowings. 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. 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. We are required to maintain a leverage ratio at the end of every fiscal quarter of 3.50 to 1.00, or less, for the period covering the most recent four quarters. Performance obligations under the facility are guaranteed by LyondellBasell N.V. Additional fees are incurred for the average daily unused commitments. At 31 December 2019, there were no borrowings or letters of credit outstanding under the facility.

Precious Metal Financings—We enter into lease agreements for precious metals which are used in our production processes. All precious metal borrowings are classified as short-term debt.

Additional Information

Debt Discount and Issuance Costs—Amortization of debt discount and debt issuance costs resulted in amortization expense of $11 million and $14 million for the years ended 31 December 2019 and 2018, respectively, which is included in Finance costs in the Consolidated Statement of Income.

Other Information—LYB International Finance B.V., LYB International Finance II B.V. and LYB International Finance III, LLC are direct, 100% owned finance subsidiaries of LyondellBasell N.V., as defined in Rule 3-10(b) of Regulation S-X. Any debt securities issued by LYB International Finance B.V., LYB International Finance II B.V. and LYB International Finance III, LLC will be fully and unconditionally guaranteed by LyondellBasell N.V.

As of 31 December 2019, we are in compliance with our debt covenants.

27 Deferred Income Tax

The gross movement in the deferred income tax account is as follows:

Millions of U.S. Dollars	Note	2019	2018
Opening balance at 1 January		$ 1,956	$ 1,560
Income statement charge	12	127	249
Tax charge/(credit) relating to components of other comprehensive income	12	(124)	46
Tax charge/(credit) directly relating to equity	12	(5)	8
Tax charge/(credit) relating to reclass from deferred tax liabilities		(50)	102
Currency translation adjustment		(4)	(9)
Deferred tax liabilities, net		$ 1,900	$ 1,956

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. The 2018 impact of A. Schulman are included in the various components of deferred income taxes.

Millions of U.S. Dollars	Retirement Benefit Obligation	Tax Attributes	Other	Total
Deferred income tax assets:				
Balance at 1 January 2018	$ 346	$ 100	$ 102	$ 548
(Charged)/credited to the income statement	8	(89)	3	(78)
(Charged)/credited to other comprehensive income	(26)	—	(20)	(46)
(Charged)/credited to equity	(8)	—	—	(8)
(Charged)/credited for deferred tax liabilities and current tax liabilities reclassification	36	53	6	95
Currency translation adjustment	(8)	(3)	(1)	(12)
Balance at 31 December 2018	$ 348	$ 61	$ 90	$ 499
Reclassification				(434)
Net deferred taxes				$ 65
Balance at 1 January 2019	$ 348	$ 61	$ 90	$ 499
(Charged)/credited to the income statement	(13)	16	30	33
(Charged)/credited to other comprehensive income	87	—	37	124
(Charged)/credited for deferred tax liabilities and current tax liabilities reclassification	1	7	(50)	(42)
Currency translation adjustment	(3)	(1)	—	(4)
Balance at 31 December 2019	$ 420	$ 83	$ 107	$ 610
Reclassification				(529)
Net deferred taxes				$ 81

Millions of U.S. Dollars	Intangible Assets	Accelerated Tax Depreciation	Inventory	Other	Total
Deferred income tax liabilities					
Balance at 1 January 2018	$ 63	$ 1,544	$ 242	$ 259	$ 2,108
Charged/(credited) to the Income statement	(29)	169	(4)	35	171
Reclass (to)/from deferred tax assets	132	140	7	(82)	197
Currency translation adjustment	—	(19)	(2)	—	(21)
Balance at 31 December 2018	$ 166	$ 1,834	$ 243	$ 212	$ 2,455
Reclassification					(434)
Net deferred taxes					$ 2,021
Balance at 1 January 2019	$ 166	$ 1,834	$ 243	$ 212	$ 2,455
Charged/(credited) to the income statement	(31)	189	(42)	44	160
(Charged)/credited to equity	—	—	—	(5)	(5)
Reclass (to)/from deferred tax assets	—	83	9	(184)	(92)
Currency translation adjustment	—	(7)	(1)	—	(8)
Balance at 31 December 2019	$ 135	$ 2,099	$ 209	$ 67	$ 2,510
Reclassification					(529)
Net deferred taxes					$ 1,981

At 31 December 2019 and 2018, we had realizable tax attributes available in the amount of $360 million and $209 million, respectively, for which a deferred tax asset was recognized at 31 December 2019 and 2018 of $83 million and $61 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, management considers 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 $85 million and $119 million with respect to tax attributes amounting to $516 million and $729 million for the years ended 31 December 2019 and 2018, respectively, which can be carried forward against future taxable income.

The expiration periods of tax attributes for which no deferred tax assets are recognized as of 31 December 2019 are as follows:

Millions of U.S. Dollars	Gross Tax Attributes	Deferred Tax on Tax Losses
In 2020	$ 1	$ —
In 2021	1	—
In 2022	1	—
In 2023	2	—
In 2024	1	—
Thereafter	191	15
Indefinite	319	70
	$ 516	$ 85

As of 31 December 2019 and 2018, deferred taxes of $95 million and $96 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 31 December 2019 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 no longer 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.

28 Retirement Benefit Obligations

Millions of U.S. Dollars	Note	2019	2018
Asset in the Consolidated Statement of Financial Position:			
Defined benefit pension plans		$ 10	$ 25
Liabilities in the Consolidated Statement of Financial Position:			
Defined benefit pension plans		1,331	1,052
Other post-employment benefit plans		330	293
Total liabilities		1,661	1,345
Net defined benefit liabilities		$ 1,651	$ 1,320
Income statement charge:			
Defined benefit pension plans	7	$ 134	$ 111
Other post-employment benefit plans	7	14	14
Total charges		$ 148	$ 125
Remeasurements recognized in the Consolidated Statement of Other Comprehensive Income (loss) in the period (before tax):			
Defined benefit pension plans		$ 271	$ 55
Other post-employment benefit plans		37	49
Total recognized in Other Comprehensive Income in the period		$ 308	$ 104

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 31 December 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:

	31 December	
Millions of U.S. Dollars	**2019**	**2018**
Present value of benefit obligations	$ (3,957)	$ (3,390)
Fair value of plan assets	2,648	2,377
Deficit of defined benefit pension plans	(1,309)	(1,013)
Effect of asset limitation and minimum funding requirement	(12)	(14)
Net liability	$ (1,321)	$ (1,027)

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**	**Effect of asset limitation and minimum funding requirement**	**Total**
At 1 January 2018	$ 3,435	$ (2,487)	$ 948	$ 14	$ 962
Current service cost	75	—	75	—	75
Past service cost	4	—	4	—	4
Interest expense (income)	92	(61)	31	—	31
	171	(61)	110	—	110
Remeasurements:					
- Return on plan assets (excluding interest income)	—	87	87	—	87
- Effect of changes in demographic assumptions	(13)	—	(13)	—	(13)
- Effect of changes in financial assumptions	(124)	—	(124)	—	(124)
- Effect of changes in experience adjustments	(5)	—	(5)	—	(5)
- Effect of business combinations/divestitures/ transfers	195	—	195	—	195
	53	87	140	—	140
Exchange differences	(80)	44	(36)	—	(36)
Contributions:					
- Employers	—	(101)	(101)	—	(101)
- Plan participants	1	(1)	—	—	—
Payments from plans:					
- Benefit payments	(190)	190	—	—	—
- Settlement payments	—	—	—	—	—
Effect of business combinations	—	(48)	(48)	—	(48)
At 31 December 2018	$ 3,390	$ (2,377)	$ 1,013	$ 14	$ 1,027

