

UNITED STATES
SECURITIES AND EXCHANGE COMMISSION

Washington, D.C. 20549

Form 10-K

(Mark One)

ANNUAL REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

For the fiscal year ended March 31, 2022

or

TRANSITION REPORT PURSUANT TO SECTION 13 OR 15(d) OF THE SECURITIES EXCHANGE ACT OF 1934

For the transition period from _____ to _____

Commission file number 001-32312

Novelis Inc.

(Exact name of registrant as specified in its charter)

Canada

(State or other jurisdiction of incorporation or organization)

98-0442987

(I.R.S. Employer Identification No.)

3560 Lenox Road, Suite 2000
Atlanta, GA

(Address of principal executive offices)

30326

(Zip Code)

Registrant's telephone number, including area code: (404) 760-4000

Securities registered pursuant to Section 12(b) of the Act: None

Securities registered pursuant to Section 12(g) of the Act: None

Indicate by check mark if the registrant is a well-known seasoned issuer, as defined in Rule 405 of the Securities Act. Yes No

Indicate by check mark if the registrant is not required to file reports pursuant to Section 13 or Section 15(d) of the Act. Yes No

Indicate by check mark whether the registrant (1) has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months (or for such shorter period that the registrant was required to file such reports), and (2) has been subject to such filing requirements for the past 90 days. Yes No

The registrant is a voluntary filer and is not subject to the filing requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934. However, the registrant has filed all reports required to be filed by Section 13 or 15(d) of the Securities Exchange Act of 1934 during the preceding 12 months.

Indicate by check mark whether the registrant has submitted electronically every Interactive Data File required to be submitted pursuant to Rule 405 of Regulation S-T (§ 232.405 of this chapter) during the preceding 12 months (or for such shorter period that the registrant was required to submit such files). Yes No

Indicate by check mark whether the registrant is a large accelerated filer, an accelerated filer, a non-accelerated filer, a smaller reporting company, or an emerging growth company. See the definitions of "large accelerated filer," "accelerated filer," "smaller reporting company," and "emerging growth company" in Rule 12b-2 of the Exchange Act.

Large accelerated filer

..

Accelerated filer

..

Non-accelerated filer

..

Smaller reporting company

..

Emerging growth company

..

If an emerging growth company, indicate by check mark if the registrant has elected not to use the extended transition period for complying with any new or revised financial accounting standards provided pursuant to Section 13(a) of the Exchange Act.

Indicate by check mark whether the registrant has filed a report on and attestation to its management's assessment of the effectiveness of its internal control over financial reporting under Section 404(b) of the Sarbanes-Oxley Act (15 U.S.C.7262(b)) by the registered public accounting firm that prepared or issued its audit report.

Indicate by check mark whether the registrant is a shell company (as defined in Rule 12b-2 of the Act). Yes No

The registrant is a privately held corporation. As of September 30, 2021, the last business day of the registrant's most recently completed second fiscal quarter, there was no established public trading market for the common stock of the registrant and therefore, an aggregate market value of the registrant's common stock is not determinable.

As of May 10, 2022, the registrant had 1,000 common shares outstanding. All of the registrant's outstanding shares were held indirectly by Hindalco Industries Ltd., the registrant's parent company.

DOCUMENTS INCORPORATED BY REFERENCE: None

COMMONLY USED OR DEFINED TERMS

Term	Definition
Aleris	Aleris Corporation
AluInfra	AluInfra Services
Alunorf	Aluminium Norf GmbH
ASC	FASB Accounting Standards Codification
ASU	FASB Accounting Standards Update
Duffel	Plant located in Duffel, Belgium, required to be divested (Refer to Note 3 – Discontinued Operations)
Adjusted EBITDA	Equivalent to segment income as defined in Note 23 – Segment, Geographical Area, Major Customer and Major Supplier Information
Exchange Act	Securities Exchange Act of 1934, as amended
FASB	Financial Accounting Standards Board
fiscal 2018	Fiscal year ended March 31, 2018
fiscal 2019	Fiscal year ended March 31, 2019
fiscal 2020	Fiscal year ended March 31, 2020
fiscal 2021	Fiscal year ended March 31, 2021
fiscal 2022	Fiscal year ended March 31, 2022
fiscal 2023	Fiscal year ending March 31, 2023
Form 10-K	Annual Report on Form 10-K
FRP	Flat-rolled products
GAAP	Generally Accepted Accounting Principles
kt	kilotonne (One kt is 1,000 metric tonnes.)
Kobe	Kobe Steel, Ltd.
Lewisport	Plant located in Lewisport, Kentucky, required to be divested (Refer to Note 3 – Discontinued Operations)
Logan	Logan Aluminum Inc.
LME	The London Metals Exchange
LMP	Local market premium
MMBtu	One decatherm or 1 million British Thermal Units
OEM	Original equipment manufacturer
PU	Performance units
R&D	Research and development
RSUs	Restricted stock units
SARs	Stock appreciation rights
SEC	United States Securities and Exchange Commission
Segment income	As defined in Note 23 – Segment, Geographical Area, Major Customer and Major Supplier Information
SG&A	Selling, general and administrative expenses
Tri-Arrows	Tri-Arrows Aluminum Inc.
UAL	Ulsan Aluminum Ltd.
UBC	Used beverage can
U.S.	United States
U.K.	United Kingdom
VIE	Variable interest entity

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SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS AND MARKET DATA

This document contains forward-looking statements that are based on current expectations, estimates, forecasts and projections about the industry in which we operate, and beliefs and assumptions made by our management. Such statements include, in particular, statements about our plans, strategies, and prospects under the headings "Item 1. Business," "Item 1A. Risk Factors," and "Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations." Words such as "expect," "anticipate," "intend," "plan," "believe," "seek," "estimate" and variations of such words and similar expressions are intended to identify such forward-looking statements. Examples of forward-looking statements in this Annual Report on Form 10-K include, but are not limited to, our belief that, as a result of the Aleris acquisition, we can more efficiently serve the automotive market and unlock synergies; the expected timing and results from investments in certain operating facilities, including our planned investment of approximately \$2.5 billion greenfield rolling mill in Bay Minette, Alabama; our projections regarding financial performance, liquidity, capital expenditures and investments; and the possible future impacts of the COVID-19 pandemic and the actions taken against it, including expectations about the impact of any changes in demand as well as volatility and uncertainty in general economic conditions. These statements are based on beliefs and assumptions of Novelis' management, which in turn are based on currently available information. These statements are not guarantees of future performance and involve assumptions and risks and uncertainties that are difficult to predict. Therefore, actual outcomes and results may differ materially from what is expressed, implied, or forecasted in such forward-looking statements. We do not intend, and we disclaim any obligation, to update any forward-looking statements, whether as a result of new information, future events or otherwise.

Factors that could cause actual results or outcomes to differ from the results expressed or implied by forward-looking statements include, among other things: changes in the prices and availability of aluminum (or premiums associated with such prices) or other materials and raw materials we use; inflationary pressures impacting the price of labor, freight, coatings, and alloys; the capacity and effectiveness of our hedging activities; relationships with, and financial and operating conditions of, our customers, suppliers and other stakeholders; fluctuations in the supply of, and prices for, energy in the areas in which we maintain production facilities; our ability to access financing including in connection with potential acquisitions and investments; continued risks stemming from the Aleris acquisition, including uncertainties inherent in the acquisition method of accounting; disruption to our global aluminum production and supply chain as a result of COVID-19 or geopolitical factors, such as Russia's recent invasion of Ukraine; changes in the relative values of various currencies and the effectiveness of our currency hedging activities; factors affecting our operations, such as litigation, environmental remediation and clean-up costs, breakdown of equipment and other events; economic, regulatory and political factors within the countries in which we operate or sell our products, including changes in duties or tariffs; risks related to cybersecurity and data breaches; our potential inability to protect our intellectual property and the confidentiality of our know-how, trade secrets, technology, and other proprietary information; competition from other aluminum rolled products producers as well as from substitute materials such as steel, glass, plastic and composite materials; downturns in consumer demand for our products or changes in consumer preferences as it relates to our products; the impact of the global semiconductor shortage on automotive production and demand for automotive aluminum sheet; changes in general economic conditions including deterioration in the global economy; the risks of pandemics or other public health emergencies, including the continued spread and impact of, and the governmental and third party response to, the ongoing COVID-19 outbreak; the impact of climate change or the legal, regulatory, or market response to climate change; changes in government regulations, particularly those affecting taxes, derivative instruments, environmental, health or safety compliance; risks that production levels and margins of our recent capital expenditures do not grow in line with our current expectations and that we may not realize returns commensurate with our investments; changes in interest rates that have the effect of increasing the amounts we pay under our credit facilities and other financing agreements; and our ability to generate cash. The above list of factors is not exhaustive.

This document also contains information concerning our markets and products generally, which is forward-looking in nature and is based on a variety of assumptions regarding the ways in which these markets and product categories will develop. These assumptions have been derived from information currently available to us and to the third party industry analysts quoted herein. This information includes but is not limited to product shipments and share of production. Actual market results may differ from those predicted. We do not know what impact any of these differences may have on our business, our results of operations, financial condition, and cash flow. For a discussion of some of the specific factors that may cause Novelis' actual results to differ materially from those projected in any forward-looking statements, see the following sections of this report: Part I. Item 1A. Risk Factors and Part II. Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations.

SPECIAL NOTE REGARDING FORWARD-LOOKING STATEMENTS AND MARKET DATA

In this Form 10-K, unless otherwise specified, the terms "we," "our," "us," "Company," and "Novelis" refer to Novelis Inc., a company incorporated in Canada under the Canadian Business Corporations Act, and its subsidiaries. References herein to "Hindalco" refer to Hindalco Industries Limited, which acquired Novelis in May 2007. Unless otherwise specified, the period referenced is the current fiscal year.

Exchange Rate Data

We report our financial statements in U.S. dollars. The following table sets forth exchange rate information expressed in terms of Canadian dollars per U.S. dollar based on exchange data published daily from Citibank as of 16:00 Greenwich Mean Time 11:00 A.M. Eastern Standard Time). The rates set forth below may differ from the actual rates used in our accounting processes and in the preparation of our consolidated financial statements.

Period	At Period End	Average Rate ⁽¹⁾	High	Low
Fiscal 2018	1.2889	1.2826	1.3667	1.2305
Fiscal 2019	1.3360	1.3141	1.3657	1.2824
Fiscal 2020	1.4245	1.3333	1.4245	1.2969
Fiscal 2021	1.2566	1.3179	1.3889	1.2566
Fiscal 2022	1.2490	1.2525	1.2824	1.2082

(1) This represents the average of the 16:00 Greenwich Mean Time buying rates on the last day of each month during the period.

All dollar figures herein are in U.S. dollars unless otherwise indicated.

Commonly Referenced Data

As used in this Form 10-K, consolidated "aluminum rolled product shipments," "flat-rolled product shipments," or "shipments" refers to aluminum rolled product shipments to third parties. Regional "aluminum rolled product shipments," "flat-rolled product shipments," or "shipments" refers to aluminum rolled product shipments to third parties and intersegment shipments to other Novelis regions. Shipment amounts also include tolling shipments. References to "total shipments" include aluminum rolled product shipments as well as certain other non-rolled product shipments, primarily scrap, UBCs, ingots, billets, and primary remelt. The term "aluminum rolled products" is synonymous with the terms "flat-rolled products" and "FRP" which are commonly used by manufacturers and third-party analysts in our industry. All tonnages are stated in metric tonnes. One metric tonne is equivalent to 2,204.6 pounds. One kt is 1,000 metric tonnes.

A significant amount of our business is conducted under a conversion model, which allows us to pass through increases or decreases in the price of aluminum to our customers. Nearly all of our flat-rolled products have a price structure with three components: (1) a base aluminum price quoted off the LME; (2) a LMP; and (3) a "conversion premium" to produce the rolled product which reflects, among other factors, the competitive market conditions for that product. The use of the term "conversion premium" in this Form 10-K, refers to the conversion costs plus a margin we charge our customers to produce the rolled product, which reflects, among other factors, the competitive market conditions for that product, exclusive of the pass through aluminum price.

PART I

Item 1. Business.

Overview

Novelis is driven by its purpose of shaping a sustainable world together. We are a global leader in the production of innovative aluminum products and solutions and the world's largest recycler of aluminum. Our ambition is to be the leading provider of low-carbon, sustainable aluminum solutions and to achieve a fully circular economy by partnering with our suppliers, as well as our customers in the aerospace, automotive, beverage can, and specialties industries throughout North America, Europe, Asia, and South America. Novelis is a subsidiary of Hindalco, an industry leader in aluminum and copper and the metals flagship company of the Aditya Birla Group, a multinational conglomerate based in Mumbai. We have recycling operations in many of our plants to recycle both post-consumer and post-industrial aluminum. During fiscal 2022, we had total shipment volumes of 4,080 kt and net sales of \$17.1 billion.

Our History

Organization and Description of Business

Novelis was formed in Canada on September 21, 2004. On May 15, 2007, Novelis was acquired by Hindalco. All of the outstanding shares of Novelis are owned directly by AV Metals Inc. and indirectly by Hindalco. We produce aluminum plate, sheet, and light gauge products for use in the packaging market, which includes beverage and food can and foil products, as well as for use in the automotive, transportation, aerospace, electronics, architectural, and industrial product markets. As of March 31, 2022, we had manufacturing operations in nine countries on four continents: North America, South America, Europe, and Asia, with 33 operating facilities, which may include any combination of hot or cold rolling, finishing, casting, or recycling capabilities. We have recycling operations in 15 of our operating facilities to recycle post-consumer aluminum, such as UBCs, and post-industrial aluminum, such as class scrap.

Our Industry

The aluminum rolled products market represents the global supply of, and demand for, aluminum sheet, plate, and foil produced either from sheet ingot or continuously cast roll-stock in rolling mills operated by both independent aluminum rolled products producers and integrated aluminum companies.

Aluminum rolled products are semi-finished aluminum products that constitute the raw material for the manufacture of finished goods ranging from automotive structures and body panels to food and beverage cans. There are two major types of manufacturing processes for aluminum rolled products differing mainly in the process used to achieve the initial stage of processing:

- *hot mills* — which require sheet ingot, a rectangular slab of aluminum, as starter material; and
- *continuous casting mills* — which can convert molten metal directly into semi-finished sheet.

Both processes require subsequent rolling, which we refer to as cold rolling, and finishing steps such as annealing, coating, leveling, or slitting to achieve the desired thickness, width and metal properties. Most customers receive shipments in the form of aluminum coil, a large roll of metal, which can be utilized in their fabrication processes.

Industry Sources of Metal

There are two sources of input material: (1) recycled aluminum, produced by remelting post-industrial and post-consumer scraps, and (2) primary aluminum, produced from alumina (extracted from bauxite), processed in a smelter.

Primary aluminum and sheet ingot can generally be purchased at prices set on the LME, plus a local market premium that varies by geographic region of delivery, alloying material, form (ingot or molten metal) and purity.

Recycled aluminum is generally purchased at a discount compared to the price of primary aluminum depending on type and quality of the scrap, geographic region, and other market factors.

Industry End-use Markets

Aluminum rolled products companies produce and sell a wide range of products, which can be grouped into five end-use markets: (1) packaging, (2) transportation, (3) architectural, (4) industrial, and (5) consumer durables and other. Within each end-use market, aluminum rolled products are manufactured with a variety of alloy mixtures, including a range of tempers (hardness), gauges (thickness), and widths as well as various coatings and finishes. Large customers typically have customized needs that require close working relationships, including technical development and support with their supplying mills.

Aluminum has a wide variety of uses in end-use markets because of its lightweight characteristics, recyclability, and formability properties. The recyclability of aluminum enables it to be used, collected, melted, and returned to the original product form an unlimited number of times, unlike paper and polyethylene terephthalate plastic, which deteriorate with every iteration of recycling.

Packaging. Aluminum is used in beverage cans and bottles, food cans, beverage screw caps, and foil, among others. Packaging is the largest aluminum rolled products application, according to market data from Commodity Research Unit International Limited, an independent business analysis and consultancy group. Beverage cans are one of the largest aluminum rolled products applications. Aluminum remains the most sustainable packaging material for beverage brands. In addition to their recyclability, aluminum beverage cans offer advantages in fabricating efficiency and product shelf life. Fabricators are able to produce and fill beverage cans at very high speeds, and non-porous aluminum cans provide longer shelf life than glass or polyethylene terephthalate plastic containers. Additionally, the use of aluminum to package beverages such as craft beer is increasing, as aluminum blocks sunlight and therefore maintains the quality and taste of the product longer. Aluminum cans are light, stackable and use space efficiently, making them convenient and cost-efficient to ship.