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 1 January 2019	$ 3,390	$ (2,377)	$ 1,013	$ 14	$ 1,027
Current service cost	79	—	79	—	79
Past service cost	23	—	23	—	23
Interest expense (income)	102	(75)	27	1	28
	204	(75)	129	1	130
Remeasurements:					
- Return on plan assets (excluding interest income)	—	(295)	(295)	—	(295)
- Effect of changes in demographic assumptions	(18)	—	(18)	—	(18)
- Effect of changes in financial assumptions	577	—	577	—	577
- Effect of changes in experience adjustments	15	—	15	—	15
- Effect of changes in asset ceiling	—	—	—	(4)	(4)
	574	(295)	279	(4)	275
Exchange differences	(13)	(2)	(15)	1	(14)
Contributions:					
- Employers	—	(97)	(97)	—	(97)
- Plan participants	1	(1)	—	—	—
Payments from plans:					
- Benefit payments	(199)	199	—	—	—
- Settlement payments	—	—	—	—	—
At 31 December 2019	$ 3,957	$ (2,648)	$ 1,309	$ 12	$ 1,321

The defined benefit obligation and plan assets are composed by country as follows:

	2019							
Millions of U.S. Dollars	U.S.	Canada	France	Germany	Netherlands	U.K.	Other	Total
Present value of obligation	$ 1,965	$ 88	$ 198	$ 671	$ 750	$ 243	$ 42	$ 3,957
Fair value of plan assets	(1,637)	(100)	(8)	—	(657)	(235)	(11)	(2,648)
Effect of asset limitation and minimum funding requirement	—	12	—	—	—	—	—	12
Total	$ 328	$ —	$ 190	$ 671	$ 93	$ 8	$ 31	$ 1,321

	2018							
Millions of U.S. Dollars	U.S.	Canada	France	Germany	Netherlands	U.K.	Other	Total
Present value of obligation	$ 1,751	$ 80	$ 158	$ 566	$ 593	$ 202	$ 40	$ 3,390
Fair value of plan assets	(1,548)	(94)	(13)	—	(505)	(207)	(10)	(2,377)
Effect of asset limitation and minimum funding requirement	—	14	—	—	—	—	—	14
Total	$ 203	$ —	$ 145	$ 566	$ 88	$ (5)	$ 30	$ 1,027

As of 31 December 2019, the present value of the defined benefit obligation was comprised of approximately $1,891 million relating to active employees, $638 million relating to vested deferred members and $1,428 million relating to members in retirement. As of 31 December 2018, the present value of the defined benefit obligation was comprised of approximately $1,582 million relating to active employees, $543 million relating to vested deferred members and $1,265 million relating to members in retirement.

The expected contributions to be paid to the defined benefit pension plans and the multi-employer plan during 2020 are $117 million and $8 million, respectively.

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 or other oversight bodies actively monitor investment results.

The actual return on plan assets was a gain of $370 million (loss of $26 million in 2018).

The major categories of plan assets as a percentage of total plan assets are:

	2019	2018
Equity securities	25%	27%
Fixed income securities	25%	25%
U.S. government securities	6%	6%
Alternatives [(a)]	17%	19%
Insurance arrangements	27%	23%

[(a)] Include investments in real estate, hedge funds, private equity and insurance annuity contracts.

The plan assets are summarized as follows at 31 December:

	2019			2018		
Millions of U.S. Dollars	Quoted	Unquoted	Total	Quoted	Unquoted	Total
Common and preferred stock						
Domestic	$ 177	$ —	$ 177	$ 169	$ —	$ 169
International	161	—	161	162	—	162
Fixed income securities						
Corporate bonds	202	—	202	189	—	189
Municipal bonds	11	—	11	12	—	12
Foreign government issued bonds	5	—	5	3	—	3
Commingled funds						
Domestic equity	168	—	168	145	—	145
International equity	175	—	175	180	—	180
Fixed income	435	—	435	384	—	384
Real estate	—	106	106	—	107	107
Hedge funds	—	219	219	—	241	241
Private equity	—	130	130	—	108	108
U.S. government securities						
U.S. Treasury securities	149	—	149	133	—	133
Cash and cash equivalents	36	—	36	28	—	28
Insurance arrangements	—	722	722	—	570	570
Total Pension Assets	$ 1,519	$ 1,177	$ 2,696	$ 1,405	$ 1,026	$ 2,431

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 Netherlands Defined Benefits pension plans have investments in a pooled asset portfolio which is treated as a nonparticipating insurance contract. The associated plan assets of $629 million underlying the insurance arrangement at 31 December 2019 are measured using the vested benefit obligation.

The weighted average assumptions used to determine benefit obligations were as follows:

	2019	2018
Discount rate	2.07%	3.30%
Rate of salary increase	3.59%	3.60%
Rate of price inflation	2.27%	2.30%
Rate of pension increase	1.77%	2.00%

The weighted average assumptions used to determine net pension cost were as follows:

	2019	2018
Discount rate	3.30%	3.01%
Rate of salary increase	3.60%	3.27%
Rate of price inflation	2.30%	2.30%
Rate of pension increase	2.00%	1.91%

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 2019	Change %	Effects on benefit obligations in 2018	Change %
Present value of obligations	$ 3,957		$ 3,390	
Discount rate increases by 50 basis points	(267)	(6.8)%	(211)	(6.2)%
Discount rate decreases by 50 basis points	308	7.8 %	239	7.1 %

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.

Multi-employer Plan—The Company participates in a multi-employer pension arrangement Pensionskasse der BASF WaG V.VaG (Pensionskasse), which provides for benefits to the majority of our employees in Germany. The plan provides fixed, monthly retirement payments on the basis of the credits earned by the participating employees. The Company-specific plan information for the Pensionskasse is not publicly available and the plan is not subject to a collective-bargaining agreement. Up to a certain salary level, the benefit obligations are covered by contributions of the Company and the employees to the Pensionskasse. To the extent that the Pensionskasse is underfunded or for benefits owed but not subject to the Pensionskasse arrangement, the Company's future contributions to the plan or payments to retirees may increase. To the extent that benefit obligations under the plan are funded by Pensionskasse, the related Company contributions are expensed as incurred. The amounts accrued for expected future benefits payable which are not funded by Pensionskasse was $79 million and $64 million at 31 December 2019 and 2018, respectively. The re-measurements recognized in the Consolidated Statement of Other Comprehensive Income are a loss of $16 million and $10 million at 31 December 2019 and 2018, respectively.

The amounts recognized in the Consolidated Statement of Income are as follows:

	31 December	
Millions of U.S. Dollars	2019	2018
Company contributions to Pensionskasse	$ 8	$ 8

Other post-employment benefits plans

The amounts recognized in the Consolidated Statement of Financial Position are determined as follows:

	31 December	
Millions of U.S. Dollars	2019	2018
Present value of benefit obligations	$ 330	$ 293
Fair value of plan assets	—	—
Net liability	$ 330	$ 293

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 1 January 2018	$ 342	$ —	$ 342
Current service cost	4	—	4
Interest expense	10	—	10
	14	—	14
Remeasurements:			
- Effect of changes in demographic assumptions	(30)	—	(30)
- Effect of changes in financial assumptions	(17)	—	(17)
- Effect of changes in experience adjustments	(2)	—	(2)
	(49)	—	(49)
Exchange differences	(2)	—	(2)
Contributions:			
- Employers	—	(21)	(21)
- Plan participants	6	(6)	—
Payments from plans:			
- Benefit payments	(27)	27	—
Effects of business combination	9	—	9
At 31 December 2018	$ 293	$ —	$ 293

Millions of U.S. Dollars	Present value of obligation	Fair value of plan assets	Total
At 1 January 2019	$ 293	$ —	$ 293
Current service cost	3	—	3
Interest expense	11	—	11
	14	—	14
Remeasurements:			
- Effect of changes in demographic assumptions	(4)	—	(4)
- Effect of changes in financial assumptions	50	—	50
- Effect of changes in experience adjustments	(9)	—	(9)
	37	—	37
Exchange differences	—	—	—
Contributions:			
- Employers	—	(14)	(14)
- Plan participants	6	(6)	—
Payments from plans:			
- Benefit payments	(20)	20	—
At 31 December 2019	$ 330	$ —	$ 330

The weighted average assumptions used to determine benefit obligations were as follows:

	2019	2018
Discount rate	2.66%	4.03%
Rate of salary increase	4.50%	4.50%
Rate of price inflation	1.80%	1.80%

The weighted average assumptions used to determine net benefit cost were as follows:

	2019	2018
Discount rate	4.03%	3.44%
Rate of salary increase	4.50%	4.00%
Rate of price inflation	1.80%	1.70%

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 2019	Change %	Effects on benefit obligations in 2018	Change %
Present value of obligations	$ 330		$ 293	
Discount rate increases by 50 basis points	(22)	(6.7)%	(18)	(6.1)%
Discount rate decreases by 50 basis points	26	7.9 %	19	6.5 %

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 14.3 years and 14.4 years, respectively.