Beverage can sheet is sold in coil form for the production of can bodies, ends, and tabs. The material can be ordered as rolled, degreased, pre-lubricated, pre-treated, and/or lacquered. Typically, can makers define their own specifications for material to be delivered in terms of alloy, gauge, width, and surface finish.

Foil wrap or packaging foil is another packaging application and it includes household and institutional aluminum foil. Container foil is used to produce semi-rigid containers such as pie plates and take-out food trays.

Transportation. Aluminum rolled products are used in vehicle structures (also known as "body-in-white") as well as automotive body panel applications, including hoods, doors, deck lids, fenders, and lift gates. Flat-rolled aluminum sheet is also used in the production of battery enclosures for the growing electric vehicle market. These uses typically result from cooperative efforts between aluminum rolled products manufacturers and their customers that yield solutions for specific requirements in alloy selection, fabrication procedure, surface quality and joining. There has been recent growth in certain geographic markets in passenger and commercial vehicle applications due to the lighter weight, better fuel economy and improved emissions performance associated with these applications. We expect increased growth in this end-use market driven by the increased adoption of electric vehicles, which use higher amounts of aluminum, as well as government regulations requiring improved emissions and better fuel economy for internal combustion engine vehicles, while also maintaining or improving vehicle performance and safety.

Heat exchangers, such as radiators, air conditioners, and auto fin material, are an important application for aluminum rolled products in the transportation end-use market. Original equipment manufacturers also use aluminum sheet, with specially treated surfaces and other specific properties, for interior and exterior applications. Newly developed alloys are being used in transportation tanks and rigid containers allowing for safer and more economical transportation of hazardous and corrosive materials.

Aluminum is also used in aerospace applications, as well as in the construction of ships' hulls, superstructures, and passenger rail cars because of its strength, light weight, formability, and corrosion resistance.

Architectural. Construction is the largest application within this end-use market. Aluminum rolled products developed for the construction industry are often decorative and non-flammable, offer insulating properties, are durable and corrosion resistant, and have a high strength-to-weight ratio. Aluminum siding, gutters, and downspouts comprise a significant amount of construction volume. Other applications include doors, windows, awnings, canopies, facades, roofs, and ceilings.

Industrial. Industrial applications include heat exchangers, process and electrical machinery, lighting fixtures, furniture, and insulation.

Consumer Durables and Other. Aluminum's lightweight characteristics, high formability, ability to conduct electricity and dissipate heat and its corrosion resistance makes it useful in a wide variety of electronic applications. Uses of aluminum rolled products in electronics include flat screen televisions, personal computers, laptops, and mobile devices. Other uses of aluminum rolled products in consumer durables include microwaves, coffee makers, air conditioners, and cooking utensils.

Market Structure and Competition

The aluminum rolled products market is highly competitive and is characterized by economies of scale, and significant capital investments are required to achieve and maintain technological capabilities and demanding customer qualification standards. Our primary aluminum competitors are as follows.

North America

Arconic Inc. ("Arconic")
Commonwealth Rolled Products
Constellium SE ("Constellium")
Golden Aluminum
Gränges AB
JW Aluminum
Kaiser Aluminum
Ma'aden - Saudi Arabian Mining Company ("Ma'aden")
Shandong Nanshan Aluminum Co., Ltd.
UACJ Corporation/Tri-Arrows

Asia

Arconic
Binzhou Weiqiao Aluminium Science & Technology Co., Ltd.
China Zhongwang Holdings Limited
Chinalco Group
Henan Mingtai Aluminum Industrial Co., Ltd.
Henan Zhongfu Industrial Co., Ltd.
Kobe
Ma'aden
Shandong Nanshan Aluminum Co., Ltd.
Southwest Aluminum (Group) Co., Ltd.
UACJ Corporation

Europe

ALVANCE
AMAG Austria Metall AG
Arconic
Constellium
Elval Hellenic Aluminium Industry S.A.
Gränges AB
Henan Zhongfu Industrial Co., Ltd.
Hulamin
Ma'aden
Shandong Nanshan Aluminum Co., Ltd.
Speira GmbH

South America

Arconic
Companhia Brasileira de Alumínio
Hulamin Limited
Shandong Nanshan Aluminum Co., Ltd.
Speira GmbH

The factors influencing competition vary by region and end-use market, but generally we compete on the basis of our value proposition, which includes price, product quality, the ability to meet customers' specifications, range of products offered, lead times, technical support, and customer service. In some end-use markets, competition is also affected by fabricators' requirements that suppliers complete a qualification process to supply their plants. This process can be rigorous and may take many months to complete. As a result, obtaining business from these customers can be a lengthy and expensive process. However, the ability to obtain and maintain these qualifications can represent a competitive advantage.

In addition to competition from others within the aluminum rolled products industry, we also face competition from non-aluminum material producers. In the packaging end-use market (primarily beverage and food cans), aluminum rolled products compete mainly with glass, polyethylene terephthalate plastic, and in some regions, steel. In the transportation end-use market, aluminum rolled products compete mainly with steel and composites. Aluminum competes with wood, plastic, cement, steel and other materials in building products applications. Aluminum competes with steel, copper, plastic, glass, and other materials in industrial applications. Additionally, aluminum rolled products compete mainly with plastic, steel, and magnesium in the consumer durables end-use market. Factors affecting competition with substitute materials include price, ease to manufacture, consumer preference and performance characteristics.

Key Factors Affecting Supply and Demand

The following factors have historically affected the supply of aluminum rolled products:

Production Capacity and Alternative Technology. The addition of rolling capacity requires large capital investments and significant plant construction or expansion, and typically requires long lead-time equipment orders. Advances in technological capabilities allow aluminum rolled products producers to better align product portfolios and supply with industry demand. There are lower cost ways to enter the industry such as continuous casting, which offers the ability to increase capacity in smaller increments than is possible with hot mill additions. However, the continuous casting process results in a more limited range of products.

Trade. Some trade flows occur between regions despite shipping costs, import duties, tariffs, and the lack of localized customer support. Higher value-added products are more likely to be traded internationally, especially if demand in certain markets exceeds local supply. With respect to less technically demanding applications, emerging markets with low cost inputs may export commodity aluminum rolled products to larger, more mature markets as we have seen with China.

The following factors have historically affected the demand for aluminum rolled products:

Economic Growth. We believe that economic growth is a significant driver of aluminum rolled products demand. In mature markets, growth in demand has typically correlated closely with industrial production growth. In many emerging markets, growth in demand typically exceeds industrial production growth largely because of expanding infrastructures, capital investments and rising incomes that often accompany economic growth in these markets.

Substitution Trends. Manufacturers' willingness to substitute other materials for aluminum in their products and competition from substitution materials suppliers also affect demand. There has been a strong substitution trend toward aluminum in the use of vehicles as automobile manufacturers look for ways to meet fuel efficiency regulations; improve performance; reduce carbon emissions in a cost-efficient manner; and lower vehicle weight, particularly in electric vehicles. As a result of aluminum's durability, strength and light weight, automobile manufacturers are substituting heavier alternatives, such as steel and iron, with aluminum. Carbon fiber and plastics are other lightweight material options, but their relatively high cost and limited end-of-life recyclability reduce their competitiveness as widespread material substitutes today. Consequently, demand for flat-rolled aluminum products has increased. We also see strong substitution trends toward aluminum in the beverage can market. With aluminum being the most sustainable packaging material for beverages, demand for infinitely recyclable aluminum remains strong. Package mix shift from other materials like glass, steel and polyethylene terephthalate into aluminum, and new beverage introductions – such as energy drinks, canned cocktails, spiked seltzer, and sparkling waters – all support demand levels.

Seasonality. During our third fiscal quarter, we typically experience seasonal slowdowns resulting in lower shipment volumes, although this has been less significant as our product portfolio shifts and diversifies. This is a result of declines in overall production output due primarily to holidays and cooler weather in North America and Europe, our two largest operating regions. We also experience downtime at our mills and customers' mills due to scheduled plant maintenance and are impacted to a lesser extent by the seasonal downturn in construction activity.

Sustainability. Growing awareness of environmentalism and demand for recyclable products has increased the demand for aluminum rolled products, particularly increased consumer preference for more sustainable beverage packaging options. Unlike other commonly recycled materials such as paper or polyethylene terephthalate plastic, aluminum can be infinitely recycled without affecting the quality of the product. Additionally, the recycling process uses approximately 95% less energy than is required to produce primary aluminum from mining and smelting, with an approximate equivalent reduction in greenhouse gas emissions.

Our Business Strategy

The following discussion contains forward-looking statements that reflect our plans, estimates and beliefs. Our actual results could differ materially from those discussed in these forward-looking statements. Factors that could cause or contribute to these differences include, but are not limited to, those discussed below and elsewhere in this Form 10-K, particularly in [Special Note Regarding Forward-Looking Statements and Market Data](#) and [Part I, Item 1A, Risk Factors](#).

Novelis is driven by its purpose of shaping a sustainable world together. Our ambition is to be the world's leading provider of low-carbon, sustainable aluminum solutions that advance our business, industry, and society toward the benefits of a circular economy. To achieve these objectives, we plan to focus on the following areas:

Defend the Core

Novelis is the leading global flat-rolled aluminum supplier in the beverage can and automotive markets. We intend to protect our leadership position by continuing to deliver best-in-class customer service with high quality, service and innovative solutions that differentiate our products. We are committed to producing the best quality products and aiming to provide reliable, on-time delivery in order to be a true partner in innovation and sustainable supply solutions. We are focused on building and maintaining strong, positive relationships with all of our customers and increasing our production capacity to meet growing demand. We have established a global network of Customer Solution Centers to accelerate collaborative innovation between Novelis and automakers to determine how to maximize lightweight, high-strength aluminum for the next generation of vehicle design.

In addition, we plan to maintain a competitive cost structure by managing metal input costs and employing initiatives to improve operational efficiencies across our global network. This includes a commitment to employee safety, product quality, and system reliability. As a manufacturing organization, we are committed to a culture focused on health and safety across all levels of the organization. We are focused on optimizing our manufacturing and recycling operations to increase asset utilization and productivity. We continue to pursue a standardization of our manufacturing processes where possible, while still allowing the flexibility to respond to local market demands.

Utilizing recycled material allows us to diversify our metal supply, helps control metal costs, and provides environmental benefits. We define recycled content as total aluminum rolled product shipments minus primary metal (net of metal loss) plus coated scrap and runaround melt loss. The percentage of recycled content within our aluminum rolled product shipments has increased from 33% to 57% from fiscal 2011 to fiscal 2022. We work closely with our customers on innovation to drive more sustainable products for society. We are the only company of its size offering high-recycled content aluminum sheet for beverage and specialty product customers. We are also working closely with our automotive customers to redesign automotive alloys to be made with more recycled inputs, as well as purchasing the aluminum scrap resulting from our closed-loop recycling partnership with our automotive customers.

Strengthen our Product Portfolio

We maintain a focus on capturing global growth in beverage can, automotive, aerospace, and specialty products markets. Our management approach helps us to systematically identify opportunities to improve the profitability of our operations through product portfolio analysis. This helps us target growth in attractive market segments, while also taking actions to exit or minimize participation in less attractive ones. We will continue to focus on these core product markets to drive profitability, while also aiming to broaden our customer base and explore new verticals and product markets that fit within our overall strategic vision, which is to lead the aluminum industry as the partner of choice for innovative solutions.

Invest in Growth Opportunities

Over the past several years, we have invested in world-class assets and technical capabilities to meet increasing global demand for aluminum, particularly within the automotive market due to our continued focus on scaling our business model and growing alongside our customers.

With strong markets, innovative products, solid customer partnerships, financial flexibility, and decades of manufacturing and recycling experience, we expect to see robust growth and organic investment opportunities for many years to come. We have identified more than \$4.5 billion of organic growth capital spend opportunities over the next five years focused on increasing capacity and capabilities that meet growing customer demand and align with our sustainability commitments. We believe Novelis has the balance sheet strength and financial flexibility to invest in growth, while at the same time maintaining net debt leverage targets and shareholder and return commitments. We plan to continue to implement world class manufacturing initiatives and leverage digital technologies and other advancements in R&D and IT to unlock capacity, capture growth, and support sustainability initiatives.

For a discussion of recent commitments and expenditures, see [Part II, Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations](#).

We are exploring additional rolling and recycling capacity investment opportunities in all regions with the goal of driving profitable volume growth in our core end markets, while maintaining a balanced and disciplined financial approach in our decision-making process.

Working Capital

We manage working capital based on cash needs as well as in an attempt to balance the timing of trade payables and receivables, including through factoring of trade receivables.

Raw Materials and Suppliers

The input materials we use in manufacturing include primary aluminum, recycled aluminum, sheet ingot, alloying elements, and grain refiners. These raw materials are generally available from several sources and are not generally subject to supply constraints in normal market conditions. We also consume considerable amounts of energy in the operation of our facilities. For a discussion of current inflation and supply chain impacts on our materials, see [Part II, Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations](#).

Aluminum

We obtain aluminum from a number of sources, including the following:

Primary Aluminum Sourcing. We purchased or tolled approximately 1,625 kt of primary aluminum in fiscal 2022 in the form of sheet ingot, standard ingot, and molten metal.

Aluminum Products Recycling. We operate facilities in several plants to recycle post-consumer aluminum, such as UBCs collected through recycling programs. In addition, we have agreements with several of our large customers to have a closed-looped system whereby we take production scrap material from their fabricating activity and re-melt, cast, and roll it to re-supply these customers with aluminum sheet. Other sources of recycled material include lithographic plates and products with longer lifespans, like vehicles and buildings, which are starting to become high-volume sources of recycled material. We purchased or tolled approximately 2,214 kt of recycled content in fiscal 2022.

The overall benefit we receive from utilizing recycled metal is influenced by the overall price levels of the LME and local market premiums, the spread between the price for recycled aluminum and the LME primary aluminum price, and our consumption levels of the recycled material inputs. We have in the past and may continue to seek to stabilize our future exposure to metal prices through the use of derivative instruments.

Energy

We use several sources of energy in the manufacturing and delivery of our aluminum rolled products. In fiscal 2022, natural gas and electricity represented approximately 98% of our energy consumption by cost. We also use fuel oil and transport fuel. The majority of energy usage occurs at our casting centers and during the hot rolling process. Our cold rolling facilities require relatively less energy. We purchase our natural gas on the open market, which subjects us to market pricing fluctuations. We have in the past and may continue to seek to stabilize our future exposure to natural gas prices through the use of derivative instruments. A portion of our electricity requirements are purchased pursuant to long-term contracts in the local regions in which we operate. A number of our facilities are located in regions with regulated prices, which affords relatively stable costs. We have fixed pricing on some of our energy supply arrangements.

Our Operating Segments

Due in part to the regional nature of supply and demand of aluminum rolled products and in order to best serve our customers, we manage our activities on the basis of geographical areas and are organized under four operating segments: North America, Europe, Asia, and South America. Each segment manufactures aluminum sheet and light gauge products and recycles aluminum, while our Asia and Europe segments also produce aerospace and industrial plate.

The table below shows net sales and total shipments by segment. For additional financial information related to our operating segments, see [Note 23 – Segment, Geographical Area, Major Customer and Major Supplier Information](#) to our accompanying consolidated financial statements.

<i>Net sales in millions/shipments in kt</i>	<u>Fiscal 2022</u>	<u>Fiscal 2021</u>	<u>Fiscal 2020</u>
Consolidated			
Net sales	\$ 17,149	\$ 12,276	\$ 11,217
Total shipments	4,080	3,839	3,429
North America⁽¹⁾			
Net sales	\$ 6,735	\$ 4,558	\$ 4,118
Total shipments	1,480	1,381	1,155
Europe⁽¹⁾			
Net sales	\$ 4,720	\$ 3,552	\$ 3,095
Total shipments	1,187	1,099	940
Asia⁽¹⁾			
Net sales	\$ 3,036	\$ 2,182	\$ 1,969
Total shipments	788	751	724
South America⁽¹⁾			
Net sales	\$ 2,638	\$ 1,798	\$ 1,904
Total shipments	716	671	675

(1) Net sales and total shipments by segment include intersegment sales and the results of our affiliates on a proportionately consolidated basis, which is consistent with the way we manage our business segments.

A description of our operating segments during all or part of fiscal 2022 follows.

North America

Novelis North America operates 17 aluminum products facilities. This includes seven facilities with recycling operations that re-melt post-consumer aluminum and recycled process material. Most of the recycled material is from UBCs and automotive scrap, and the material is cast at our plants in Berea, Kentucky; Davenport, Iowa; Greensboro, Georgia; Oswego, New York; Richmond, Virginia; Russellville, Kentucky; and Uhrichsville, Ohio.

Our facilities in North America manufacture a broad range of aluminum sheet and light gauge products. End-use markets for this segment primarily include beverage and food cans, containers and packaging, automotive and other transportation applications, architectural, and other industrial applications. Beverage and food can represent the largest end-use market in terms of shipment volume for North America.

A significant portion of North America's volumes is also directed toward the aluminum automotive sheet market, produced out of our Oswego, New York, and Kingston, Ontario, plants. We also now produce aluminum automotive sheet at our 200 kt greenfield automotive finishing plant in Guthrie, Kentucky, which began shipping its first commercial coils in late fiscal 2021.

We recently announced plans to expand rolling capacity and automotive finishing capabilities in Oswego, New York, and construct a highly advanced automotive recycling facility in Guthrie, Kentucky. In May 2022, we also announced plans to invest approximately \$2.5 billion to build a fully integrated, greenfield rolling mill in North America with an annual capacity of 600 kt.

Europe

Novelis Europe operates 10 aluminum rolled product facilities, including five facilities with recycling operations. Recycling activities occur at Latchford, United Kingdom; Pieve, Italy; and Nachterstedt, Neuss, and Voerde, Germany. Our Nachterstedt plant is the largest aluminum recycling facility in the world.

Our European facilities manufacture a broad range of sheet, plate, and foil products. End-use markets for this segment include beverage and food can, automotive, architectural and industrial products, foil products, aerospace, and other products. Beverage and food can represent the largest end-use market in terms of shipment volume for Europe.

Due to strong consumer demand for sustainable aluminum products, we are evaluating additional rolling and recycling capacity expansion in Europe.

Asia

Novelis Asia operates four aluminum rolled product facilities, including two facilities with recycling operations. Recycling activities occur at the Ulsan and Yeongju, South Korea, plants. The Ulsan facility operates as a 50/50 joint venture with Kobe. Our Asia facilities manufacture a broad range of aluminum sheet, plate, and light gauge products. End-use markets include beverage and food cans, electronics, architectural, automotive, foil, industrial, aerospace, and other products. The beverage can market represents the largest end-use market in terms of volume. However, we are increasing shipments of aluminum automotive sheet through the recently completed 100 kt automotive finishing capacity expansion at our Changzhou, China, facility, which is now in production.

In response to increased customer demand for innovative, lightweight aluminum solutions, we have also announced an investment of approximately \$375 million into our operating facility in Zhenjiang, China, aimed at expanding its automotive aluminum capabilities and recycling operations. This investment will also release rolling capacity at UAL, the Company's joint venture in South Korea, to serve the can and specialty products markets. At the end of fiscal 2022, we also announced a \$50 million recycling and capacity expansion at UAL.

Due to strong consumer demand for sustainable aluminum products, we are evaluating additional rolling capacity expansion in Asia.

South America

Novelis South America operates two aluminum rolled product facilities. This includes one facility with recycling operations. Our facilities in South America manufacture a broad range of can sheet, industrial sheet, and light gauge products. The main markets are beverage and food can, specialty, industrial, foil and other packaging, and transportation end-use applications. Beverage can represents the largest end-use application in terms of shipment volume.

In fiscal 2022 we completed a \$150 million investment to expand both rolling and recycling capacity by 100 kt each at our Pindamonhangaba, Brazil, plant, which is now in production.

Due to strong consumer demand for sustainable beverage packaging, we are evaluating additional rolling and recycling capacity expansion at our Pindamonhangaba, Brazil, facility.

Financial Information About Geographic Areas

Certain financial information about geographic areas is contained in [Note 23 – Segment, Geographical Area, Major Customer and Major Supplier Information](#) to our accompanying consolidated financial statements.

Our Customers

We focus significant efforts on developing and maintaining close working relationships with our customers and end-users. Our major customers include:

Beverage and Food Cans

Anheuser-Busch InBev
Ardagh Group
Ball Corporation
Can-Pack S.A.
Crown Holdings Inc.
PepsiCo
Various bottlers of the Coca-Cola System

Construction, Industrial, and Other

Agfa Graphics
Aluflexpack
Amcor
American Construction Metals
DENSO
Gentek
HFA
Klöckner Metals
Mahle Behr
Lotte Aluminium Co., Ltd.
Omnimax International, Inc.
Ply Gem
Prefa
Reynolds Consumer Products LLC
Ryerson Inc.
ThyssenKrupp
VELUX

Automotive

BMW Group
Daimler Group
Ford Motor Company
General Motors LLC
Honda Motor Company
Hyundai Motors Corporation
Jaguar Land Rover
NIO
Renault-Nissan-Mitsubishi Alliance
Stellantis
Tesla, Inc.
Toyota Motor Corporation
Volkswagen Group
Volvo Cars

Electronics

LG International Corporation
Samsung Electronics Co., Ltd.

Aerospace

Airbus
Boeing
Bombardier
Embraer

Our single largest end-use product is beverage can sheet. We sell can sheet directly to beverage makers and bottlers as well as to can fabricators that sell the cans they produce to bottlers. In certain cases, we operate under umbrella agreements with beverage makers and bottlers under which they direct their can fabricators to source their requirements for beverage can body, can end stock, and tab stock from us.

Additional information related to our top customers is contained in [Note 23 – Segment, Geographical Area, Major Customer and Major Supplier Information](#) to our accompanying consolidated financial statements.

Distribution

We have two principal distribution channels for the end-use markets in which we operate: direct sales to our customers and sales to distributors.

	Fiscal 2022	Fiscal 2021	Fiscal 2020
Direct sales as a percentage of total net sales	96 %	94 %	95 %
Distributor sales as a percentage of total net sales	4	6	5

Direct Sales

We supply various end-use markets all over the world through a direct sales force operating from individual facilities or sales offices, as well as from regional sales offices. The direct sales channel typically serves very large, sophisticated fabricators and original equipment manufacturers. Longstanding relationships are maintained with leading companies in industries using aluminum rolled products. Supply contracts for large global customers generally range from one to five years in length and historically there has been a high degree of renewal business with these customers. Certain customers require suppliers to complete a lengthy and expensive qualification process. The ability to obtain and maintain these qualifications can represent a competitive advantage. Given the customized nature of products and in some cases, large order sizes, switching costs are significant, thus adding to the overall consistency of the customer base.

We also use third-party agents or traders in some regions to complement our own sales force. These agents provide service to our customers in countries where we do not have local expertise.

Distributors

We also sell our products through third-party aluminum distributors. Customers of distributors are widely dispersed, and sales through this channel are highly fragmented. Distributors sell mostly commodity or less specialized products into many end-use markets in small quantities, including the architectural and industrial markets. We collaborate with our distributors to develop new end-use products and improve the supply chain and order efficiencies.

Research and Development

The table below summarizes our R&D expenses, which include mini-scale production lines equipped with hot mills, can lines, and continuous casters.

<i>in millions</i>	Fiscal 2022	Fiscal 2021	Fiscal 2020
Research and development expenses	\$ 92	\$ 83	\$ 84

We conduct R&D activities in order to meet current and future customer requirements, improve our products, and reduce our conversion costs. We have a global research and technology center in Kennesaw, Georgia, which offers state of the art research and development capabilities to help Novelis meet the global long-term demand for aluminum used for the automotive, beverage can, aerospace, specialties markets. We also have a global casting engineering and technology center in Spokane, Washington, specializing in molten metal processing; automotive research and technology centers in Shanghai, China, and Sierre, Switzerland; a research and technology center specializing in the development of new products and processes for our can and specialties customers in Göttingen, Germany; an automotive customer solution center in Novi, Michigan; a research and development laboratory to advance carbon neutral solutions for aluminum manufacturing in Sierre, Switzerland; and aerospace innovation centers in Koblenz, Germany, and Zhenjiang, China.

Human Capital Resources

Our Employee Base

Novelis operates an integrated network of 33 technically advanced rolling and recycling facilities across North America, Europe, Asia, and South America. We have 17 operating facilities in North America, 10 in Europe, four in Asia, and two in South America. We have approximately 12,690 employees in nine countries.

The table below summarizes our approximate number of employees by region, excluding our proportionate share of those employed by less than wholly owned affiliates as well as temporary employees.

	North America ⁽¹⁾	Europe	Asia	South America	Total
March 31, 2022	4,630	4,630	1,800	1,630	12,690

(1) Includes employees within our Corporate headquarters located in Atlanta, Georgia, and our R&D facility located in Kennesaw, Georgia.

Purpose and Culture

We are proud of our purpose – Shaping a Sustainable World Together – which is supported by our vision – To Lead the Aluminum Industry as Partner of Choice for Innovative Solutions.

We provide training on our Code of Conduct, which reminds our people that we are committed to operating with high ethical standards and supporting a culture of integrity.

Diversity and Inclusion

We believe that the diverse backgrounds, expertise, and perspectives of our employee base contribute to our success and help us achieve our ambitious goals. Consistent with that belief, we aim to continue to build inclusive and diverse teams, and we are targeting increasing the percentage of women in Novelis' leadership and senior operational and technical roles. We support and embrace the diversity of our employees at all levels, and we focus on empowering our employee resource groups to create a more inclusive workplace.

Safety

We are focused on a safety as a key priority. Guiding us in this direction is our Novelis Safety System, which provides us with a systematic approach to identifying, managing, and mitigating risks in our operations. In addition, we ask all Novelis employees to look out for their own safety, as well as that of their colleagues, by following three basic safety obligations: (1) I will work safe, (2) I will intervene if I see somebody working unsafe, and (3) I will stop any unsafe behavior if intervened upon.

Talent Development

At Novelis, we make it a priority to identify and nurture talent. We are proud of programs, such as:

- Global Accelerated Leadership Program – Designed to develop talent for possible future leadership roles.
- Global Technical Training – High-impact technical training topics, relevant for entry-level or mid-career technical employees.
- Engineering Development Program – Technical talent pipeline enhancer that exposes participants to leaders from across the organization and includes courses on a wide-variety of technical and business subjects.

Compensation and Benefits Programs

Our compensation and benefits programs are designed to attract, retain, and engage a talented workforce. We believe our programs are competitive with our peers and emphasize performance-based compensation to align employee rewards with company performance. Benefits are a key component of our total rewards package. We offer a holistic benefits package designed to provide greater security for our employees and their families through healthcare, life insurance, paid parental leave, disability benefits, savings and retirement, and various other welfare benefit programs generally available to all active full-time employees through plans we sponsor or through social programs in the countries where we operate. We regularly conduct market pay equity assessments and compensation reviews, and we continue to actively work to reduce unconscious bias in our sourcing, hiring practices, performance reviews, and promotion opportunities that may contribute to pay inequities.

Employee Relations

We consider our employee relations to be satisfactory. A substantial portion of our employees are represented by labor unions and their employment conditions are governed by collective bargaining agreements. Collective bargaining agreements are negotiated on a site, regional, or national level and are of varying durations.

Intellectual Property

We actively review intellectual property arising from our operations and our R&D activities, and, when appropriate, we apply for patents in appropriate jurisdictions. We currently hold approximately 3,146 patents and patent applications on approximately 392 different items of intellectual property. While these patents and patent applications are important to our business on an aggregate basis, no single patent or patent application is deemed to be material to our business.

We have applied or received registrations for the "Novelis" word trademark and the Novelis logo trademark in approximately 55 countries where we have significant sales or operations. Novelis uses the Aditya Birla logo under license from Aditya Birla Management Corporation Private Limited.

We have also registered the word "Novelis" and several derivations thereof as domain names in numerous top-level domains around the world to protect our presence on the world wide web.

Environment, Health and Safety

As a purpose-driven company, Novelis strives to protect and preserve the environment and the health, safety, and well-being of our colleagues, customers, and communities. During fiscal 2022, we recycled over 82 billion used beverage cans, and recycled content made up 57% of total input in our aluminum rolled product. We define recycled content as total aluminum rolled product shipments minus primary metal (net of metal loss) plus coated scrap and runaround melt loss. The recycled content rate of 57% in fiscal 2022 is a reduction from the 61% reported in fiscal 2021 largely due to reduced scrap inputs impacted by supply chain disruption and logistical challenges. With our plant operations around the globe, we continue to focus on reducing carbon emissions, limiting water consumption, and lowering electricity usage while targeting year-over-year improvements in overall production. During fiscal 2022, 14 facilities achieved major safety milestones by operating 365 consecutive days without a recordable injury.

Our global operations are subject to environmental, health and safety laws and regulations from various jurisdictions, which govern, among other things, air emissions; wastewater discharges; the handling, storage, and disposal of hazardous substances and wastes; the remediation of contaminated sites and restoration of natural resources; carbon and other greenhouse gas emissions; and employee health and safety. Future environmental, health and safety regulations may impose stricter compliance requirements on the industries in which we operate. Additional equipment or process changes at some of our facilities, and related capital expenditures, which may be material, may be needed to meet existing or future requirements. The cost of meeting these requirements may be significant. Failure to comply with such laws and regulations could subject us to administrative, civil, or criminal penalties; obligations to pay damages or other costs; and injunctions and other orders, including orders to cease operations.

We are involved in proceedings under the U.S. Comprehensive Environmental Response, Compensation, and Liability Act, also known as CERCLA or Superfund, or analogous state provisions regarding our liability arising from the usage, storage, treatment, or disposal of hazardous substances and wastes at a number of sites in the U.S., as well as similar proceedings under the laws and regulations of the other jurisdictions in which we have operations, including Brazil, certain countries in the European Union, and South Korea. Many of these jurisdictions have laws that impose joint and several liability, without regard to fault or the legality of the original conduct, for the costs of environmental, health and safety remediation, natural resource damages, third-party claims, and other expenses. In addition, we are, from time to time, subject to environmental, health and safety reviews and investigations by relevant governmental authorities.

We have established procedures for regularly evaluating environmental, health and safety loss contingencies, including those arising from environmental, health and safety reviews and investigations and any other environmental, health and safety remediation or compliance matters. Where appropriate, we have established liabilities based on our estimates for the currently anticipated costs that are deemed probable associated with these environmental, health and safety matters.

Our expenditures for environmental, health and safety protection (including estimated and probable environmental, health and safety remediation costs as well as general environmental, health and safety protection costs at our facilities) and the betterment of working conditions in our facilities were \$18 million during fiscal 2022, of which \$16 million was expensed and \$2 million was capitalized. We expect that these expenditures will be approximately \$20 million in fiscal 2023, of which we estimate \$13 million will be expensed and \$7 million will be capitalized.

We are subject to a broad range of foreign, federal, state, and local laws and regulations relating to occupational health and safety. We have incurred, and will continue to incur, expenditures to meet our health and safety compliance requirements, as well as to improve our safety systems.

Available Information

We are a voluntary filer and not subject to the reporting and information requirements of the Exchange Act. However, we file periodic reports and other information with the SEC. We make these filings available on our website free of charge at www.novelis.com as soon as reasonably practicable after we electronically file such material with, or furnish it to, the SEC. The SEC maintains a website (www.sec.gov) that contains our annual, quarterly, and current reports and other information we file electronically with the SEC. Information on our website does not constitute part of this Form 10-K.

Item 1A. Risk Factors.

In addition to factors discussed elsewhere in this report, the following factors could materially affect our business, financial condition, or results of operations in the future. The following factors, among others, could cause our actual results to differ from those projected in any forward-looking statements we make.

Competitive and Strategic Risks

Certain of our customers are significant to our revenues, and we could be adversely affected by disruptions or changes in the business or financial condition of these significant customers or by the loss of their business or reduction in their requirements.

Our 10 largest customers accounted for approximately 54%, 55%, and 63% of our total net sales for fiscal 2022, fiscal 2021, and fiscal 2020, respectively. A significant disruption in the business or downturn in the financial condition of our significant customers could adversely affect our results of operations and cash flows. Some of our customers are dependent upon the continued ability of their suppliers to deliver key components necessary for the manufacturing of their products, and a disruption of such supply chains could cause such customers to alter production schedules or suspend production entirely. For example, a global semiconductor supply shortage is having wide-ranging effects across multiple industries, particularly the automotive industry, and it has impacted multiple suppliers that incorporate semiconductors into the parts they supply to some of our customers. As a result, the semiconductor supply shortage has had, and is expected to continue having, an impact on vehicle production. Near-term demand for aluminum automotive sheet is being negatively impacted by the semiconductor shortage, and this shortage could continue to adversely affect customer demand for aluminum.