As of 31 December 2019, 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	2019	2020	2021	2022	2023	Thereafter	Total
Defined benefit pension plans	$ 204	$ 202	$ 204	$ 206	$ 207	$ 1,015	$ 2,038
Other post-employment benefit plans	18	19	19	19	18	89	182
Total	$ 222	$ 221	$ 223	$ 225	$ 225	$ 1,104	$ 2,220

29 Trade and Other Payables

Millions of U.S. Dollars	31 December 2019	31 December 2018
Trade payables	$ 2,516	$ 2,560
Amounts due to related parties	412	527
Social securities and other taxes	27	29
Accrued expenses	1,154	1,326
	$ 4,109	$ 4,442

30 Provisions

Millions of U.S. Dollars	Asset Retirement Obligation	Environmental	Restructuring	Other	Total
Balance at 1 January 2018	$ 73	$ 102	$ 26	$ 35	$ 236
Charged/(credited) to the income statement:					
Additional provisions	—	—	21	7	28
Unused amounts reversed	—	—	—	(1)	(1)
Unwinding of discount	—	—	—	—	—
Changes in estimate	2	4	—	—	6
Used during the period	(2)	(13)	(26)	(10)	(51)
Exchange differences	(3)	(3)	(1)	(1)	(8)
Other	1	—	—	—	1
At 31 December 2018	$ 71	$ 90	$ 20	$ 30	$ 211
Of which:					
Non-current	$ 62	$ 80	$ 6	$ 21	$ 169
Current	9	10	14	9	42
Closing balance	$ 71	$ 90	$ 20	$ 30	$ 211
Balance at 1 January 2019	$ 71	$ 90	$ 20	$ 30	$ 211
Charged/(credited) to the income statement:					
Additional provisions	—	44	30	5	79
Unused amounts reversed	—	—	—	—	—
Unwinding of discount	—	—	—	—	—
Changes in estimate	7	15	—	2	24
Used during the period	—	(16)	(17)	(8)	(41)
Exchange differences	(1)	(1)	—	—	(2)
Other	—	—	—	—	—
At 31 December 2019	$ 77	$ 132	$ 33	$ 29	$ 271
Of which:					
Non-current	$ 62	$ 115	$ 5	$ 19	$ 201
Current	15	17	28	10	70
Closing balance	$ 77	$ 132	$ 33	$ 29	$ 271

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.

Environmental Remediation—Our accrued liability for future environmental remediation costs at current and former plant sites and other remediation sites totaled $132 million and $90 million as of 31 December 2019 and 2018, respectively. At 31 December 2019, the accrued liabilities for individual sites range from less than $1 million to $17 million. The remediation expenditures are expected to occur over a number of years, and 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.

Additional provisions recognized during the year ended 31 December 2019 are primarily associated with our acquisition of A. Schulman in August 2018.

31 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 31 December 2019, 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 financial statements taken as a whole.

Commitments

Purchase commitments—We have various purchase commitments for materials, supplies and services incident to the ordinary conduct of business, generally for quantities required for our businesses and at prevailing market prices. These commitments are designed to assure sources of supply and are not expected to be in excess of normal requirements. As of 31 December 2019, we had capital expenditure commitments which we incurred in our normal course of business, including commitments of approximately $449 million primarily related to building our new PO/TBA plant on the Texas Gulf Coast.

The aggregate future estimated purchase obligations are as follows:

	As of 31 December 2019	
	Purchase Obligation	
Millions of U.S. Dollars	**Joint Ventures**	**Consolidated Entities**
No later than 1 year	$ 481	$ 8,431
Later than 1 year and no later than 5 years	1,983	15,010
Later than 5 years	501	12,857
Total	$ 2,965	$ 36,298

	As of 31 December 2018		
	Purchase Obligation		
Millions of U.S. Dollars	Joint Ventures	Consolidated Entities	Operating Leases
No later than 1 year	$ 589	$ 7,101	$ 365
Later than 1 year and no later than 5 years	2,201	10,392	984
Later than 5 years	910	6,922	1,126
Total	$ 3,700	$ 24,415	$ 2,475

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 difficulty in obtaining the required financial assurance instruments for our current operations.

32 Related Parties

The Company has related party transactions with its associates and joint ventures. These related party transactions include the sales and purchases of goods in the normal course of business as well as certain financing arrangements and are at arm's length basis. In addition, under contractual arrangements with certain of the Company's equity investees, we receive certain services, utilities and materials at some of our manufacturing sites and we provide certain services to our associates and joint ventures.

We have guaranteed €19 million ($21 million) of the indebtedness of one of our joint ventures as of 31 December 2019.

The related party transactions are summarized as follows:

	31 December	
Millions of U.S. Dollars	2019	2018
The Company billed related parties for:		
Sale of products -		
Joint Ventures	$ 11	$ 13
Associates	43	29
Shared services agreements -		
Joint Ventures	—	3
Associates	3	6
Related parties billed the Company for:		
Sale of products -		
Joint Ventures	$ 858	$ 899
Associates	680	748
Shared services agreements -		
Associates	71	69
Year-end balances with related parties:		
Receivable from Joint Ventures	$ 4	$ 3
Loans to Associate and Joint Ventures	7	8
Loans from Associates and Joint Ventures	1	1
Payables to Joint Ventures	156	132
Payables to Associates	57	122

33 Segment and Related Information

Our operations are managed through six operating segments, as shown below. Each of the operating segments is managed by a senior executive reporting directly to our CEO, the chief operating decision maker. Discrete financial information is available for each of the segments, and our CEO 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, including polypropylene compounds.
- *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, and advanced polymers, which includes *Catalloy* and polybutene-1
- *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 our segments' profitability, and therefore, we have presented EBITDA for all segments. We define EBITDA as earnings before interest, 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 postretirement benefit costs other than service costs. Sales between segments are made primarily at prices approximating prevailing market prices.

Accounting policies for internal reporting are based on U.S. GAAP and are materially similar to those described in Summary of Significant 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 that 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-Amongst others, there are minor 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.

Summarized financial information concerning reportable segments is shown in the following table for the periods presented:

	Year ended 31 December 2019							
Millions of dollars	**O&P – Americas**	**O&P – EAI**	**I&D**	**APS**	**Refining**	**Technology**	**Other**	**Total**
Sales and other operating revenues:								
Customers	$ 5,311	$ 8,764	$ 7,642	$ 4,846	$ 7,599	$ 565	$ —	$ 34,727
Intersegment	3,124	740	192	4	652	98	(4,810)	—
	8,435	9,504	7,834	4,850	8,251	663	(4,810)	34,727
Depreciation and amortization expense	470	208	295	133	169	37	—	1,312
Other income (expense), net	9	9	6	1	6	—	8	39
Income from equity investments	46	172	7	—	—	—	—	225
Capital expenditures	1,099	213	1,064	59	149	94	16	2,694
EBITDA	2,302	1,062	1,557	424	(65)	411	1	5,692

	Year ended 31 December 2018							
Millions of dollars	**O&P – Americas**	**O&P – EAI**	**I&D**	**APS**	**Refining**	**Technology**	**Other**	**Total**
Sales and other operating revenues:								
Customers	$ 6,883	$ 9,984	$ 9,426	$ 4,022	$ 8,221	$ 468	$ —	$ 39,004
Intersegment	3,525	854	162	2	936	115	(5,594)	—
	10,408	10,838	9,588	4,024	9,157	583	(5,594)	39,004
Depreciation and amortization expense	442	208	287	69	192	43	—	1,241
Other income (expense), net	11	48	2	2	3	1	39	106
Income from equity investments	58	225	6	—	—	—	—	289
Capital expenditures	1,079	248	409	62	250	48	9	2,105
EBITDA	2,762	1,163	2,011	400	167	328	36	6,867

The difference between sales reported and the IFRS income statement and the difference between capital expenditures reported and the IFRS statement of cash flows are caused by the difference in accounting for joint arrangements under IFRS and U.S. GAAP as explained in this note.