In addition, some of our customer contracts are subject to renewal and renegotiation at periodic intervals or upon changes in competitive supply conditions. Our failure to successfully renew or renegotiate such agreements could result in a reduction or loss in customer purchase volume or revenue. Additionally, consolidation among our customers may enable them to use increased leverage in negotiating prices and other contractual terms. Consolidation in our customer base may also lead to reduced demand for our products or cancellations of sales orders. Furthermore, certain of our customer contracts do not impose any minimum purchase volume conditions, and a customer could elect to purchase less of our products than they have historically, in the discretion of the customer.

We also factor trade receivables to manage working capital. Any deterioration of the financial condition or downgrade of the credit rating of certain of our customers may make it more difficult or costly for us to engage in these activities, which could negatively impact our cash flows and liquidity.

We face significant price and other forms of competition from other aluminum rolled products producers and producers of other materials.

The markets in which we operate are highly competitive. We compete primarily on the basis of our value proposition, including price, product quality, ability to meet customers' specifications, range of products offered, global footprint, sustainability and recycling, technical support, and customer service. Some of our competitors may benefit from more efficient technologies, lower raw material and energy costs, and lower labor costs. Increases in competition resulting from new market entrants or increases in production capacity by our competitors could cause us to lose market share or a large customer or force us to reduce prices to remain competitive. In addition, because of extensive competition in all of our key markets, large customers may be able to exert influence to extract favorable future pricing terms. These risks could also be exacerbated by surplus supply of aluminum rolled products in the industry, which could result in additional competitive pricing pressures to the extent our competitors have excess supply.

Aluminum also competes with other materials, such as steel, plastics, composite materials, and glass for various applications, including packaging, automotive, aerospace, architectural, industrial, and consumer durables end-use markets. Our customers may choose materials other than aluminum to achieve desired attributes for their products. For example, customers in the automotive industry may increase their use of high-strength steel rather than aluminum for certain applications due to the price differential between steel and aluminum. The packaging industry continues to experience advances in alternative materials, such as plastics, glass, and organic or compostable materials, which could lead to higher margins for our customers than our products and which may compare favorably to aluminum with respect to preservation of food and beverage quality and recyclability. The willingness of customers to accept other materials in lieu of aluminum, as well as broader consumer movements towards multi-use forms of packing over single-use packaging, could adversely affect the demand for certain of our products, and thus adversely affect our business, financial condition, or results of operations.

We may not realize the anticipated benefits of strategic investments.

As part of our strategy for growth, we have in the past and may in the future pursue acquisitions, divestitures, joint ventures or other strategic investments. We recently completed a \$180 million investment in automotive finishing capacity in Changzhou, China, a \$150 million investment in recycling and casting capacity at our plant in Pindamonhangaba, Brazil, and a \$315 million greenfield automotive finishing expansion in Guthrie, Kentucky. We also have announced plans to further invest significantly in strategic capacity expansions across geographic locations over the next five years. For example, announced projects include an approximately \$2.5 billion greenfield rolling mill in Bay Minette, Alabama, a \$375 million rolling and recycling expansion in Zhenjiang, China, a \$365 million recycling and casting capacity expansion in Guthrie, Kentucky, a \$130 million capacity debottlenecking investment in Oswego, New York, and a \$50 million recycling and casting capacity expansion in Ulsan, South Korea. If our production levels and margins do not grow in line with our current expectations, we may not realize a return on such announced projects that is commensurate with our investment. Further, there are numerous risks commonly encountered in strategic transactions, including the risk that management's time and energy may be diverted, disrupting our existing businesses, and the risk that we may not be able to complete a project that has been announced, complete such project on time or generate the synergies and other benefits that we anticipated. For example, we identified more than \$220 million of run-rate synergies in connection with our acquisition of Aleris Corporation in April 2020. We may not fully realize the identified synergies. Through the end of fiscal 2022, we have realized \$112 million in run-rate cost synergies, but may not fully achieve the identified but unrealized synergies.

Operational Risks

Our business could be adversely affected by increases in the cost or volatility in the availability of primary aluminum, scrap aluminum, sheet ingot, or other raw materials used in the production of our products.

The supply risks relating to our metal inputs vary by input type. For example, we produce some of our sheet ingot requirements internally and source the remainder from multiple third parties in various jurisdictions, usually under contracts having a duration of at least one year. If our suppliers are unable to deliver sufficient quantities of aluminum and other raw materials to the necessary locations on a timely basis, including as a result of global supply chain issues, our production could be disrupted and our net sales, profitability and cash flows could be adversely affected.

We may be adversely affected by changes in the cost of other raw materials as well as labor costs, energy costs and freight costs associated with transportation of raw materials. Prices of certain raw materials may fluctuate due to a number of factors, including general economic conditions, commodity price fluctuations (particularly aluminum on the London Metal Exchange), the demand by other industries for the same raw materials, the availability of complementary and substitute materials, inflationary pressures, supply shortages and disruptions caused by the COVID-19 pandemic or geopolitical factors relating to Russia's recent invasion of Ukraine. The availability and costs of certain raw materials necessary for the production of our products may also be influenced by private or governmental entities, and may be impacted by mergers and acquisitions, changes in world politics or regulatory requirements (such as human rights regulations or environmental, health and safety laws and regulations or production curtailments), regulations, labor relations between the producers and their work forces, labor shortages, unstable governments in exporting nations, export quotas, sanctions, new or increased import duties, countervailing or anti-dumping duties, infrastructure and transportation issues, market forces of supply and demand, and inflation. We may be unable to offset fully the effects of material shortages or higher costs through customer price increases, productivity improvements or cost reduction programs. Shortages or price fluctuations in raw materials could have a material adverse effect on our operating results.

Our operations are energy-intensive and our profitability and cash flows may decline if energy costs were to rise, or if our energy supplies were disrupted.

We consume substantial amounts of energy in our rolling and casting operations. The factors affecting our energy costs and supply reliability tend to be specific to each of our facilities. A number of factors could materially affect our energy position adversely including:

- increases in costs of natural gas;
- increases in costs of supplied electricity;
- increases in fuel oil related to transportation;
- prices affected by regional markets, governmental regulations, and taxes;
- interruptions in energy supply due to equipment failure or other causes; and
- the inability to extend energy supply contracts upon expiration on favorable terms.

If energy costs continue to rise, or if energy supplies or supply arrangements were disrupted, our profitability and cash flows could decline.

Downturns in the automotive and ground transportation industries or changes in consumer demand could adversely affect our business.

The demand for our automotive products and other industrial products is dependent on the production of cars, light trucks, SUVs and heavy duty vehicles and trailers. The automotive industry is highly cyclical, as new vehicle demand is dependent on consumer spending and is tied closely to the overall strength of the economy. Even with the automotive industry's growing use of aluminum to reduce vehicle weight, weak demand for, or lower production of, new cars, light trucks, SUVs and heavy duty vehicles and trailers could adversely affect the demand for our products and have an adverse effect on our financial position, results of operations and cash flows.

Our business and operations, and the operations of our suppliers and customers, may be adversely affected by public health crises, such as the COVID-19 pandemic.

We face risks related to public health crises, including outbreaks of communicable diseases. The outbreak of such a communicable disease could result in a widespread health crisis that could adversely affect general commercial activity and the economies and financial markets of many countries. A public health crisis, including the COVID-19 pandemic, poses the risk that we or our employees, contractors, suppliers, customers, or other business partners may be prevented from conducting business activities for an indefinite period of time, including due to shutdowns that may be requested or mandated by governmental authorities, or that such crisis may otherwise interrupt or impair business activities.

Specifically, the COVID-19 pandemic, including its different variants, continues to adversely impact our operations. The extent to which the COVID-19 pandemic affects our operations over time will depend on future developments, which are highly uncertain and beyond our control, including the duration and severity of future variants or outbreaks, the revision of governmental quarantine or other public health measures, the availability of vaccines or other medical remedies and preventive measures, and determinations regarding, among other things, health and safety, demand for specific products, and broader economic conditions. Many of the actions taken to mitigate the impact of the COVID-19 pandemic, including declarations of states of emergency, governmental quarantines, shelter-in-place and stay-at-home orders, social distancing requirements, business closures and staged procedures for reopening, manufacturing restrictions and a prolonged period of travel, commercial and/or other similar restrictions and limitations, have negatively affected our business and the business of many of our customers. The continuation of these restrictions or the imposition of additional restrictions would increase the COVID-19 pandemic's impact on our businesses and magnify the risks of a material adverse impact on our business, results of operations, financial condition, liquidity, and/or cash flows, as well as on our business strategies and initiatives. The status of the COVID-19 pandemic related restrictions in the areas in which our products are manufactured, distributed, or sold may change on short notice in response to new variants or other circumstances. The scope and timing of any such reinstatements is difficult to predict. Because we rely on supply chain continuity, restrictions in one location may materially impact operations in multiple locations, and the impact of the COVID-19 pandemic in one location may have a disproportionate effect on our operations in the future.

The COVID-19 pandemic has impacted and may continue to impact our employees, customers and suppliers, and future developments could cause further disruptions to our business, including significant disruptions to commerce, lower consumer demand for goods and services and general uncertainty regarding the near-term and long-term impact of the COVID-19 pandemic on the domestic and international economy and on public health. For example, we derive revenues from customers in the aerospace end-use market. Due to impacts from the COVID-19 pandemic on demand for air travel in fiscal 2021, including airline capacity reductions, we experienced lower than pre-COVID-19 demand from aerospace customers, which negatively impacted our business, and we cannot predict with certainty future impacts of the COVID-19 pandemic on demand from our aerospace customers or other end-use markets.

In addition, we may be susceptible to increased litigation related to, among other things, the financial impacts of the COVID-19 pandemic on our business; our ability to meet contractual obligations due to the COVID-19 pandemic; employment practices or policies adopted during the health crisis or in response to laws, regulations, or directives; or litigation related to individuals contracting COVID-19 as result of alleged exposures on Company premises.

While it is not possible to predict the impact that a global health crisis could have on our operations or those of our suppliers and customers, the measures taken by the governments of countries affected, actions taken to protect employees, and the impact of any such crisis on various business activities in affected countries could adversely affect our financial condition, results of operations and cash flows. The impact of the COVID-19 pandemic or any similar crisis may also have the effect of exacerbating many of the other risks described herein.

A majority of our facilities are staffed by a unionized workforce, and union disputes and other employee relations issues could materially adversely affect our financial results.

In each geographic region where we have operating facilities, a substantial portion of our employees are represented by labor unions under collective bargaining agreements with varying durations and expiration dates. From time to time, we experience strikes or work stoppages. For example, in fiscal 2022, a temporary strike occurred in Asia. We may not be successful in preventing such an event from occurring in the future at one or more of our manufacturing facilities. In addition, we may not be able to satisfactorily renegotiate our collective bargaining agreements when they expire. Any such stoppages or disturbances may adversely affect our financial condition and results of operations by limiting plant production, sales volumes, profitability, and operating costs.

Loss of our key management and other personnel, or an inability to attract and retain such management and other personnel, could adversely impact our business.

We employ all of our senior executive officers and other highly-skilled key employees on an at-will basis, and their employment can be terminated by us or them at any time, for any reason and without notice, subject, in certain cases, to severance payment obligations. Competition for qualified employees among companies that rely heavily on engineering and technology is intense, and if our highly skilled key employees leave us, we may be unable to promptly attract and retain qualified replacement personnel, which could result in our inability to improve manufacturing operations, conduct research activities successfully, develop marketable products and compete effectively for growth in key markets.

Competition for qualified employees has become exacerbated by the increase in employee resignations currently taking place throughout the United States as a result of the COVID-19 pandemic, which is commonly referred to as the "great resignation." We are experiencing and may continue to experience increased employee turnover as a result of the ongoing "great resignation." The continuity of key personnel and preservation of institutional knowledge are important to our business. The loss of qualified employees, or an inability to attract, retain, and motivate employees would materially adversely affect our business, results of operations, and financial condition and impair our ability to grow. We have increased, and expect to continue to increase, our employee compensation levels in response to competition, as necessary. In addition, the pressures of inflation have increased our costs of labor and may continue to do so.

We could be adversely affected by unplanned disruptions at operating facilities.

In the past, we have experienced production interruptions at our plants due to the breakdown of equipment, fires, weather events, public health crises, and other causes.

We may experience such disruptions in the future due to similar or unrelated uncontrollable events. Because many of our customers are, to varying degrees, dependent on planned deliveries from our plants, any customers that must reschedule their own production due to our missed deliveries could pursue claims against us and reduce their future business with us. In addition to facing claims from customers, we may incur costs to remedy any of these problems. Further, our reputation among actual and potential customers may be harmed, possibly resulting in loss of business. While we maintain insurance policies covering, among other things, physical damage, business interruptions and product liability, these policies may not cover all of our losses.

Our business has been and will continue to be exposed to various economic and political risks associated with our global operations.

Due to the global reach of our business, we are subject to financial, political, economic, and other business risks in connection with doing business abroad. Operating in diverse geographic regions exposes us to a number of risks and uncertainties, such as changes in international trade regulation, including duties and tariffs; political instability that may disrupt economic activity; economic and commercial instability; and geopolitical tensions, civil unrest, war, or terrorist activities.

We have experienced, and continue to experience, inflationary pressures on the prices of aluminum, materials, transportation, energy, and labor. In an inflationary environment, such as the current economic environment, our ability to implement customer pricing adjustments or surcharges to pass-through or offset the impacts of inflation may be limited. Continued inflationary pressures could reduce our profit margins and profitability. Russia's recent invasion of Ukraine and other geopolitical conflicts, as well as any related international response, may exacerbate inflationary pressures, including causing increases in raw material prices as well as fuel and other energy costs.

Our financial condition and results of operations depend significantly on worldwide economic conditions. Future adverse developments in the U.S. or global economy, including continued inflationary pressure, pose a risk because our customers may postpone purchases in response to demand reductions, negative financial news and tighter credit.

We are currently operating in a period of economic uncertainty, capital markets disruption, and supply chain interruptions, which have been significantly impacted by geopolitical instability due to the ongoing military conflict between Russia and the Ukraine. Our business may be materially adversely affected by any negative impact on the global economy, capital markets, or supply chain resulting from the conflict in the Ukraine or any other geopolitical tensions.

On February 24, 2022, a full-scale military invasion of Ukraine by Russian troops began. Global markets are experiencing volatility and disruption following the escalation of geopolitical tensions and the start of the military conflict between Russia and Ukraine. Although the length and impact of the ongoing military conflict is unpredictable, the conflict in the Ukraine could lead to market disruptions, including significant volatility in commodity prices, credit and capital markets, as well as supply chain interruptions and lack of availability of energy. The conflict in Ukraine has led to sanctions and other penalties being levied by the United States, the European Union, and other countries against Russia. Additional potential sanctions and penalties have also been proposed and/or threatened. Russian military actions and the resulting sanctions could adversely affect the global economy and financial markets and lead to instability and lack of liquidity in capital markets, potentially making it more difficult for us to obtain additional funds, as well as further disrupting the supply chain. Any of the foregoing factors could have a material adverse effect on our business, prospects, financial condition, results of operations, and cash flows. The extent and duration of the military action, sanctions, and resulting market and/or supply disruptions are impossible to predict but could be substantial. Any such disruptions may also magnify the impact of other risks described herein.

We face risks relating to certain joint ventures, subsidiaries and assets that we do not entirely control.

Some of our activities are, and will in the future be, conducted through entities that we do not entirely control or wholly own. These entities include our joint ventures located in Neuss, Germany; Ulsan, Korea; Russellville, Kentucky; and Sierre, Switzerland. Under the governing documents of these businesses, we share decision making authority and operational control, which may result in conflicts over management over these businesses. In addition, because we do not have control over the business practices of our joint venture partners, we could be subject to reputational damage or other consequences of improper conduct by our joint venture partners or their inability to fulfill their obligations under the joint venture. As a result, our business, financial condition, cash flows, results of operations and prospects could be adversely affected.

Security breaches and other disruptions to our information technology networks and systems could interfere with our operations, and could compromise the confidentiality of our proprietary information.

We rely upon information technology networks and systems, some of which are managed by third parties, to process, transmit and store electronic information, and to manage or support a variety of business and manufacturing processes and activities. Additionally, we collect and store sensitive data, including intellectual property, proprietary business information, and personally identifiable information of our employees, in data centers and on information technology networks. These activities are subject to various laws and regulations in the United States and abroad regarding privacy and data security.

The costs of attempting to protect against cybersecurity risks and the costs of responding to cyber attacks are significant. We have increased our management focus on and financial investments in systems and processes intended to secure our information technology systems, prevent unauthorized access to or loss of sensitive data, provide security and privacy awareness training, ensure business continuity and comply with applicable laws. These efforts include engaging third-party providers from time to time to test the vulnerability of our systems and recommend solutions to upgrade the security of our systems. We also employ a number of measures to protect and defend against cyber attacks, including technical security controls, data encryption, firewalls, intrusion prevention systems, anti-virus software and frequent backups. New data security laws and regulations are being implemented rapidly and are evolving, and we may not be able to timely comply with such requirements, and such requirements may not be compatible with our current processes. Changing our processes could be time consuming and expensive, and failure to timely implement required changes could subject us to liability for non-compliance.

Cyber attacks continue to evolve in sophistication and volume and may remain undetected for an extended period. These may include damage and disruptions caused by cyber attacks, breaches, or insider threats who may have access to our networks and systems. Hardware, software or applications we utilize may contain defects in design or manufacture or other problems that could unexpectedly compromise information security, potentially resulting in the unauthorized disclosure and misappropriation of sensitive data, including intellectual property, proprietary business information, and personal data. In addition, techniques used to obtain unauthorized access to information or to sabotage information technology systems change frequently. We have seen, and will continue to see, industry-wide vulnerabilities, such as the Log4j vulnerability reported in December 2021, which could in the future affect our or other parties' systems. We expect to continue to experience such zero-day vulnerabilities in the future.

The occurrence of a significant cybersecurity event, including an event impacting one of our third-party providers, could compromise our networks and the information stored there could be accessed, publicly disclosed, lost or stolen. Any such access, disclosure, or other loss of information could result in legal claims or proceedings, liability, or regulatory penalties under privacy laws. In addition, we could incur significant costs in notifying affected persons and entities and otherwise complying with the multitude of foreign, federal, state and local laws and regulations relating to the unauthorized access to, or use or disclosure of, personal information. Operational disruptions or any perceived or actual unauthorized access to, or disclosure of, sensitive information could reduce the competitive advantage in new or proprietary business initiatives and damage our reputation and our relationship with our customers. Although we are insured against cyber risks and security breaches up to an annual aggregate limit, our liability insurance may be inadequate and may not fully cover the costs of any claim or damages that we might be required to pay. In the future, we may not be able to obtain adequate liability insurance on commercially desirable or reasonable terms or at all. Any of the foregoing could have a material adverse effect on our business, financial condition, or results of operations.

Increased freight costs on imported products could decrease earnings and liquidity.

We have experienced an increase in costs for freight and shortages in freight capacity, which can negatively impact our ability to ship volume predictably and on a low-cost basis. We may not be able to obtain sufficient freight capacity on a timely basis or at favorable shipping rates and, therefore, we may not be able to receive products from suppliers or deliver products to customers in a timely and cost-effective manner. There can be no assurance that we will be successful in increasing prices or recouping increased freight surcharges in the future. Continued freight cost increases; delivery disruptions, including compliance with the Export Administration Regulations and other trade laws; and the sanctions, regulations, and embargoes administered by the U.S. Department of Treasury's Office of Foreign Assets Control, could adversely affect our business, financial condition, or results of operations.

Financial Risks

Our results and short-term liquidity can be negatively impacted by timing differences between the prices we pay under purchase contracts and metal prices we charge our customers.

Our purchase and sales contracts for primary aluminum are based on the LME price plus a regional market premium, which is a surcharge in addition to the LME price. There are typically timing differences between the pricing periods for purchases and sales. This creates a price exposure we call "metal price lag," which exists due to: (i) the period of time between the pricing of our purchases of metal, holding and processing the metal, and the pricing of the sale of finished inventory to our customers and (ii) certain customer contracts containing fixed forward price commitments, which result in exposure to changes in metal prices for the period of time between when our sales price fixes and the sale actually occurs. We use derivative instruments to manage the metal price lag risk associated with the LME base aluminum prices. We generally do not hedge more than a small fraction of our regional market premium exposure because we do not believe the derivatives markets are sufficiently robust and efficient to meet our needs. As such, volatility in regional market premiums can have a significant impact on our results of operations and cash flows. The timing difference associated with metal price lag could positively or negatively impact our operating results and short-term liquidity.

A deterioration of our financial condition, a downgrade of our ratings by a credit rating agency or other factors could limit our ability to enter into, or increase our costs of, financing and hedging transactions, and our business relationships and financial condition could be adversely affected.

A deterioration of our financial condition or a downgrade of our credit ratings for any reason could increase our borrowing costs, limit our access to the capital or credit markets, adversely affect our ability to obtain new financing on favorable terms or at all, result in more restrictive covenants, and have an adverse effect on our business relationships with customers, suppliers and financial counterparties. We enter into various forms of hedging activities against currency, interest rate, energy and metal price fluctuations. Our financial strength and credit ratings are important to the availability and terms of these hedging activities. As a result, any deterioration of our financial condition or downgrade of our credit ratings may make it more difficult or costly for us to engage in these activities in the future.

Variable rate indebtedness subjects us to interest rate risk, which could cause our debt service obligations to increase.

Borrowings under our senior secured credit facilities are at variable rates of interest and expose us to interest rate risk. If interest rates increase, our debt service obligations on any variable rate indebtedness could increase even though the amount borrowed remained the same, which could adversely impact our results of operations. In addition, our secured term loan facility and ABL Revolver use London Interbank Offering Rate ("LIBOR") as a benchmark for establishing the interest rate applicable to US dollar denominated loans. In 2017, the United Kingdom's Financial Conduct Authority (the "FCA"), which regulates LIBOR, announced that it intends to phase out LIBOR. On March 5, 2021, the FCA announced that all LIBOR settings will either cease to be provided by any administrator or no longer be representative: (a) immediately after December 31, 2021, in the case of the one-week and two-month U.S. dollar settings; and (b) immediately after June 30, 2023, in the case of the remaining U.S. dollar settings. The United States Federal Reserve has also advised banks to cease entering into new contracts that use USD LIBOR as a reference rate. The Alternative Reference Rate Committee ("ARRC"), a committee convened by the Federal Reserve that includes major market participants, has identified the Secured Overnight Financing Rate, or SOFR, a new index calculated by short-term repurchase agreements, backed by Treasury securities, as its preferred alternative rate for LIBOR. In October 2021, we amended our ABL Revolver to provide for a transition to a SOFR based rate for US dollar denominated loans (and for a transition to replacement rates for loans denominated in euros, British pounds, and Swiss francs). Our term loan facility includes fallback language, which pre-dates the ARRC recommendations, providing for a transition to a cost of funds rate if LIBOR becomes unavailable prior to an amendment of the term loan facility to provide for a SOFR based rate. If LIBOR is no longer available or if our lenders have increased costs due to changes in LIBOR or in the administration of SOFR loans, we may experience potential increases in our borrowing costs, which could adversely impact our results of operations. In order to manage our exposure to interest rate risk, in the future, we may enter into derivative financial instruments, typically interest rate swaps and caps, involving the exchange of floating for fixed rate interest payments. If we are unable to enter into interest rate swaps, it may adversely impact our results of operations, and, even if we use these instruments to selectively manage risks, there can be no assurance that we will be fully protected against material interest rate fluctuations.

Adverse changes in currency exchange rates could negatively affect our financial results or cash flows and the competitiveness of our aluminum rolled products relative to other materials.

We are exposed to the effects of changes in the exchange rates of the U.S. dollar, the Euro, the British pound, the Brazilian real, the Korean won, the Swiss franc and other currencies. We have implemented a hedging policy to manage currency exchange rate risks to an acceptable level based on management's judgment of the appropriate trade-off between risk, opportunity and cost; however, this hedging policy may not successfully or completely eliminate the effects of currency exchange rate fluctuations, which could have a material adverse effect on our financial results and cash flows.

We prepare our consolidated financial statements in U.S. dollars, but a portion of our earnings and expenditures are denominated in other currencies, primarily the euro, the Korean won, and the Brazilian real. Changes in exchange rates may result in increases or decreases in our operating results and may also affect the book value of our assets located outside the U.S.

Our results of operations, cash flows and liquidity could be adversely affected if we were unable to transact in derivative instruments, if our exposure to price fluctuations were not adequately hedged under derivative instruments, or if counterparties to our derivative instruments fail to honor their agreements.

We use various derivative instruments to manage the risks arising from fluctuations in aluminum prices, exchange rates, energy prices and interest rates. If for any reason we were unable to transact in derivative instruments to manage these risks, or if our exposure to fluctuations in such prices and rates were not fully or adequately hedged under such derivative instruments, our results of operations, cash flows, and liquidity could be adversely affected. In addition, we may be exposed to losses in the future if the counterparties to our derivative instruments fail to honor their agreements. In particular, deterioration in the financial condition of our counterparties and any resulting failure to pay amounts perform obligations owed to us could have a negative effect on our business and financial condition. Further, if major financial institutions consolidate and are forced to operate under more restrictive capital constraints and regulations, there could be less liquidity, or higher costs to transact, in the derivative markets, which could have a negative effect on our costs or our ability to hedge and transact with creditworthy counterparties.

An adverse decline in the liability discount rate, lower-than-expected investment return on pension assets and other factors could affect our results of operations or amount of pension funding contributions in future periods.

Most of our pension obligations relate to funded defined benefit pension plans for our employees in the U.S., the U.K., Switzerland, and Canada, funded and unfunded pension benefits in Germany and lump sum indemnities payable to our employees in France, Italy, and South Korea upon retirement or termination. Our pension plan assets primarily consist of funds invested in stocks and bonds. Our estimates of liabilities and expenses for pensions and other postretirement benefits incorporate a number of assumptions. The most significant year-end assumptions used by Novelis to estimate pension or other postretirement benefit income or expense for the following year are the discount rate applied to plan liabilities and the expected long-term rate of return on plan assets. Our results of operations, liquidity, or shareholder's (deficit) equity in a particular period could be adversely affected by capital market returns that are less than their assumed long-term rate of return or a decline of the rate used to discount future benefits. These factors or others may require us to make unexpected cash contributions to the pension plans in the future, preventing the use of such cash for other purposes.

Our goodwill, other intangible assets and other long-lived assets could become impaired, which could require us to take non-cash charges against earnings.

We assess, at least annually and potentially more frequently, whether the value of our goodwill has been impaired. We assess the recoverability of finite-lived other intangible assets and other long-lived assets whenever events or changes in circumstances indicate we may not be able to recover the asset's carrying amount. Any impairment of goodwill, other intangible assets, or long-lived assets as a result of such analysis would result in a non-cash charge against earnings, which could materially adversely affect our reported results of operations. A significant and sustained decline in our future cash flows, a significant adverse change in the economic environment, or slower growth rates could result in the need to perform additional impairment analysis in future periods.

Additional tax expense, tax liabilities or tax compliance costs could adversely impact our profitability.

We are subject to income taxation in many jurisdictions. Judgment is required in determining our worldwide income tax provision and accordingly there are many transactions and computations for which our final income tax determination is uncertain. We are routinely audited by income tax authorities in many tax jurisdictions. Although we believe the recorded tax estimates are reasonable, the ultimate outcome from any audit (or related litigation) could be materially different from amounts reflected in our income tax provisions and accruals. Future settlements of income tax audits may have a material effect on earnings between the period of initial recognition of tax estimates in the financial statements and the point of ultimate tax audit settlement. Additionally, it is possible that future income tax legislation in any jurisdiction to which we are subject may be enacted that could have a material impact on our worldwide income tax provision beginning with the period that such legislation becomes effective. Currently, there are several tax proposals, including in the U.S. and the Organization for Economic Co-operation and Development (OECD), that could, if enacted into law, significantly impact the tax position of the Company. We will continue to evaluate the overall impact of current, future, and proposed regulations and interpretive guidance from tax authorities on our effective tax rate and consolidated balance sheets.

The covenants in our credit facilities and the indentures governing our Senior Notes impose operating and financial restrictions on us.

Our credit facilities and the indentures governing our Senior Notes impose certain operating and financial restrictions on us. These restrictions limit our ability and the ability of our restricted subsidiaries, among other things, to:

- incur additional debt and provide additional guarantees;
- pay dividends and make other restricted payments, including certain investments;
- create or permit certain liens;
- make certain asset sales;
- use the proceeds from the sales of assets and subsidiary stock;
- create or permit restrictions on the ability of our restricted subsidiaries to pay dividends or make other distributions to us;
- engage in certain transactions with affiliates;
- make certain acquisitions;
- enter into sale and leaseback transactions; and
- consolidate, merge, or transfer all or substantially all of our assets or the assets of our restricted subsidiaries.

See [Note 13 – Debt](#) for additional discussion.

Risks Related to Intellectual Property

If we are unable to protect our intellectual property, the confidentiality of our know-how, trade secrets, technology, and other proprietary information, our business and competitive position could be harmed.

We rely on a combination of patent, trademark, copyright, trade secret and unfair competition laws, as well as confidentiality and license agreements and other contractual provisions, to establish and protect our intellectual property and other proprietary rights. Such means may afford only limited protection of our intellectual property and may not prevent our competitors from duplicating our processes or technology, prevent our competitors from gaining access to our proprietary information and technology, or permit us to gain or maintain a competitive advantage. To prevent substantial unauthorized use of our intellectual property and proprietary rights, it may be necessary to prosecute actions for infringement, misappropriation or other violation of our intellectual property and proprietary rights against third parties. Litigation, whether we are a plaintiff or a defendant, can be expensive and time consuming and may divert the efforts of our management and other personnel, which could harm our business, whether or not such litigation results in a determination favorable to us. Litigation also puts our patents or other intellectual property at risk of being invalidated or interpreted narrowly and our patent applications or applications for other intellectual property registrations at risk of not issuing. If we are sued by a third party that claims that our technology infringes, misappropriates or violates their rights, the litigation, whether or not successful, could be costly to defend, divert our management's time, attention and resources, damage our reputation and brand and substantially harm our business.

We rely on nondisclosure agreements to protect our unpatented know-how, trade secrets, technology and other proprietary information. We seek to protect this information, in part, by entering into nondisclosure and confidentiality agreements with parties who have access to it, such as our employees, consultants, and other third parties. However, we cannot guarantee that we have entered into such agreements with each party that has or may have had access to our proprietary information. Moreover, no assurance can be given that these agreements will be effective in controlling access to, distribution, use, misuse, misappropriation, or disclosure of our proprietary information. Further, these agreements may not prevent our competitors from independently developing substantially equivalent or superior proprietary information. These agreements may be breached, and we may not have adequate remedies for any such breach. Additionally, such agreements may not effectively prevent unauthorized access to or unauthorized use, disclosure, misappropriation or reverse engineering of, our confidential information, intellectual property, or technology. Enforcing a claim that a party illegally disclosed or misappropriated know-how is difficult, expensive, and time-consuming, and the outcome is unpredictable. Know-how, technology, and other proprietary information can be difficult to protect and some courts inside and outside the U.S. are less willing or unwilling to protect such information. If we develop any trade secrets that were to be lawfully obtained or independently developed by a competitor or other third-party, we would have no right to prevent them from using that technology or information to compete with us, and our competitive position would be materially and adversely harmed. The loss of trade secret protection could make it easier for third parties to compete with our products. Any of the foregoing could have a material adverse effect on our business, financial condition, or results of operations.

Other Legal and Regulatory Risks

Our global operations are subject to increasingly complex and stringent laws and government regulations that may adversely affect our business and operations.

We operate in complex regulated environments in the U.S. and in the other countries in which we operate and could be adversely affected by changes to existing legal requirements, including related interpretations and enforcement practices, new legal requirements, and/or any failure to comply with applicable regulations.

Compliance with U.S. and foreign laws and regulations, such as import and export requirements, embargoes and trade sanctions laws, anti-corruption laws, tax laws, foreign exchange controls, and cash repatriation restrictions, increases our costs of doing business outside the U.S. We are also subject to data privacy and protection laws regulating the collection, use, retention, disclosure, transfer, and processing of personal information, such as the European Union's General Data Protection Regulation. The potential effects of these laws are far-reaching and may require us to modify our data processing practices and policies and to incur substantial costs and expenses to comply. In recent years, a number of new laws and regulations have been adopted, there has been expanded enforcement of certain existing laws and regulations, and the interpretation of certain laws and regulations have become increasingly complex.

In addition, the global scale of our operations exposes us to risks relating to international trade policies, including import quotas, tariffs, and taxes on goods imported from countries where we procure or manufacture products or raw materials, as well as retaliatory policies by governments against such policies. For example, the U.S. and Chinese governments have imposed a series of significant incremental tariffs to certain imported goods. In addition, determinations by destination countries about unfairly priced and subsidized products can normalize prices, benefiting the company in some instances, while potentially disrupting supply chains. The impact and duration of such tariffs and other trade restrictions, as well as the potential for additional tariffs by the U.S., China, or other countries, remain uncertain. Our ability to implement strategies to mitigate the impact of such restrictions and our exposure to the risks described above as well as the impact of changes in regulations and policies could impact the competitiveness of our products and negatively impact our business, results of operations, and financial condition.