Reconciliation of EBITDA for reportable segments to the Company's Consolidated Statement of Income is summarized in the following table:

Millions of U.S. Dollars	Note	31 December 2019	31 December 2018
EBITDA:			
Total segment EBITDA		$ 5,691	$ 6,831
Other EBITDA		1	36
		5,692	6,867
Less:			
Depreciation and amortization expense		(1,312)	(1,241)
Other income (expense), net		(39)	(106)
Income from equity investments		(225)	(289)
U.S. GAAP operating income		4,116	5,231
Measurement difference:			
Inventory valuation		(270)	(92)
Classification difference:			
Other income (expense), net	11	(26)	168
Joint Arrangements		107	124
Other		35	(11)
Total Company's operating profit		$ 3,962	$ 5,420

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:

Millions of U.S. Dollars	Long-Lived Assets 2019	Long-Lived Assets 2018
United States	$ 13,276	$ 10,353
Germany	1,537	1,559
The Netherlands	934	767
France	578	583
Italy	357	367
Mexico	251	255
Other	1,714	1,724
Total	$ 18,647	$ 15,608

34 Subsequent Events

On 21 February 2020, the Company announced a dividend of $1.05 per share, which was paid on 9 March 2020 to shareholders of record as of 2 March 2020, with an ex-dividend date of 28 February 2020.

In March 2020, we signed a definitive agreement to expand in China through a 50% joint venture with the Liaoning Bora Enterprise Group (Bora). The joint venture with Bora will operate a 1.1 million ton ethylene cracker and associated polyolefin derivative complex in Panjin, China. We estimate investing $450 million in the joint venture during the second half of 2020.

As disclosed in Note 2, the COVID-19 virus has impacted our economic environment and business. We will continue to follow the various governmental policies and advice related to the virus while operating in the best and safest way possible without jeopardizing the health of our employees and contractors. The effects of the virus could adversely affect our business, operating results and financial condition.

Appendix - A

Entity Name	Jurisdiction of Formation
Subsidiaries	
A. Schulman AG	Switzerland
A. Schulman Asia Limited	Hong Kong
A. Schulman Belgium BVBA	Belgium
A. Schulman Canada Ltd.	Ontario
A. Schulman Castellon S.L.	Spain
A. Schulman de Mexico S.A. de C.V.	Mexico
A. Schulman del Peru S.A.C.	Peru
A. Schulman Europe GmbH & Co. KG	Germany
A. Schulman Europe International B.V.	Netherlands
A. Schulman Europe Verwaltungs GmbH	Germany
A. Schulman Gainsborough Ltd	United Kingdom
A. Schulman GmbH	Germany
A. Schulman GmbH (Austrian Branch)	Austria
A. Schulman Holding Company France S.A.S.	France
A. Schulman Holdings (France) S.A.S.	France
A. Schulman Holdings S.à.r.l.	Luxembourg
A. Schulman Inc. Limited	United Kingdom
A. Schulman International Inc.	Delaware
A. Schulman International Services BVBA	Belgium
A. Schulman Ireland Limited	Ireland
A. Schulman Magyarország Kereskedelmi Korlátolt Felelõsségû Társaság	Hungary
A. Schulman Nordic AB	Sweden
A. Schulman Plásticos do Brasil Ltda.	Brazil
A. Schulman Plastics (Branch)	United Arab Emirates
A. Schulman Plastics (Dongguan) Ltd.	China
A. Schulman Plastics (Malaysia) Sdn. Bhd.	Malaysia
A. Schulman Plastics (Suzhou) Co., Ltd.	China
A. Schulman Plastics BVBA	Belgium
A. Schulman Plastics bvba Bornem Sucursala Cluj-Napoca	Romania
A. Schulman Plastics India Private Limited	India
A. Schulman Plastics PTY. LTD.	Australia
A. Schulman Plastics S.r.l.	Italy
A. Schulman Plastics SAS	France
A. Schulman Plastics, organizacni slozka	Czech Republic
A. Schulman Plastik Sanayi ve Ticaret Anonim Sirketi	Turkey
A. Schulman Polska Sp. z o.o.	Poland
A. Schulman Real Estate GmbH & Co. KG	Germany
A. Schulman S.à.r.l.	Luxembourg
A. Schulman S.A.S.	France
A. Schulman 's-Gravendeel B.V.	Netherlands
A. Schulman Thermoplastic Compounds Limited	United Kingdom
A. Schulman Thermoplastic Compounds Sdn Bhd	Malaysia
A. Schulman, Inc.	Delaware
A.Schulman Poznan Sp. Z o.o.	Poland
AS Global Holdings, Inc.	Delaware
AS Mex Hold S.A. de C.V.	Mexico
AS Worldwide LLC & Cie, S.C.S.	Luxembourg
AS Worldwide, LLC	Delaware
ASI Akron Land Co.	Delaware
ASI Employment S.A. de C.V.	Mexico
ASI Investments Holding Co.	Delaware
Basell (Thailand) Holdings B.V.	Netherlands
Basell Advanced Polyolefins (Dalian) Co. Ltd.	China

Basell Advanced Polyolefins (Suzhou) Co. Ltd.	China
Basell Advanced Polyolefins (Thailand) Company Ltd.	Thailand
Basell Arabie Investissements SAS	France
Basell Asia Pacific Limited	Hong Kong
Basell Bayreuth Chemie GmbH	Germany
Basell Benelux B.V.	Netherlands
Basell Chemie Köln GmbH	Germany
Basell Europe Holdings B.V.	Netherlands
Basell Germany Holdings GmbH	Germany
Basell Holdings Middle East GmbH	Germany
Basell Ibérica Poliolefinas Holdings S.L.	Spain
Basell International Holdings B.V.	Netherlands
Basell International Trading FZE	United Arab Emirates
Basell Italia S.r.l	Italy
Basell Mexico, S. de R.L. de C.V.	Mexico
Basell Moyen Orient Investissements SAS	France
Basell North America Inc.	Delaware
Basell Poliolefinas Comercial Espagnola S.L.	Spain
Basell Poliolefinas Iberica S.L.	Spain
Basell Poliolefinas Ltda.	Brazil
Basell Poliolefinas, S. de R.L. de C.V.	Mexico
Basell Poliolefine Italia S.r.l.	Italy
Basell Polyolefin Istanbul Ticaret Limited Sirketi	Turkey
Basell Polyolefine GmbH	Germany
Basell Polyolefines France S.A.S.	France
Basell Polyolefins Company BVBA	Belgium
Basell Polyolefins India Private Limited	India
Basell Polyolefins Korea Ltd.	Korea
Basell Polyolefins UK Limited	United Kingdom
Basell Sales & Marketing Company B.V.	Netherlands
Basell Service Company B.V.	Netherlands
Basell Slovakia s.r.o.	Slovakia
Basell Trading (Shanghai) Co. Ltd.	Shanghai
Basell UK Holdings Limited	United Kingdom
Basell UK Ltd.	United Kingdom
BMC Deutschland GmbH	Germany
BMC TetraDURTurkey Plastik Hammadde Kompozit Üretim Sanayi ve Ticaret Limted ªirketi	Turkey
Bulk Molding Compounds do Brasil Industria de Plásticos Reforçados Ltda.	Brazil
Bulk Molding Compounds Mexico, S. de R.L. de C.V.	Mexico
Bulk Molding Compounds, Inc.	Illinois
Citadel Brazil Holdings LLC	Delaware
Citadel Intermediate Holdings, LLC	Delaware
Citadel Plastics Holdings Coöperatief U.A.	Netherlands
Citadel Plastics Holdings, Inc.	Delaware
Citadel Plastics Mexico Holdings, LLC	Delaware
Citadel Plastics Netherlands Holdings, LLC	Delaware
Compagnie de Distribution des Hydrocarbures SAS	France
Compagnie Petrochimique de Berre SAS	France
Elian S.A.S.	France
EMS Holding Ltd.	Ohio
Equistar Bayport, LLC	Delaware
Equistar Chemicals, LP	Delaware
Equistar GP, LLC	Delaware
Equistar LP, LLC	Delaware
Equistar Mont Belvieu Corporation	Delaware
GuangZhou Basell Advanced Polyolefins Co., Ltd.	China
Hadlock Plastics, LLC	Delaware