The impact of new laws, regulations, and policies or decisions or interpretations by authorities applying those laws and regulations, cannot be predicted. Compliance with any new laws, regulations, or policies may increase our operating costs or require significant capital expenditures. Any failure to comply with applicable laws, regulations, or policies in the U.S. or in any of the other countries in which we operate could result in substantial fines or possible revocation of our authority to conduct our operations, which could adversely affect us.

We may be affected by global climate change or by legal, regulatory, or market responses to such change.

Increased concern over climate change has led to new and proposed legislative and regulatory initiatives, such as cap-and-trade systems, limits on emissions of greenhouse gases, and Corporate Average Fuel Economy standards in the United States, as well as similar standards or requirements in the European Union or in other jurisdictions. For example, in January 2021, the United States recommitted to the Paris Agreement, and, in April 2021, President Biden announced targets to reduce U.S. greenhouse gas emissions. New or revised laws and regulations in this area could directly and indirectly affect us and our customers and suppliers, including by increasing the costs of production or impacting demand for certain products, which could result in an adverse effect on our financial condition, results of operations, and cash flows. Compliance with any new or more stringent laws or regulations, or stricter interpretations of existing laws, could require additional expenditures by us or our customers or suppliers, including increased monitoring and reporting costs. Also, we rely on natural gas, electricity, fuel oil, and transport fuel to operate our facilities. Any increased costs of these energy sources because of new laws or regulations could be passed along to us and our customers and suppliers, which could also have a negative impact on our profitability. Any increased frequency and intensity of extreme weather events resulting from climate change impacting our facilities, our suppliers or critical infrastructure in the United States and abroad could disrupt our supply chain or impact our ability to timely produce and deliver our products.

In addition, some of our investors, customers, and other stakeholders may evaluate our business or other practices according to a variety of environmental, social, and governance ("ESG") targets, standards, and expectations. We define our own corporate purpose, in part, by the sustainability of our practices and our impact on all of our stakeholders. As a result, our efforts to conduct our business in accordance with some or all these expectations may involve trade-offs and may not satisfy all stakeholders. Our policies and processes to evaluate and manage ESG targets and standards in coordination with other business priorities, including our use of carbon offsets, may not prove completely effective. As a result, we may face adverse regulatory, investor, media, or public scrutiny that may adversely affect our business, results of operations, or financial condition.

We are subject to a broad range of environmental, health and safety laws and regulations, and we may be exposed to substantial environmental, health and safety costs and liabilities.

We are subject to a broad range of environmental, health and safety laws and regulations in the jurisdictions in which we operate. These laws and regulations impose stringent environmental, health and safety protection standards and permitting requirements regarding, among other things, air emissions, wastewater storage, treatment and discharges, the use and handling of hazardous or toxic materials, waste disposal practices, the remediation of environmental contamination, post-mining reclamation and working conditions for our employees. The costs of complying with these laws and regulations, including participation in assessments and remediation of contaminated sites and installation of pollution control facilities, have been, and in the future could be, significant, and may be prove to be more costly than we anticipate. These laws and regulations may also result in substantial environmental liabilities associated with current sites, divested assets, third-party locations, and past activities. The impact that our operations may have on the environment, as well as exposures to hazardous substances or wastes associated with our operations, could result in civil or criminal fines or penalties and enforcement actions issued by regulatory or judicial authorities enjoining, curtailing or closing operations or requiring corrective measures, any of which could materially and adversely affect us. Evolving regulatory standards and expectations can result in increased litigation and/or increased costs, including increased remediation costs, all of which can have a material and adverse effect on our financial condition, results of operations and cash flows.

We may be exposed to significant legal proceedings or investigations.

From time to time, we are involved in, or the subject of, disputes, proceedings and investigations with respect to a variety of matters, including intellectual property, environmental, health and safety, product liability, employee, tax, personal injury, contractual and other matters, as well as other disputes and proceedings that arise in the ordinary course of business.

Any claims against us or any investigations involving us, whether meritorious or not, could be costly to defend or comply with and could divert management's attention as well as operational resources. Any such dispute, litigation or investigation, whether currently pending or threatened in the future, may have a material adverse effect on our financial results and cash flows. We generally maintain insurance against many product liability risks, but there can be no assurance that this coverage will be adequate for any liabilities ultimately incurred. In addition, there is no assurance that insurance will continue to be available on terms acceptable to us.

In November 2019, ALVANCE agreed to acquire Duffel for €310 million. At closing on September 30, 2020, we received €210 million (\$246 million as of September 30, 2020) in cash. The parties have agreed to a post-closing arbitration process regarding the payment of the remaining €100 million. There is no assurance as to when we expect the post-closing arbitration process to conclude and whether we will receive any of the remaining €100 million payment. See [Note 3 – Discontinued Operations](#) for additional discussion.

Item 1B. Unresolved Staff Comments.

None.

Item 2. Properties.

Our global headquarters are located in Atlanta, Georgia. Our global research and technology center, located in Kennesaw, Georgia, contains state-of-the-art R&D capabilities to help us better partner and innovate with our customers. We also have a global casting engineering and technology center in Spokane, Washington, specializing in molten metal processing, in addition to several facilities with R&D operations worldwide, including facilities with specified research in automotive and aerospace technologies. Our regional headquarters are located in Atlanta, Georgia (North America), Küsnacht, Switzerland (Europe), Seoul, South Korea (Asia), and Sao Paulo, Brazil (South America).

The number of operating facilities by operating segment as of March 31, 2022 is shown in the table below and includes operating facilities we jointly own and operate with third parties.

	Operating Facilities	Facilities with Recycling Operations
North America	17	7
Europe	10	5
Asia	4	2
South America	2	1
Total	33	15

The following tables provide information, by operating segment, about the plant locations, processes and major end-use markets or applications for the aluminum rolled products, recycling, and primary metal facilities we owned and operated, including joint ventures, as of March 31, 2022.

North America

Locations	Plant Processes	Major Products
Ashville, Ohio	Coating and finishing	Coated coil for specialties
Berea, Kentucky	Recycling and sheet ingot casting	Sheet ingot from recycled metal for can body and can end stock
Buckhannon, West Virginia	Cold rolling and finishing	Mill finish coil and light-gauge sheet for specialties
Clayton, New Jersey	Cold rolling and finishing	Foil and light-gauge coiled sheet for specialties
Davenport, Iowa ⁽¹⁾	Casting, hot rolling, and recycling	Hot rolled coil from recycled material
Davenport, Iowa ⁽¹⁾	Cold rolling and finishing	Painted coil and mill finish coil
Fairmont, West Virginia	Cold rolling and finishing	Aluminum sheet and light-gauge foil for specialties
Greensboro, Georgia	Recycling and sheet ingot casting	Sheet ingot from recycled metal for can body and can end stock
Guthrie, Kentucky	Pre-treatment and heat treatment	Automotive sheet
Kingston, Ontario	Cold rolling and finishing	Automotive sheet and specialty material
Lincolnshire, Illinois	Cold rolling and finishing	Mill finish coil
Oswego, New York	Sheet ingot casting, hot rolling, cold rolling, recycling, and finishing	Can stock, automotive sheet, construction sheet, industrial sheet, and painted sheet
Richmond, Virginia	Pellet casting, hot rolling, cold rolling, finishing, and recycling	Mill finish sheet for building and construction
Russellville, Kentucky ⁽²⁾	Sheet ingot casting, hot rolling, cold rolling, finishing, and recycling	Can stock and aluminum sheet and coil for specialties
Terre Haute, Indiana	Cold rolling and finishing	Foil stock for specialties
Uhrichsville, Ohio	Casting, hot rolling, cold rolling, finishing, and recycling	Transportation sheet and aluminum sheet for specialties
Warren, Ohio	Coating and finishing	Coated can sheet

(1) The Company operates two separate facilities in Davenport, Iowa, one finishing mill and one casting facility.

(2) Logan, located in Russellville, Kentucky, is operated as a joint venture between Novelis and Tri-Arrows. We own 40% of the outstanding common shares of Logan. See [Note 9 – Consolidation](#) for further information about this affiliate.

Europe

Locations	Plant Processes	Major Products
Bresso, Italy	Coating, embossing, and finishing	Painted sheet, painted construction sheet, and automotive sheet
Göttingen, Germany	Finishing and coating	Can end stock, food can, and painted sheet
Koblenz, Germany	Sheet ingot casting, hot rolling, cold rolling, and finishing	Sheet ingot for aerospace, aerospace sheet, commercial plate, and heat exchangers
Latchford, United Kingdom	Recycling and sheet ingot casting	Sheet ingot from recycled metal
Nachterstedt, Germany	Cold rolling, finishing, coating, recycling, sheet ingot casting, and heat treatment	Automotive sheet, can end stock, industrial sheet, painted sheet, construction sheet, and sheet ingot from recycled metal
Neuss, Germany ⁽¹⁾	Recycling, sheet ingot casting, hot rolling, cold rolling, and finishing	Can body stock, foil stock, and feeder stock for finishing operations
Ohle, Germany	Cold rolling, finishing, and converting	Foil, packaging, and flexible tubes
Pieve, Italy	Continuous casting, cold rolling, finishing, and recycling	Coil for finishing operations, industrial sheet, foil stock, and closure stock
Sierre, Switzerland ⁽²⁾	Sheet ingot casting, hot rolling, cold rolling, finishing, and continuous heat treatment	Automotive sheet and industrial sheet
Voerde, Germany	Casting and recycling	Sheet ingot for automotive and specialties

(1) Alunorf is operated as a 50/50 production joint venture between Novelis and Speira GmbH. See [Note 10 – Investment in and Advances to Non-Consolidated Affiliates and Related Party Transactions](#) for further information about this affiliate.

(2) Novelis operates a wholly owned facility in Sierre, Switzerland. In addition to this facility, Alunfra is operated as a 50/50 joint venture between Novelis and Constellium SE and provides utility services to each partner. See [Note 10 – Investment in and Advances to Non-Consolidated Affiliates and Related Party Transactions](#) for further information about this affiliate.

Asia

Locations	Plant Processes	Major Products
Changzhou, China	Heat treatment and finishing	Automotive sheet
Ulsan, South Korea ⁽¹⁾	Sheet ingot casting, hot rolling, cold rolling, recycling, and finishing	Can stock, construction sheet, industrial sheet, electronics, automotive sheet for finishing operations, foil stock, and recycled material
Yeongju, South Korea	Sheet ingot casting, hot rolling, cold rolling, recycling, and finishing	Can stock, construction sheet, industrial sheet, electronics, foil stock, and recycled material
Zhenjiang, China	Sheet ingot casting, hot rolling, and heat treatment	Aerospace sheet, commercial plate, and industrial sheet

(1) UAL is operated as a 50/50 joint venture between Novelis and Kobe. See [Note 10 – Investment in and Advances to Non-Consolidated Affiliates and Related Party Transactions](#) for further information about this affiliate.

South America

Locations	Plant Processes	Major Products
Pindamonhangaba, Brazil	Sheet ingot casting, hot rolling, cold rolling, recycling, finishing, and coating	Can stock, construction sheet, industrial sheet, foil stock, sheet ingot, and transportation sheet
Santo Andre, Brazil	Foil rolling and finishing	Foil stock

Item 3. Legal Proceedings.

We are a party to legal proceedings incidental to our business from time to time. For additional information regarding litigation to which we are a party, see [Note 22 – Commitments and Contingencies](#) to our accompanying consolidated financial statements, which are incorporated by reference into this item.

Item 4. Mine Safety Disclosures.

Not applicable.

PART II

Item 5. Market for Registrant's Common Equity, Related Shareholder Matters and Issuer Purchases of Equity Securities.

There is no established public trading market for the Company's common stock. All of the outstanding shares of Novelis are owned directly by AV Metals Inc. and indirectly by Hindalco. None of the equity securities of the Company are authorized for issuance under any equity compensation plan.

Dividends or returns of capital to our common shareholder are made in accordance with our capital allocation policy at the discretion of the board of directors. Such payments will depend on, among other things, our financial resources, cash flows generated by our business, our cash requirements, restrictions under the instruments governing our indebtedness, and other relevant factors.

Item 6. [Reserved]

Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations.

OVERVIEW AND REFERENCES

Novelis is driven by its purpose of shaping a sustainable world together. We are a global leader in the production of innovative aluminum products and solutions and the world's largest recycler of aluminum. Our ambition is to be the leading provider of low-carbon, sustainable aluminum solutions and to achieve a fully circular economy by partnering with our suppliers, as well as our customers in the aerospace, automotive, beverage can, and specialties industries throughout North America, Europe, Asia, and South America. Novelis is a subsidiary of Hindalco, an industry leader in aluminum and copper and the metals flagship company of the Aditya Birla Group, a multinational conglomerate based in Mumbai. As of March 31, 2022, we had manufacturing operations in nine countries on four continents: North America, South America, Europe, and Asia, with 33 operating facilities, which may include any combination of hot or cold rolling, finishing, casting, or recycling capabilities. We have recycling operations in 15 of our operating facilities to recycle post-consumer aluminum, such as UBCs, and post-industrial aluminum, such as class scrap.

The following discussion contains forward-looking statements that reflect our plans, estimates and beliefs. Our actual results could differ materially from those discussed in these forward-looking statements. Factors that could cause or contribute to these differences include, but are not limited to, those discussed below and elsewhere in this Form 10-K, particularly in [Special Note Regarding Forward-Looking Statements and Market Data](#) and [Part I, Item 1A, Risk Factors](#).

Discussion and analysis of fiscal 2020 and year-over-year comparisons between fiscal 2021 and fiscal 2020 not included in this Form 10-K can be found in Part II, Item 7. Management's Discussion and Analysis of Financial Condition and Results of Operations of our Annual Report on Form 10-K for the fiscal year ended March 31, 2021, filed with the SEC on May 12, 2021. The following discussion and analysis of our financial condition and results of operations should be read in conjunction with our audited consolidated financial statements and the related notes and other financial information included elsewhere in this Form 10-K.

BUSINESS AND INDUSTRY CLIMATE

On April 14, 2020, Novelis closed its acquisition of Aleris Corporation and continues to integrate the two companies. The acquisition has provided a number of strategic benefits, including increasing the Company's footprint as an aluminum rolled products manufacturer and diversifying its product and customer portfolio. In addition, we expect to generate over \$220 million in synergies, through traditional integration cost synergies and strategic synergies created by enhancing and integrating operations in Asia. Since closing the transaction, \$112 million of run-rate cost synergies have been achieved through March 31, 2022.

Novelis has experienced increased inflationary cost pressures in fiscal 2022 resulting from global supply chain disruptions impacting the availability and price of materials and services including freight, energy, coatings, and alloys. Rising geo-political instability exacerbated inflationary cost pressures in the fourth quarter of fiscal 2022 and are expected to continue for the foreseeable future. We believe we are positioned to maintain current production levels and service our customers without disruptions in the near term. However, we cannot predict how long supply chain disruptions will last. While our near-term results are being negatively impacted by these higher costs, we have been able to mitigate a portion of the inflationary impact through a combination of hedging, passing through costs to customers, favorable pricing environments, and increased recycling benefits. There is no assurance that we will continue to be able to mitigate these higher costs in the future.

We believe that global demand for aluminum and rolled products remains strong, driven by economic growth, material substitution, and sustainability considerations, including increased environmental awareness around polyethylene terephthalate plastics. Although the early months of fiscal 2021 were negatively impacted by a short-term reduction in demand for aluminum rolled products as a result of the COVID-19 pandemic, particularly in the automotive and aerospace markets, pandemic-related demand disruptions have since been limited. However, we cannot predict future impacts of the ongoing pandemic on future demand.

With the exception of China, where can sheet overcapacity and strong competition remains, favorable market conditions and increasing customer preference for sustainable packaging options is driving higher demand for recyclable aluminum beverage cans and bottles. In the first half of fiscal 2022, we completed an investment to expand the rolling and recycling capability, each by 100 kt, in our Pindamonhangaba, Brazil, plant to support this demand. We continue to evaluate opportunities for additional capacity expansion across regions, particularly in North America where local can sheet supply is insufficient to meet the rapid expansion in demand.

Demand for aluminum automotive sheet began to be impacted by the semiconductor shortage in the automotive industry at the start of fiscal 2022, and we expect uneven demand to continue in calendar year 2022. However, we believe that long-term demand continues to grow and drove our recently completed investments in automotive sheet finishing capacity in Guthrie, Kentucky, and Changzhou, China. This demand has been primarily driven by the benefits that result from using lightweight aluminum in vehicle structures and components, as automakers respond to stricter government regulations regarding emissions and fuel economy, while maintaining or improving vehicle safety and performance, resulting in increased competition with high-strength steel. We are also seeing increased demand for aluminum for electric vehicles, as aluminum's lighter weight can result in extended battery range.

We expect long-term demand for building and construction and other specialty products to grow due to increased customer preference for lightweight, sustainable materials and demand for aluminum plate in Asia to grow driven by the development and expansion of industries serving aerospace, rail, and other technically demanding applications.

While aerospace was muted in fiscal 2022 as air travel was restricted due to the COVID-19 pandemic, we expect demand and shipments to improve toward pre-COVID levels by the end of fiscal 2023. In the longer-term, we believe significant aircraft industry order backlogs for key OEMs, including Airbus and Boeing, will translate into growth in the future and that our multi-year supply agreements have positioned us to benefit from future expected demand.

We believe the long-term trends for flat-rolled aluminum products remain strong, and we have identified more than \$4.5 billion of potential organic capital investment opportunities to grow Novelis' business through debottlenecking, recycling, and new capacity investments over the next five years focused on increasing capacity and capabilities that meet growing customer demand and align with our sustainability commitments.

In October 2021, we announced plans to invest approximately \$130 million at our Oswego, New York, plant to meet growing customer demand for sustainable, aluminum flat-rolled products. We expect the project to increase hot mill capacity by 124 kt, with a total expected increase of finished goods capacity estimated in the range of 65 kt. The investment also includes enhancements to the plant's batch annealing capabilities for automotive sheet.

We have also announced plans to invest approximately \$375 million to expand cold rolling and recycling capacity in Zhenjiang, China, to integrate our automotive business in Asia. This investment will also release rolling capacity at UAL, the Company's joint venture in South Korea, to serve the can and specialty products markets.

In January 2022, we announced plans to invest approximately \$365 million to build a highly advanced recycling center for automotive in the U.S., which will be adjacent to our existing automotive finishing plant in Guthrie, Kentucky. With an expected annual casting capacity of 240 kt of sheet ingot, we expect the facility will reduce the Company's carbon emissions by more than one million tons each year.

In February 2022, we announced plans to invest approximately \$50 million to build a recycling center at our UAL joint venture in South Korea. Fully funded by Novelis, the Ulsan Recycling Center will have an annual casting capacity of 100 kt of low-carbon sheet ingot. Once online, we expect the recycling center to reduce the Company's carbon emissions by more than 420,000 tons each year.

In May 2022, we announced plans to build an approximately \$2.5 billion greenfield, fully integrated rolling and recycling plant in Bay Minette, Alabama. This new U.S. plant will support strong demand for sustainable beverage can and automotive aluminum sheet and advance a more circular economy.

Environmental, Social & Governance

In April 2021, we announced that we will further our longstanding sustainability commitment by aiming to become a carbon-neutral company by 2050 or sooner and reducing our carbon footprint 30% by 2026, based on a baseline of fiscal 2016. Carbon goals are inclusive of Scope 1 and 2, as well as Scope 3 emissions in categories 1, 3, and 9 of the Greenhouse Gas Protocol. In addition, we have added targets to reduce waste to landfills by 20%, energy intensity by 10%, and water intensity by 10%, each by 2026, based on a baseline of fiscal 2016.

We plan to increase the use of recycled content in our products, as appropriate, and engage with customers, suppliers, and industry peers across the value chain as we aim to drive innovation that improves aluminum's overall sustainability. In addition, we intend to evaluate each future expansion project's carbon impact and plan to include an appropriate carbon cost impact as part of our financial evaluation of future strategic growth investments and evaluate each future expansion project's carbon impact so that we may appropriately mitigate any negative carbon impacts to meet our goals.

In support of our commitments, we are voluntarily pursuing the certification of all of our plant operations to the Aluminum Stewardship Initiatives' ("ASI") certification program. ASI works together with producers, users, and stakeholders in the aluminum value chain to collaboratively foster responsible production, sourcing, and stewardship of aluminum. Currently, there are 14 plants with the Performance Standard and 11 with the Chain of Custody. In addition, to support our initiatives, in April 2021 we issued €500 million in aggregate principal amount of senior notes. We intend to allocate an amount equal to the net proceeds of these notes to eligible green projects, such as investments in renewable energy and pollution prevention and control. To date, we have allocated \$140 million of the net proceeds toward pollution prevention and control.

Our path to a more sustainable and circular future goes beyond our environmental commitments. We have set targets to reshape a more diverse and inclusive workforce that reflects our local communities. Globally, we are dedicated to increasing the representation of women in senior leadership and technical roles at Novelis in order to create and foster the next generation of female scientists and engineers. To achieve these goals, the Company has established a global Diversity & Inclusion board, as well as supporting councils in each of our four regions. We will also continue assisting our Employee Resource Groups to help create a more inclusive environment where we seek to provide our employees with a sense of belonging and where different backgrounds and perspectives are embraced and valued.

We are also committed to supporting the communities in which our employees live and work. With firmly established community engagement programs, the Company commits to advancing its corporate social responsibility efforts by further investing in the Novelis Neighbor program, which gives back to communities through financial contributions and employee volunteer service. The program will continue emphasizing STEM education, raising recycling awareness, and fostering better overall community health and well-being.

COVID-19 Response

With our primary focus being the health and well-being of our employees, we continue to monitor the changing landscape with respect to COVID-19 and take actions to manage our business and support our customers. We have bolstered our own Environmental, Health and Safety protocols and aligned them with guidance from global health authorities and government agencies across our operations to help ensure the safety of our employees, customers, suppliers, communities, and other stakeholders.

Liquidity Position

We believe we have adequate liquidity to manage the business with dynamic metal prices. Our cash and cash equivalents and long-term committed available borrowings aggregated to \$2.6 billion of liquidity at March 31, 2022.

We maintain a disciplined approach to capital spending, prioritizing maintenance capital for our operations, as well as organic strategic capacity expansions projects. Our capital expenditures expectation for fiscal 2023 is approximately \$1.3 billion-\$1.6 billion. This includes approximately \$300 million for expected maintenance spend.

Market Trends

Demand for lightweight, highly recyclable aluminum beverage packaging, which represents the largest share of our shipment product portfolio, remains strong in all regions.

Demand for aluminum sheet across specialties markets, including electronics, electric vehicle battery enclosures, painted products, container foil, and building and construction markets, also remains high.

While we believe long-term demand trends are intact, the current global semiconductor shortage impacting the automotive industry has resulted in temporary automotive customer shutdowns and has reduced near-term demand for automotive aluminum sheet.

In aerospace, we are seeing some improvement in order bookings and expect a slow and uneven recovery in demand for aerospace sheet for through fiscal 2023.

BUSINESS MODEL AND KEY CONCEPTS

Conversion Business Model

A significant amount of our business is conducted under a conversion model, which allows us to pass through increases or decreases in the price of aluminum to our customers. Nearly all of our flat-rolled products have a price structure with three components: (1) a base aluminum price quoted off the LME; (2) a LMP; and (3) a "conversion premium" to produce the rolled product which reflects, among other factors, the competitive market conditions for that product. Base aluminum prices are typically driven by macroeconomic factors and global supply and demand for aluminum. The local market premiums tend to vary based on the supply and demand for metal in a particular region and associated transportation costs.

In North America, Europe, and South America, we pass through local market premiums to our customers, which are recorded through net sales. In Asia, we purchase our metal inputs based on the LME and incur a local market premium. Many of our competitors in this region price their metal off the Shanghai Futures Exchange, which does not include a local market premium. However, in a majority of the new contracts over the last several quarters, we are able to fully pass through the local market premiums in an increasingly favorable demand environment.

LME Base Aluminum Prices and Local Market Premiums

The average (based on the simple average of the monthly averages) and closing prices for aluminum set on the LME for fiscal 2022, fiscal 2021, and fiscal 2020 are as follows.

	Fiscal 2022	Fiscal 2021	Fiscal 2020	Percent Change	
				Fiscal 2022 versus Fiscal 2021	Fiscal 2021 versus Fiscal 2020
Aluminum (per metric tonne, and presented in U.S. dollars):					
Closing cash price as of beginning of period	\$ 2,213	\$ 1,489	\$ 1,900	49 %	(22)%
Average cash price during period	2,769	1,802	1,749	54	3
Closing cash price as of end of period	3,503	2,213	1,489	58	49

For fiscal 2022, fiscal 2021, and fiscal 2020, the weighted average local market premium is as follows.

	Fiscal 2022	Fiscal 2021	Fiscal 2020	Percent Change	
				Fiscal 2022 versus Fiscal 2021	Fiscal 2021 versus Fiscal 2020
Weighted average local market premium (per metric tonne, and presented in U.S. dollars)	\$ 494	\$ 199	\$ 204	148 %	(2)%

Metal Price Lag and Related Hedging Activities

Increases or decreases in the price of aluminum based on the average LME base aluminum prices and local market premiums directly impact net sales, cost of goods sold (exclusive of depreciation and amortization), and working capital. The timing of these impacts varies based on contractual arrangements with customers and metal suppliers in each region. These timing impacts are referred to as metal price lag. Metal price lag exists due to: (i) the period of time between the pricing of our purchases of metal, holding and processing the metal, and the pricing of the sale of finished inventory to our customers and (ii) certain customer contracts containing fixed forward price commitments, which result in exposure to changes in metal prices for the period of time between when our sales price fixes and the sale actually occurs.

We use LME aluminum forward contracts to preserve our conversion margins and manage the timing differences associated with the LME base metal component of net sales and cost of goods sold (exclusive of depreciation and amortization). These derivatives directly hedge the economic risk of future LME base metal price fluctuations to better match the purchase price of metal with the sales price of metal. The majority of our local market premium hedging occurs in North America depending on market conditions. However, exposure there is not fully hedged. In Europe, Asia, and South America, the derivative market for local market premiums is not robust or efficient enough for us to offset the impacts of LMP price movements beyond a small volume. As a consequence, volatility in local market premiums can have a significant impact on our results of operations and cash flows.

We elect to apply hedge accounting to better match the recognition of gains or losses on certain derivative instruments with the recognition of the underlying exposure being hedged in the statement of operations. In connection with the acquisition of Aleris, the Company acquired a portfolio of derivative financial instruments executed to hedge various price risk exposures. Historically, Aleris did not designate derivative financial instruments as hedges and therefore, both realized and unrealized gains and losses on derivatives were recorded immediately in the consolidated statement of operations during fiscal 2021. In fiscal 2021, the Company designated certain Aleris LME aluminum forward sales contracts as cash flow hedges of the metal price risk associated with our future metal sales and certain foreign currency exchange contracts designated as hedges of expected future foreign currency transactions. For undesignated metal derivatives, there are timing differences between the recognition of unrealized gains or losses on the derivatives and the recognition of the underlying exposure in the statement of operations. The recognition of unrealized gains and losses on undesignated metal derivative positions typically precedes inventory cost recognition, customer delivery, and revenue recognition. The timing difference between the recognition of unrealized gains and losses on undesignated metal derivatives and cost or revenue recognition impacts income from continuing operations before income tax provision and net income. Gains and losses on metal derivative contracts are not recognized in segment income until realized.

Foreign Currency and Related Hedging Activities

We operate a global business and conduct business in various currencies around the world. We have exposure to foreign currency risk as fluctuations in foreign exchange rates impact our operating results as we translate the operating results from various functional currencies into our U.S. dollar reporting currency at current average rates. We also record foreign exchange remeasurement gains and losses when business transactions are denominated in currencies other than the functional currency of that operation. Global economic uncertainty is contributing to higher levels of volatility among the currency pairs in which we conduct business. The following table presents the exchange rates as of the end of each period and the average of the month-end exchange rates for fiscal 2022, fiscal 2021, and fiscal 2020.

	Exchange Rate as of March 31,			Average Exchange Rate		
	2022	2021	2020	Fiscal 2022	Fiscal 2021	Fiscal 2020
Euro per U.S. dollar	0.889	0.851	0.911	0.862	0.853	0.901
Brazilian real per U.S. dollar	4.738	5.697	5.199	5.285	5.471	4.168
South Korean won per U.S. dollar	1,211	1,134	1,223	1,168	1,158	1,186
Canadian dollar per U.S. dollar	1.249	1.257	1.425	1.253	1.318	1.333
Swiss franc per euro	1.023	1.106	1.061	1.064	1.078	1.095

Exchange rate movements have an impact on our operating results. In Europe, where we have predominantly local currency selling prices and operating costs, we benefit as the euro strengthens but are adversely affected as the euro weakens. For our Swiss operations, where operating costs are incurred primarily in the Swiss franc and a large portion of revenues are denominated in the euro, we benefit as the Swiss franc weakens but are adversely affected as the franc strengthens. In South Korea, where we have local currency operating costs and U.S. dollar denominated selling prices for exports, we benefit as the South Korean won weakens but are adversely affected as the won strengthens. In Brazil, where we have predominately U.S. dollar selling prices and local currency manufacturing costs, we benefit as the Brazilian real weakens but are adversely affected as the real strengthens. We use foreign exchange forward contracts and cross-currency swaps to manage our exposure arising from recorded assets and liabilities, firm commitments, and forecasted cash flows denominated in currencies other than the functional currency of certain operations, which include capital expenditures and net investment in foreign subsidiaries.

See *Segment Review* below for the impact of foreign currency on each of our segments.

RESULTS OF OPERATIONS

For fiscal 2022, we reported net income attributable to our common shareholder of \$954 million, an increase compared to \$236 million in fiscal 2021. Net income from continuing operations was \$1.0 billion for fiscal 2022, an increase from \$458 million in fiscal 2021, and segment income was \$2.0 billion in fiscal 2022, an increase from \$1.7 billion in fiscal 2021. The improvement in operational performance was primarily driven by a broad recovery in sales compared to the prior year, which was significantly impacted by the COVID-19 pandemic, higher product pricing, favorable product mix, favorable metal costs, favorable currency rates, and an \$85 million gain on Brazilian tax litigation resulting from favorable court decisions in fiscal 2022, partially offset by high inflation, supply chain disruption related costs, and a \$38 million customer beneficial customer contractual obligation in the prior year that did not recur. Other favorable items benefiting net income were a decrease in interest expenses and amortization of debt issuance costs as a result of decreased average levels of debt; more favorable pension costs; an increase in realized gains on change in fair value of derivative instruments, net; and a \$15 million gain on the sale of business, partially offset by a loss on extinguishment of debt, net and an increase in unrealized losses on change in fair value of derivative instruments, net.

Prior year net income also included a loss on sale of discontinued operations, net of tax of \$170 million; a \$29 million purchase price accounting adjustment resulting from the relief of an inventory step-up; \$29 million of restructuring and impairment expenses, net; and \$11 million of business acquisition and other related costs, all of which primarily related to the acquired Aleris business, in addition to a \$50 million charitable donation to support COVID-19 relief efforts.

Adjusted free cash flow was \$660 million for fiscal 2022. Refer to [Non-GAAP Financial Measures](#) for our definition of adjusted free cash flow.

Key Sales and Shipment Trends

<i>in millions, except shipments which are in kt</i>	Three Months Ended				Fiscal Year Ended	Three Months Ended				Fiscal Year Ended
	June 30, 2020	September 30, 2020	December 31, 2020	March 31, 2021	March 31, 2021	June 30, 2021	September 30, 2021	December 31, 2021	March 31, 2022	March 31, 2022
Net sales	\$ 2,426	\$ 2,978	\$ 3,241	\$ 3,631	\$ 12,276	\$ 3,855	\$ 4,119	\$ 4,326	\$ 4,849	\$ 17,149
Percentage (decrease) increase in net sales versus comparable previous year period	(17)%	4%	19%	33%	9%	59%	38%	33%	34%	40%
Rolled product shipments:										
North America	272	367	347	362	1,348	358	375	358	376	1,467
Europe	212	240	253	272	977	279	260	254	274	1,067
Asia	184	178	184	200	746	192	197	171	203	763
South America	113	148	158	160	579	157	147	157	156	617
Eliminations	(7)	(10)	(9)	(11)	(37)	(13)	(11)	(10)	(22)	(56)
Total	774	923	933	983	3,613	973	968	930	987	3,858

The following summarizes the percentage increase (decrease) in rolled product shipments versus the comparable prior period:

North America	(6)%	28%	29%	36%	21%	32%	2%	3%	4%	9%
Europe	(9)	(2)	13	24	6	32	8	—	1	9
Asia	—	1	6	9	4	4	11	(7)	2	2
South America	(19)	5	8	8	1	39	(1)	(1)	(3)	7
Total	(7)%	11%	17%	21%	10%	26%	5%	—%	—%	7%

Fiscal 2022 Compared to Fiscal 2021

Net sales was \$17.1 billion for fiscal 2022, an increase of 40% compared to fiscal 2021, primarily driven by higher average aluminum prices, as well as higher total shipments compared to the prior year significantly impacted by reduced demand due to the COVID-19 pandemic.