HGGC Citadel Plastics Holdings, Inc.	Delaware
HGGC Citadel Plastics Intermediate Holdings, Inc.	Delaware
Houston Refining LP	Delaware
HPC Holdings, LLC	Delaware
ICO Europe C.V.	Netherlands
ICO Holdings New Zealand Limited	New Zealand
ICO Holdings, LLC	Texas
ICO Petrochemical Cayman Islands	Cayman
ICO Polymers Cayman Islands	Cayman
Inmobiliaria Satchmo, S. de R.L. de C.V.	Mexico
Innovación Y Desarrollo en Materiales Avanzados, A.C.	Mexico
J.R. Courtenay (N.Z.) Limited	New Zealand
Limited Liability Company "LyondellBasell Polyolefins"	Russia
Limited Liability Company A. Schulman	Russia
LPI Holding Company	Delaware
Lucent Polymers Inc.	Delaware
LYB (Barbados) SRL	Barbados
LYB Advanced Polymer Solutions Ireland Limited	Ireland
LYB Americas Finance Company LLC	Delaware
LYB Equistar Holdings LLC	Delaware
LYB Export Holdings Limited	United Kingdom
LYB Exports Inc.	Delaware
LYB Finance Company B.V.	Netherlands
LYB International Finance B.V.	Netherlands
LYB International Finance II B.V.	Netherlands
LYB International Finance III LLC	Delaware
LYB Ireland 2 Limited	Ireland
LYB Ireland Limited	Ireland
LYB La Porte Hyperzone LLC	USA (Delaware)
LYB Luxembourg S.à r.l.	Luxembourg
LYB Matrixx Holdings Inc.	USA (Delaware)
LYB Receivables LLC	Delaware
LYB Trading Company B.V.	Netherlands
LYB Treasury Services Ltd.	United Kingdom
Lyondell Asia Holdings Limited	Hong Kong
Lyondell Centennial Corp.	Delaware
Lyondell Chemical Company	Delaware
Lyondell Chemical Europe, Inc.	Delaware
Lyondell Chemical Overseas Services, Inc.	Delaware
Lyondell Chemical Products Europe LLC	Delaware
Lyondell Chemical Properties, L.P.	Delaware
Lyondell Chemical Technology 1 Inc.	Delaware
Lyondell Chemical Technology Management, Inc.	Delaware
Lyondell Chemical Technology, L.P.	Delaware
Lyondell Chemie (PO-11) B.V.	Netherlands
Lyondell Chemie (POSM) B.V.	Netherlands
Lyondell Chemie Nederland B.V.	Netherlands
Lyondell Chimie France SAS	France
Lyondell China Holdings Limited	Hong Kong
Lyondell Greater China Holdings Limited	Hong Kong
Lyondell Greater China Trading Limited	China
Lyondell Greater China, Ltd.	Delaware
Lyondell Japan, Inc.	Japan
Lyondell PO-11 C.V.	Netherlands
Lyondell POJVGP, LLC	Delaware
Lyondell POJVLP, LLC	Delaware
Lyondell POTechGP, Inc.	Delaware

Lyondell POTechLP, Inc.	Delaware
Lyondell Refining Company LLC	Delaware
Lyondell Refining I LLC	Delaware
Lyondell South Asia Pte Ltd	Singapore
LyondellBasell Acetyls Holdco, LLC	Delaware
LyondellBasell Acetyls, LLC	Delaware
LyondellBasell Advanced Polyolefins Mexico, S.A. de C.V.	Mexico
LyondellBasell Australia (Holdings) Pty Ltd	Australia
LyondellBasell Australia Pty Ltd	Australia
LyondellBasell Brasil Ltda.	Brazil
LyondellBasell Canada Inc.	Canada
LyondellBasell Central Europe Kft.	Hungary
LyondellBasell China Holdings B.V.	Netherlands
LyondellBasell Circular Economy B.V.	Netherlands
LyondellBasell Egypt LLC	Egypt
LyondellBasell F&F Holdco, LLC	Delaware
LyondellBasell Finance Company	Delaware
LyondellBasell Holdings France SAS	France
LyondellBasell Hungary Kft	Hungary
LyondellBasell Industries Holdings B.V.	Netherlands
LyondellBasell Investment LLC	Delaware
LyondellBasell Malaysia Sdn. Bhd.	Malaysia
LyondellBasell Polyolefin (Shanghai) Co., Ltd.	China
LyondellBasell Services France S.A.S.	France
LyondellBasell Subholdings B.V.	Netherlands
LyondellBasell Taiwan Co., Ltd.	Taiwan
LyondellBasell Transportation Company LLC	Delaware
OE Insurance Ltd	Bermuda
PO JV, LP	Delaware
PO Offtake, LP	Delaware
POSM II Limited Partnership, L.P.	Delaware
POSM II Properties Partnership LLC	Delaware
Premix Holding Company	Delaware
Premix, Inc.	Ohio
Prime Colorants, Inc.	Tennessee
PT A.Schulman Plastics	Indonesia
PT ASchulman Plastics Commercial	Indonesia
Quantum Composites, Inc.	Ohio
Surplast S.A.	Argentina
Technology JV, LP	Delaware
tetra-DUR Kunststoff-Produktion GmbH	Germany
The Matrixx Group, Incorporated	Indiana
TRV Thermische Rückstandsverwertung GmbH & Co. KG	Germany
TRV Thermische Rückstandsverwertung Verwaltungs-GmbH	Germany
ULSAN PP Co., Ltd.	Korea
YNCORIS GmbH & Co. KG	Germany

Investments in Joint Arrangements

Al-Waha Petrochemicals Ltd.	Kingdom of Saudi Arabia
Basell Orlen Polyolefins Sp. Z.o.o.	Poland
Basell Orlen Polyolefins Sprzedaz Sp. Z.o.o.	Poland
BKV Beteiligungs- und Kunststoffverwertungs-gesellschaft mbH	Germany
BMC Dongguan Limited	China
BMC Far East Limited	Hong Kong
Brindisi Servizi Generali S.c.a.r.l.	Italy
EPS Ethylen-Pipeline-Süd Geschäftsführungs GmbH	Germany
EPS Ethylen-Pipeline-Süd GmbH & Co. KG	Germany

HMC Polymers Company Ltd.	Thailand
I.F.M. S.c.a.r.l.	Italy
Indelpro S.A. de C.V.	Mexico
Infraserv GmbH & Co. Höchst KG	Germany
LyondellBasell Covestro Manufacturing Maasvlakte V.O.F.	Netherlands
Natpet Schulman Specialty Plastic Compounds	Kingdom of Saudi Arabia
Ningbo ZRCC Lyondell Chemical Co. Ltd.	China
Ningbo ZRCC Lyondell Chemical Marketing Co.	China
Oil Casualty Insurance, Ltd.	Bermuda
Oil Insurance Limited	Bermuda
PD Glycol LP	Texas
Poly Pacific Polymers Sdn. Bhd.	Malaysia
Poly Pacific Pty. Ltd.	Australia
PolyMirae Co. Ltd.	South Korea
PTT Chemical PCL	Thailand
QCP B.V.	Netherlands
QCP Holding B.V.	Netherlands
QCP IP B.V.	Netherlands
Rayong Olefins Co., Ltd.	Thailand
RIGK GmbH Gesellschaft zur Rückführung industrieller and gewerblicher Kunstoffverpackungen mbH	Germany
San Jacinto Rail Limited	Delaware
Saudi Ethylene & Polyethylene Company Ltd.	Kingdom of Saudi Arabia
Saudi Polyolefins Company	Kingdom of Saudi Arabia
SCG ICO Polymers Company Limited	Thailand
Sociedad Espanola De Materiales Plasticos, Semap, S.A.	Spain
Société des Stockages Petroliers du Rhône SA	France

Corporate Financial Statements

CORPORATE STATEMENT OF INCOME

Millions of U.S. Dollars	Year Ended 31 December 2019	2018
Income from Group companies after tax	$ 2,882	$ 4,496
Other income (expense), net of tax	220	156
Profit attributable to the equity holders	$ 3,102	$ 4,652

CORPORATE STATEMENT OF FINANCIAL POSITION

Before appropriation of profit

Millions of U.S. Dollars	**Note**	**31 December 2019**	**31 December 2018**
Non-current assets			
Goodwill	2	$ 321	$ 322
Investments in Group companies	2	9,234	10,909
Long-term loans to Group companies	6	5,984	6,010
Deferred tax assets		2	3
Other Assets		2	—
Total non-current assets		15,543	17,244
Current assets			
Receivables from Group companies		125	48
Prepaid expense and other current assets		1	13
Short-term loans to Group companies	6	4,000	3,974
Cash and cash equivalents	3	56	45
Total current assets		4,182	4,080
Total assets		**$ 19,725**	**$ 21,324**
Equity	4		
Share capital		$ 19	$ 22
Share premium		6	10
Legal reserves		(1,146)	(651)
Other reserves		5,466	5,824
Profit for the year		3,102	4,652
Total equity attributable to equity holders		7,447	9,857
Non-current liabilities			
Long-term debt	5	2,966	2,941
Deferred income	7	5,572	4,433
Other long-term liabilities		2	—
Total non-current liabilities		8,540	7,374
Current liabilities			
Bank overdraft	3	2,432	—
Short-term loans from Group companies	6	1,226	2,968
Current Maturities of long-term debt	5	—	988
Other liabilities		80	137
Total current liabilities		3,738	4,093
Total equity and liabilities		**$ 19,725**	**$ 21,324**

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 31 December 2019 and 2018, 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 31 December 2019 and 2018, the Company had fourteen and respectively sixteen full-time employees all located outside of The Netherlands.

2 Goodwill and Investments

Millions of U.S. Dollars	Goodwill	Investments
Balance at 1 January 2018	$ 326	$ 10,341
Income from investments, net of tax	—	2,435
Equity settled transactions	—	50
Dividends received	—	(1,902)
Additions to other reserves	(4)	(15)
Balance at 31 December 2018	$ 322	$ 10,909
Balance at 1 January 2019	$ 322	$ 10,909
Income from investments, net of tax	—	2,021
Equity settled transactions	—	74
Dividends received	—	(3,375)
Additions to other reserves	(1)	(395)
Balance at 31 December 2019	$ 321	$ 9,234

Equity settled transactions-Equity settled transactions represent share-based compensation granted to directors and employees.

Dividends received—During 2019, the Company received the following dividends from direct subsidiaries:

- $2,634 million from LyondellBasell Subholdings B.V.;
- $99 million from LyondellBasell Luxemburg III S.a.r.l.;
- $473 million from LYB Export Holdings Limited; and
- $169 million from LyondellBaselll Hungary Kft.

Additions to other reserves—Primarily represents movements for currency translation differences and remeasurements of post-employment benefits obligations, which are non-distributable.

3 Cash and Cash Equivalents

The Company's cash and cash equivalents are held by its in-house banking unit, LYB Finance Company B.V. 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 at bank and in-hand are freely disposable. At 31 December 2019 and 2018 the rates were as follows:

	2019		2018	
	Borrowing	Lending	Borrowing	Lending
US Dollar	2.96%	1.56%	3.60%	2.2%
Great British pound	1.97%	0.56%	1.58%	0.18%
Euro	1.25%	—%	1.25%	—%

4 Equity Attributable to Equity Holders

For a breakdown of Equity attributable to equity holders, see table below.

			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 1 January 2018	$ 31	$ 10,024	$ (737)	$ (6)	$ 9,928	$ (15,749)	$ 5,064	$ 8,555
Opening balance adjustment	—	—	—	—	34	—	—	34
Previous year results	—	—	—	—	5,064	—	(5,064)	—
Employee share-based payments:								
-Issuance of shares	—	27	—	—	(2)	37	—	62
-Tax credits related to share-based payments	—	—	—	—	(8)	—	—	(8)
Purchase of non-controlling interest	—	(28)	—	—	—	—	—	(28)
Shares purchased	—	—	—	—	—	(1,878)	—	(1,878)
Net current period changes	—	—	(94)	197	(79)	—	—	24
Profit for the year	—	—	—	—	—	—	4,652	4,652
Additions to legal reserves	—	—	—	(11)	11	—	—	—
Dividend distribution	—	—	—	—	(1,554)	—	—	(1,554)
Preferred stock dividends paid	—	—	—	—	(2)	—	—	(2)
Cancellation of Treasury shares	(9)	(10,013)	—	—	(5,362)	15,384	—	—
Balance as at 31 December 2018	$ 22	$ 10	$ (831)	$ 180	$ 8,030	$ (2,206)	$ 4,652	$ 9,857

Millions of U.S. Dollars	Share Capital	Share premium	Legal Reserve: Currency translation differences	Legal Reserve: Group Companies	Other reserves: Retained earnings	Other reserves: Treasury Shares	Profit for the year	Total Equity Attributable to equity holders
Balance as at 1 January 2019	$ 22	$ 10	$ (831)	$ 180	$ 8,030	$ (2,206)	$ 4,652	$ 9,857
Opening balance adjustment	—	—	—	—	93	—	—	93
Previous year results	—	—	—	—	4,652	—	(4,652)	—
Employee share-based payments:								
-Issuance of shares	—	33	—	—	(3)	42	—	72
-Tax credits related to share-based payments	—	—	—	—	5	—	—	5
Purchase of non-controlling interest	—	—	—	—	(64)	—	—	(64)
Shares purchased	—	—	—	—	—	(3,728)	—	(3,728)
Net current period change	—	—	(13)	(489)	81	—	—	(421)
Profit for the year	—	—	—	—	—	—	3,102	3,102
Additions to legal reserve	—	—	—	7	(7)	—	—	—
Common stock dividends paid	—	—	—	—	(1,462)	—	—	(1,462)
Preferred stock dividends paid	—	—	—	—	(7)	—	—	(7)
Cancellation of Treasury shares	(3)	(37)	—	—	(5,272)	5,312	—	—
Balance as at 31 December 2019	$ 19	$ 6	$ (844)	$ (302)	$ 6,046	$ (580)	$ 3,102	$ 7,447

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,*" 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 ($22 million in 2018) and Legal reserves of ($1,146) million at 31 December 2019 ($651) million in 2018.

In general, gains 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. By their nature, losses related to currency translation differences and "group companies" reduce shareholders' equity and thereby distributable amounts.

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:

Millions of U.S. Dollars	31 December 2019	31 December 2018
Retained earnings as per Consolidated Statement of Financial Position	$ 9,491	$ 13,100
Non-distributable reserves of Group companies	(343)	(418)
Profit for the year	(3,102)	(4,652)
Retained earnings as per Corporate Statement of Financial Position	$ 6,046	$ 8,030

Proposed Appropriation of Result—The Board of Directors paid an aggregate dividend of $4.15 per share from its 2019 annual accounts. This included an interim dividend of $1 per share paid to shareholders of record on 4 March 2019 and $1.05 per share on 10 June 2019, 4 September 2019 and 2 December 2019. These dividend payments, totaling $1,462 million, have been charged to retained earnings.

The Board of Directors will propose that the general meeting approve the dividends already paid, as described above.

5 Long-term 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% and 5.75% Senior Notes—In April 2012, the Company issued $2,000 million aggregate principal amount of 5% senior notes due 2019 and $1,000 million aggregate principal amount of 5.75% senior notes due 2024, each at an issue price of 100%. In March 2017, we redeemed $1,000 million aggregate principal amount of our 5% senior notes due 2019. In April 2019 we redeemed the remaining $1,000 due.

6% Senior Notes-In November 2011, the Company issued $1,000 million of 6% senior notes due 2021. These notes, which mature on 15 November 2021, bear interest at 6% annum.

6 Group Company Loans

The following table summarizes, as of 31 December 2019, the maturities of our Long-term Loan Receivable from our Subsidiary and Loans Payable to our Subsidiaries for the next five years and thereafter:

Millions of U.S. Dollars	Total	2020	2021	2022	2023	2024	Thereafter
Non-current receivables:							
Senior note receivable due July 2025, $2,000 million	$ 2,000	$ —	$ —	$ —	$ —	$ —	$ 2,000
Senior note receivable due July 2026, $500 million	500	—	—	—	—	—	500
Note receivable due April 2024, $986 million	510	—	—	—	—	510	—
Note receivable due November 2021, $1,000 million	1,000	—	1,000	—	—	—	—
Note receivable due April 2022, $1,974 million	1,974	—	—	1,974	—	—	—
Total non-current receivables	$ 5,984	$ —	$ 1,000	$ 1,974	$ —	$ 510	$ 2,500
Current receivables:							
Senior note receivable due July 2020, $2,000 million	$ 2,000	$ 2,000	$ —	$ —	$ —	$ —	$ —
Senior note due June 2020, $2,000 million	2,000	2,000	—	—	—	—	—
Total current receivables	$ 4,000	$ 4,000	$ —	$ —	$$ —	$ —	$ —
Current payables:							
Loan payable due October 2021, $2,000 million	$ 784	$ 784	$ —	$ —	$ —	$ —	$ —
Loan payable due July 2020, $7,000 million	442	442	—	—	—	—	—
Total current payables	$ 1,226	$ 1,226	$ —	$ —	$ —	$ —	$ —

Long-term Loan Receivable from our Subsidiary—In July 2014, we and our wholly owned subsidiary, LyondellBasell Finance Company, entered into five separate notes with an aggregate principal amount of $7,500 million in lieu of a $7,500 million inter-company dividend. These notes consist of a $1,000 million 3.09% senior note due 30 December 2018. The loan has been settled in 2018. $2,000 million 3.75% senior note due 1 July 2018, In May 2018 the maturity of the loan has been extended from 1 July 2018 to 30 June 2020. As at 31 December 2019 the fair value approximates cost for this loan, at 31 December 2018 the fair value was $1,976 million ; a $2,000 million 4.63% senior note due 1 July 2020. As at 31 December 2019 the fair value approximates cost, as at 31 December 2018 fair value was $1,976 million; a $2,000 million 6.14% senior note due 1 July 2025 with a fair value as at 31 December 2019 of $2,023 million as at 31 December 2018 a fair value of 1,997 million and a $500 million 6.30% senior note due 1 July 2026 with a fair value as at 31 December 2019 of $503 million and as at 31 December 2018 a fair value of $501 million.

In April 2012, we and our indirectly wholly owned subsidiary, Lyondell Chemical Company ("Lyondell Chemical"), entered into a $1,974 million note receivable. The note bears per annum interest at 5.24% and matures on 15 April 2022. Interest is due semi-annually on 15 April and 15 October. In April 2019, we amended the terms of the note to include early prepayment restrictions and reduce the applicable interest. Lyondell Chemical may prepay all or part of the note at a specified redemption premium plus accrued and unpaid interest on the redemption date. At 31 December 2019 and 2018, the outstanding balance was $1,974 million which approximates the fair value.

In April 2012, we and Lyondell Chemical entered into another $986 million note receivable. The note bears per annum interest at 6.14% and matures on 15 April 2024. Interest is due semi-annually on 15 April and 15 October. In July 2012, we amended the terms of the note to include early prepayment restrictions and reduce the applicable interest. Lyondell Chemical may prepay all or part of the note at a specified redemption premium plus accrued and unpaid interest on the redemption date. In December 2017 an amount of $476 million was repaid. As at 31 December 2019 the balance remaining on the loan is $510 million which approximates the fair value, at 31 December 2018 the fair value was $544 million.

In November 2011, we and Lyondell Chemical entered into a $1,000 million note receivable. The note bears interest at 6.45% per annum and matures on 15 November 2021. Interest is due semi-annually on 15 May and 15 November. In July 2012, the terms of the note were amended to include early prepayment restrictions. Lyondell Chemical may prepay all or part of the note at a specified redemption premium plus accrued and unpaid interest on the redemption date. At 31 December 2019 and 2018, the outstanding balance was $1,000 million which approximates the fair value. .

Loans Payable to our Subsidiaries—In October 2015, we and our indirect, wholly owned subsidiary, LYB Treasury Services Ltd., entered into a $2,000 million loan, which matures on 6 October 2018. The loan is repayable on demand. In October 2018 the repayment date was extended to 6 October 2021, 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 31 December 2019, the outstanding balance was $784 million which approximates the fair value.

In July 2014, we and our indirect, wholly owned subsidiary, LYB Americas Finance Company, entered into a $2,000 million loan, which matures on 31 July 2018. In June 2018 the repayment date was extended to July 2020, all other terms and conditions of the loan remains the same. The loan is repayable on demand. The interest rate is equal to the Federal short-term rate determined under section 1274(d) of the Internal Revenue Code. At 31 December 2019, the outstanding balance was $442 million which approximates the fair value.

Movements in Group Company loans are presented below:

Millions of U.S. Dollars	Receivables	Payables
Balance at 1 January 2018	$ 10,984	$ 6,592
Borrowings	—	—
Discharge and assignments	(1,000)	(3,624)
Balance at 31 December 2018	9,984	2,968
Of which:		
Non-current	6,010	—
Current	3,974	2,968
Balance at 31 December 2018	$ 9,984	$ 2,968
Balance at 1 January 2019	$ 9,984	$ 2,968
Borrowings	—	—
Discharge and assignments	—	(1,742)
Balance at 31 December 2019	9,984	1,226
Of which:		
Non-current	5,984	—
Current	4,000	1,226
Balance at 31 December 2019	$ 9,984	$ 1,226

7 Deferred Income

Deferred income represents the excess dividend paid by LyondellBasell Finance Company over its net asset value. This amount 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 movement in Deferred income, summarized below, represents our share of LyondellBasell Finance Company profit.

Millions of U.S. Dollars		2019
Balance at 1 January 2019	$	4,433
Dividends from Group Companies paid in excess of net asset value		2,000
Income from Group Companies, net of tax		(861)
Balance at 31 December 2019	$	5,572

8 Commitments and Contingencies not included in the Balance Sheet

The Company has entered into guarantee agreements with counterparties on behalf of some of its subsidiaries for the supply of raw materials. At 31 December 2019 and 2018, the total guaranteed amount was $21.0 billion and $25.1 billion, respectively.

The Company receives an annual fee of 0.13% for guarantees of aggregate $2 billion and an annual fee between 0.17% and 0.19% for all other outstanding guarantees as of 31 December 2019. Fee levels applied in 2018 were an annual fee of 0.13% for guarantees of aggregate $2 billion 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, Book2, 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.
- Basell Europe Holdings B.V.
- LyondellBasell Industries Holdings B.V.
- LYB Trading Company B.V.
- 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 (Dutch acronym: 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 31 December			
Millions of U.S. Dollars		2019		2018
Financial statements audit fees	$	10.4	$	10.4
Other assurance fees		0.4		0.6
All other fees		0.8		1.2
	$	11.6	$	12.2

The total audit fees of PricewaterhouseCoopers Accountants N.V, The Netherlands, charged to the Company and its consolidated group entities amounted to $1.7 million and $1.8 million, respectively, in 2019 and 2018.

The financial statements audit fees above 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. This category also includes services such as comfort letters, statutory audits, attest services, consents and assistance with and review of documents.

The 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 9, Directors' Remuneration of the Consolidated Financial Statements.

London, 15 April 2020

The Board of Directors

/s/ Bhavesh (Bob) V. Patel	/s/ Jacques Aigrain
Bhavesh (Bob) V. Patel	Jacques Aigrain
/s/ Lincoln Benet	/s/ Jagjeet S. Bindra
Lincoln Benet	Jagjeet S. Bindra
/s/ Robin W.T. Buchanan	/s/ Stephen F. Cooper
Robin W.T. Buchanan	Stephen F. Cooper
/s/ Nance K. Dicciani	/s/ Claire S. Farley
Nance K. Dicciani	Claire S. Farley
/s/ Isabella D. Goren	/s/ Michael S. Hanley
Isabella D. Goren	Michael S. Hanley
/s/ Albert J. Manifold	/s/ Rudy M.J. van der Meer
Albert J. Manifold	Rudy M.J. van der Meer

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 and associates as of 31 December 2019 is included in Appendix A of this report.

Independent auditor's report

To: the general meeting and the board of directors of LyondellBasell Industries N.V.

Report on the financial statements 2019

Our opinion

In our opinion:

- the consolidated financial statements of LyondellBasell Industries N.V. give a true and fair view of the financial position of the Group as at 31 December 2019 and of its result and cash flows for the year then ended in accordance with International Financial Reporting Standards as adopted by 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. give a true and fair view of the financial position of the Company as at 31 December 2019 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 2019 of LyondellBasell Industries N.V., Rotterdam ('the Company'). The financial statements include the consolidated financial statements of LyondellBasell Industries N.V. together with its subsidiaries ('the Group') and the corporate financial statements.

The consolidated financial statements comprise:

- the consolidated statement of financial position as at 31 December 2019;
- the following statements for 2019: the consolidated statement of income, the consolidated statements of other comprehensive income, changes in equity and cash flows; and
- the notes, comprising a summary of the significant accounting policies and other explanatory information.

The corporate financial statements comprise:

- the corporate statement of financial position as at 31 December 2019;
- the corporate statement of income for the year then ended;
- 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 requirements in the Netherlands. Furthermore, we have complied with the 'Verordening gedrags- en beroepsregels accountants' (VGBA, Dutch Code of Ethics).

Our audit approach

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 excess capacity, 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 above.

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 the board of directors made important judgements, for example, in respect of significant accounting estimates that involved making assumptions and considering future events that are inherently uncertain. 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.

We consider the provisions for uncertain tax positions as the key audit matter for this financial year. Other areas of focus, that were not considered to be key audit matters, were capitalization of assets, inventory costing, revenue recognition and derivative financial instruments.

As in all of our audits, we also addressed the risk of management override of internal controls, including evaluating whether there was evidence of bias by management board that may represent a risk of material misstatement due to fraud.

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 actuarial expertise, tax, and financial instruments in our team.

The outline of our audit approach was as follows:

Materiality

- Overall materiality: USD 240 million

Audit scope

- We conducted audit work in four geographical locations: the Netherlands, the United States of America, Germany and Italy.
- Within these four locations we performed an audit of the complete financial information of four components and specified audit procedures for 10 other components.
- We performed a site visit to three locations: the United States of America, the Netherlands and Germany.
- Audit coverage: 80% of consolidated revenue, 81% of consolidated total assets and 61% of consolidated profit before tax.

Key audit matters

- Taxation - Provisions for uncertain tax positions

Materiality

The scope of our audit is 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 240 million (2018: USD 260 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 average of profit before income tax based on the US GAAP consolidated financial statements as file through Form 10-K.
Rationale for benchmark applied	We used profit before income tax as the primary benchmark, a generally accepted auditing practice, based on our analysis of the common information needs of users of the financial statements. On this basis, we believe that profit before tax is an important 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 materially consistent with 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 percentage on a generally accepted auditing practice benchmark on the profit before tax based on US GAAP. We have applied a three-year 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	To each component in our audit scope, we, based on our judgement, allocate materiality that is less than our overall group materiality. The range of materiality allocated across components was between USD 36 million and USD 240 million.

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 misstatements identified during our audit above USD 12 million (2018: USD 13 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 performed sufficient work to be able to give 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.

The group audit scoping primarily focussed on four individually significant components, located in the United States of America and the Netherlands. Ten components accounted for in the United States of America, Germany, Italy and the Netherlands, were subject to specified audit procedures relating to significant balances and transactions or higher risk areas. In total, in performing these procedures, we achieved the following coverage on the financial line items:

Revenue	80%
Total assets	81%
Profit before tax	61%

None of the remaining components represented more than 3% of total group revenue 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.

For group entities located in the Netherlands, the Group engagement team performed the audit work. For components located in Germany, Italy and the United States of America, we used component auditors 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 audit 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 amongst others our risk analysis, materiality and scope of the work. We explained to the component audit teams the structure of the Group, the main developments that are 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, the Netherlands, and Germany to review their audit work and reports about their findings. In addition, we had individual calls with each of the in-scope component audit teams 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, which could be of relevance for the consolidated financial statements.

By performing the procedures above at components, combined with additional procedures at group level, we have been able to obtain sufficient and appropriate audit evidence on the Group's financial information, as a whole, to provide a basis for our opinion on the financial statements.

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.

We addressed the key audit matters in the context of our audit of the financial statements as a whole, and in forming our opinion thereon. We do not provide separate opinions on these matters or on specific elements of the financial statements. Any comment or observation we made on the results of our procedures should be read in this context.

In the prior year, we determined the acquisition of A. Schulman Inc. as a key audit matter. This was due to consideration of our audit effort which included the involvement of individuals with specialized skills and knowledge in valuations. Also, significant auditor judgement was required in evaluating audit evidence relating to the significant assumptions used, such as future net cash flows, including net sales, and discount rates as it related to a significant unusual transaction. As the implications of this item on the financial statements have been dealt with in the previous year, this is no longer considered to be a key audit matter.

Key audit matter	***Our audit work and observations***
Taxation - Provisions for uncertain tax positions *Note 12 and 27* The Company has recorded income taxes from continuing operations of $663 million, income tax receivables of $17 million, income tax payables of $239 million, and net deferred tax liabilities of $1,900 million. The Company operates in multiple jurisdictions throughout the world, and their tax returns are periodically audited or subjected to review by tax authorities. As a result, there is an uncertainty in income taxes recognized in the financial statements. Management recognized uncertain income tax positions when they believe the probability, based on the technical merits, of the position or a portion thereof will be sustained upon examination. As disclosed by management, there has been increased attention, both in the U.S. and globally, to the tax practices of multinational companies, including the European Union's state aid investigations, proposals by the Organization for Economic Cooperation and Development with respect to base erosion and profit shifting, and European Union tax directives and their implementation. Given significant judgements that 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, we consider the provisions for uncertain tax provisions to be a key audit matter.	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. • 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 specialized skills and knowledge in taxation and performed the following substantive 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. • Tested the completeness of management's assessment of both the identification of uncertain tax positions and possible outcomes of each uncertain tax position. • Evaluated the status and results of tax audits with the relevant tax authorities. • Assessed the probability of tax positions of being sustained and the application of relevant tax laws. • Evaluated and challenged management's key assumptions particularly in cases where there had been developments with tax authorities. • Considered the nature of any evidence contrary to the assumptions used by management. • Evaluated communication with tax authorities. Finally, we evaluated the sufficiency of the related disclosures and found them to be appropriate and in line with the requirements of the accounting framework.

Emphasis of matter - uncertainty related to the effects of the corona virus (COVID-19)

We draw attention to note 2 in the financial statements in which the board of directors has described the possible impact and consequences of the corona virus (COVID-19) on the Company and the environment in which the Company operates as well as the measures taken and planned to deal with these events or circumstances. This note also indicates that uncertainties remain and that currently it is not reasonably possible to estimate the future impact. Our opinion is not modified in respect of this matter.

Report on the other information included in the annual report

In addition to the financial statements and our auditor's report thereon, the annual report contains other information that consists of:

- the report of the board of directors;
- governance and compliance paragraph, including the report by the board of directors;
- the other information pursuant to Part 9 of Book 2 of the Dutch Civil Code;

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;
- contains the 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 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 performed in our audit of the financial statements.

The board of directors is responsible for the preparation of the other information, including the board of 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. following the passing of a resolution by the shareholders at the annual meeting held on 31 May 2019. Our appointment has been renewed annually by shareholders representing a total period of uninterrupted engagement appointment of ten 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 with 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.

As part of the preparation of 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 events and circumstances that may cast significant doubt on the Company's ability to continue as a going concern in the financial statements.

The board of directors is responsible for overseeing the Company's financial reporting process.

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, which makes it possible that we may not detect all material misstatements. Misstatements may arise due to fraud or error. They are considered to be 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.

Utrecht, 15 April 2020
PricewaterhouseCoopers Accountants N.V.

A.C.M. van der Linden RA

Appendix to our auditor's report on the financial statements 2019 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 Company's 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, not communicating the matter is in the public interest.