Income from continuing operations before income tax provision was \$1.3 billion for fiscal 2022, an increase of 87% compared to fiscal 2021. In addition to the factor noted above, the following items affected the change in income from continuing operations before income tax provision.

Cost of Goods Sold (Exclusive of Depreciation and Amortization)

Cost of goods sold (exclusive of depreciation and amortization) was \$14.4 billion for fiscal 2022, an increase of 44% compared to fiscal 2021, driven by higher average aluminum prices and higher production volume. Total metal input costs included in cost of goods sold (exclusive of depreciation and amortization) increased \$3.7 billion over fiscal 2021.

Selling, General and Administrative Expenses

SG&A was \$631 million for fiscal 2022 compared to \$551 million for fiscal 2021. The increase is primarily due to employment costs in the current year compared to temporary cost savings measures in the prior year enacted to mitigate the decline in sales due to the COVID-19 pandemic, partially offset by acquisition synergy cost savings.

Depreciation and Amortization

Depreciation and amortization was \$550 million for fiscal 2022 compared to \$543 million for fiscal 2021.

Interest Expense and Amortization of Debt Issuance Costs

Interest expense and amortization of debt issuance costs decreased \$40 million from fiscal 2021 primarily due to a decrease in average level of debt held during the current period and lower average interest rates.

Loss on Extinguishment of Debt, Net

We recorded \$64 million in loss on extinguishment of debt, net in fiscal 2022. This primarily relates to the write-off of unamortized debt issuance costs and a \$51 million cash payment of a redemption premium for the redemption of our 5.875% Senior Notes, due September 2026.

We recorded \$14 million in loss on extinguishment of debt, net in fiscal 2021 primarily related to the partial repayment of our Floating rate Term Loans, due June 2022, during fiscal 2021 and the early repayment of certain short-term debt.

See [Note 13 – Debt](#) for further information.

Restructuring and Impairment, Net

Restructuring and impairment, net in fiscal 2022 primarily relates to reorganization activities resulting from the Aleris acquisition, mostly offset by a partial release of certain restructuring liabilities as a result of changes in estimated costs.

Restructuring and impairment, net in fiscal 2021 related primarily to the reorganization and right-sizing of the acquired Aleris business.

See [Note 4 – Restructuring and Impairment](#) for further information.

Other (Income) Expenses, Net

Other (income) expenses, net was \$61 million for fiscal 2022 compared to \$103 million for fiscal 2021. This change primarily relates to a gain of \$85 million on Brazilian tax litigation related to favorable decisions in the current year, a \$38 million decrease in non-operating net periodic benefit cost in the current year, a \$31 million higher gain on realized changes in fair value of derivative instruments, net, and a \$15 million gain on the sale of business, partially offset by an \$18 million release of certain receivables in the current year and a \$17 million increased loss on unrealized changes in fair value of derivative instruments, net. Fiscal 2021 also included a \$50 million charitable contribution made to support COVID-19 relief efforts that did not recur in the current period.

Taxes

We recognized \$281 million of income tax provision in fiscal 2022, which resulted in an effective tax rate of 22%. This rate was primarily driven by the full year forecasted effective tax rate that takes into account income taxed at rates that differ from the 25% Canadian rate, including withholding taxes; changes to the Brazilian real foreign exchange rate; change in valuation allowances, including a \$73 million benefit from the release of certain valuation allowances; the availability of tax credits; and the enacted rate change in the U.K. The corporate tax rate in the U.K. is scheduled to increase from 19% to 25%, effective for fiscal 2023. The impact of this change resulted in a tax benefit of approximately \$8 million. We recognized \$238 million in fiscal 2021, which resulted in an effective tax rate of 34%. This rate was primarily driven by the results of operations taxed at foreign statutory tax rates that differ from the 25% Canadian tax rate, including withholding taxes, changes in valuation allowances, and changes to the Brazilian real foreign exchange rate, offset by tax credits. See [Note 21 – Income Taxes](#) for further information.

Segment Review

Due in part to the regional nature of supply and demand of aluminum rolled products and in order to best serve our customers, we manage our activities on the basis of geographical regions and are organized under four operating segments: North America, Europe, Asia, and South America.

The tables below illustrate selected segment financial information (in millions, except shipments which are in kt). For additional financial information related to our operating segments including the reconciliation of net income attributable to our common shareholder to segment income, see [Note 23 – Segment, Geographical Area, Major Customer and Major Supplier Information](#). In order to reconcile the financial information for the segments shown in the tables below to the relevant U.S. GAAP-based measures, "Eliminations and other" must adjust for proportional consolidation of each line item for our Logan affiliate because we consolidate 100% of the Logan joint venture for U.S. GAAP purposes. However, we manage our Logan affiliate on a proportionately consolidated basis and eliminate intersegment shipments.

Selected Operating Results Fiscal 2022	North America	Europe	Asia	South America	Eliminations and other	Total
Net sales	\$ 6,735	\$ 4,720	\$ 3,036	\$ 2,638	\$ 20	\$ 17,149
Shipments (in kt):						
Rolled products - third party	1,467	1,038	737	616	—	3,858
Rolled products - intersegment	—	29	26	1	(56)	—
Total rolled products	1,467	1,067	763	617	(56)	3,858
Non-rolled products	13	120	25	99	(35)	222
Total shipments	1,480	1,187	788	716	(91)	4,080

Selected Operating Results Fiscal 2021	North America	Europe	Asia	South America	Eliminations and other	Total
Net sales	\$ 4,558	\$ 3,552	\$ 2,182	\$ 1,798	\$ 186	\$ 12,276
Shipments (in kt):						
Rolled products - third party	1,348	947	740	578	—	3,613
Rolled products - intersegment	—	30	6	1	(37)	—
Total rolled products	1,348	977	746	579	(37)	3,613
Non-rolled products	33	122	5	92	(26)	226
Total shipments	1,381	1,099	751	671	(63)	3,839

The following table reconciles changes in segment income for fiscal 2021 to fiscal 2022 (in millions).

Changes in segment income	North America	Europe	Asia	South America	Eliminations and other ⁽¹⁾	Total
Segment income - Fiscal 2021	\$ 663	\$ 285	\$ 305	\$ 449	\$ 12	\$ 1,714
Volume	117	98	13	43	(25)	246
Conversion premium and product mix	158	78	159	26	(11)	410
Conversion costs	(243)	(88)	(123)	77	37	(340)
Foreign exchange	(5)	7	10	45	(3)	54
Selling, general & administrative and research & development costs ⁽²⁾	(50)	(5)	(11)	(29)	2	(93)
Other changes ⁽³⁾	45	(51)	(1)	70	(9)	54
Segment income - Fiscal 2022	<u>\$ 685</u>	<u>\$ 324</u>	<u>\$ 352</u>	<u>\$ 681</u>	<u>\$ 3</u>	<u>\$ 2,045</u>

(1) The recognition of segment income by a region on an intersegment shipment could occur in a period prior to the recognition of segment income on a consolidated basis, depending on the timing of when the inventory is sold to a third-party customer. The "Eliminations and other" column adjusts regional segment income for intersegment shipments that occur in a period prior to recognition of segment income on a consolidated basis. The "Eliminations and other" column also reflects adjustments for changes in regional volume, conversion premium and product mix, and conversion costs related to intersegment shipments for consolidation. "Eliminations and other" must adjust for proportional consolidation of each line item for our Logan affiliate because we consolidate 100% of the Logan joint venture for U.S. GAAP, but we manage our Logan affiliate on a proportionately consolidated basis.

(2) Selling, general & administrative and research & development costs include costs incurred directly by each segment and all corporate related costs.

(3) Other changes in Europe includes a \$38 million customer contractual obligation benefit in the prior year.

North America

Net sales increased \$2.2 billion, or 48%, driven by higher specialty, can, and automotive shipments compared to the prior year, which was impacted by COVID-19, and higher average aluminum prices. Segment income was \$685 million, an increase of 3%, primarily driven by higher volume, favorable product mix despite the semiconductor shortage impact on automotive shipments in the current year, higher price, and a decrease in pension costs from recent pension plan freezes, partially offset by higher operating costs due to inflation, supply chain disruptions, and higher production, higher SG&A costs compared to prior year temporary cost reduction initiatives, and unfavorable metal costs.

Europe

Net sales increased \$1.2 billion, or 33%, driven by recovery in automotive and specialty shipments compared to the prior year impacted by COVID-19, higher can and aerospace shipments, and higher average aluminum prices. Segment income was \$324 million, an increase of 14%, primarily driven by higher volume, favorable metal costs, favorable price, favorable product mix despite the semiconductor shortage impact on automotive shipments in the current year, and foreign exchange, partially offset by higher operating costs due to inflation, higher production, and supply chain disruptions and a customer contractual benefit in the prior year that did not recur.

Asia

Net sales increased \$854 million, or 39%, driven by higher automotive and aerospace shipments and higher average aluminum prices, partially offset by lower can shipments impacted by supply chain bottlenecks. Segment income was \$352 million, an increase of 15%, primarily due to favorable product mix and price, favorable metal costs, higher volume, and favorable foreign exchange, partially offset by higher operating costs due to inflation, supply chain disruptions, and higher production and higher SG&A costs.

South America

Net sales increased \$840 million, or 47%, driven by higher can shipments compared to the prior year, which was impacted by COVID-19 related customer shutdowns, and higher average aluminum prices. Segment income was \$681 million, an increase of 52%, primarily due to favorable metal costs, higher volume, favorable product mix and price, gains from favorable tax litigation settlements, and favorable foreign exchange, partially offset by operating costs due to inflation and higher production as well as higher SG&A due to increased interest rates on our forfeiting activities.

LIQUIDITY AND CAPITAL RESOURCES

We believe we maintain adequate liquidity levels through a combination of cash and availability under committed credit facilities. Our cash and cash equivalents and availability under committed credit facilities aggregated to \$2.6 billion of liquidity as of March 31, 2022. Our primary liquidity sources are cash flows from operations, working capital management, cash, and liquidity under our debt agreements. Our recent business investments are being funded through cash flows generated by our operations and a combination of local financing and our senior secured credit facilities. We expect to be able to fund both our short-term and long-term liquidity needs, such as our continued expansions, servicing our debt obligations, and providing sufficient liquidity to operate our business, through one or more of the following: the generation of operating cash flows, working capital management, our existing debt facilities (including refinancing), and new debt issuances, as necessary.

Our capital expenditures expectation for fiscal 2023 is approximately \$1.3 billion-\$1.6 billion. This includes approximately \$300 million for expected maintenance spend.

Available Liquidity

Our available liquidity as of March 31, 2022 and 2021 is as follows.

<i>in millions</i>	March 31,	
	2022	2021
Cash and cash equivalents	\$ 1,070	\$ 998
Availability under committed credit facilities	1,499	1,223
Total available liquidity	\$ 2,569	\$ 2,221

The increase in total available liquidity is primarily due to an increase in our availability under committed credit facilities caused by the impacts of increased metal prices on our borrowing base in addition to an increase in cash and cash equivalents from higher segment income and favorable metal price lag, partially offset by financing activities, capital expenditures, and changes in working capital due to increased metal prices. See [Note 13 – Debt](#) for more details on our availability under committed credit facilities. In April 2021 we issued €500 million in aggregate principal amount of senior notes. We intend to allocate an amount equal to the net proceeds of these notes to eligible green projects, such as investments in renewable energy and pollution prevention and control.

Cash and cash equivalents includes cash held in foreign countries in which we operate. As of March 31, 2022, we held \$3 million of cash and cash equivalents in Canada, in which we are incorporated, with the rest held in other countries in which we operate. As of March 31, 2022, we held \$780 million of cash in jurisdictions for which we have asserted that earnings are permanently reinvested, and we plan to continue to fund operations and local expansions with cash held in those jurisdictions. Cash held outside of Canada is free from significant restrictions that would prevent the cash from being accessed to meet the Company's liquidity needs including, if necessary, to fund operations and service debt obligations in Canada. Upon the repatriation of any earnings to Canada, in the form of dividends or otherwise, we could be subject to Canadian income taxes (subject to adjustment for foreign taxes paid and the utilization of the large cumulative net operating losses we have in Canada) and withholding taxes payable to the various foreign jurisdictions. As of March 31, 2022, we do not believe adverse tax consequences exist that restrict our use of cash and cash equivalents in a material manner.

We use derivative contracts to manage risk as well as liquidity. Under our terms of credit with counterparties to our derivative contracts, we do not have any material margin call exposure. No material amounts have been posted by Novelis nor do we hold any material amounts of margin posted by our counterparties. We settle derivative contracts in advance of billing on the underlying physical inventory and collecting payment from our customers, which temporarily impacts our liquidity position. The lag between derivative settlement and customer collection typically ranges from 30 to 90 days.

Obligations

Our material cash requirements include future contractual and other obligations arising in the normal course of business. These obligations primarily include debt and related interest payments, finance and operating lease obligations, postretirement benefit plan obligations, and purchase obligations.

Debt

As of March 31, 2022, we had an aggregate principal amount of debt, excluding finance leases, of \$5.6 billion, with \$547 million due within 12 months. In addition, we are obligated to make periodic interest payments at fixed and variable rates, depending on the terms of the applicable debt agreements. Based on applicable interest rates and scheduled debt maturities as of March 31, 2022, our total interest obligation on long-term debt totaled an estimated \$1.3 billion, with \$188 million payable within 12 months. Actual future interest payments may differ from these amounts based on changes in floating interest rates or other factors or events. Excluded from these amounts are interest related to finance lease obligations, the amortization of debt issuance costs, and other costs related to indebtedness. See [Note 13 – Debt](#) to our accompanying consolidated financial statements for more information about our debt arrangements.

Leases

We lease certain land, buildings, and equipment under non-cancelable operating lease arrangements and certain office space under finance lease arrangements. As of March 31, 2022, we had aggregate finance lease obligations of \$31 million, with \$8 million due within 12 months. This includes both principal and interest components of future minimum finance lease payments. Excluded from these amounts are insurance, taxes, and maintenance associated with the property. As of March 31, 2022, we had aggregate operating lease obligations of \$90 million, with \$24 million due within 12 months. This includes the minimum lease payments for non-cancelable leases for property and equipment used in our operations. Excluded from these amounts are insurance, taxes, and maintenance associated with the properties and equipment as well as future minimum lease payments related to operating leases signed but not yet commenced. We do not have any operating leases with contingent rents. See [Note 11 – Leases](#) to our accompanying consolidated financial statements for further discussion of our operating and finance leases.

Postretirement Benefit Plans

Obligations for postretirement benefit plans are estimated based on actuarial estimates using benefit assumptions for, among other factors, discount rates, rates of compensation increases, and health care cost trends. As of March 31, 2022, payments for pension plan benefits and other post-employment benefits estimated through 2032 were \$1.2 billion, with \$104 million due within 12 months. See [Note 15 – Postretirement Benefit Plans](#) to our accompanying consolidated financial statements for further discussion.

Purchase Obligations and Other

Purchase obligations include agreements to purchase goods (including raw materials and capital expenditures) and services that are enforceable and legally binding on us and that specify all significant terms. Some of our raw material purchase contracts have minimum annual volume requirements. In these cases, we estimate our future purchase obligations using annual minimum volumes and costs per unit that are in effect as of March 31, 2022. As of March 31, 2022, we had aggregate purchase obligations of \$12.3 billion, with \$5.3 billion due within 12 months.

Due to volatility in the cost of our raw materials, actual amounts paid in the future may differ from these amounts. Excluded from these amounts are the impact of any derivative instruments and any early contract termination fees, such as those typically present in energy contracts. Purchase obligations do not include contracts that can be cancelled without significant penalty.

The future cash flow commitments we may have related to derivative contracts are from the figures above as these are fair value measurements determined at an interim date within the contractual term of the arrangement and, accordingly, do not represent the ultimate contractual obligation (which could ultimately become a receivable). As a result, the timing and amount of the ultimate future cash flows related to our derivative contracts, including the \$969 million of derivative liabilities recorded on our balance sheet as of March 31, 2022, are uncertain. In addition, stock compensation is excluded from the above figures as it is a fair value measurement determined at an interim date and is not considered a contractual obligation. Furthermore, due to the difficulty in determining the timing of settlements, the above figures also exclude \$71 million of uncertain tax positions. See [Note 21 – Income Taxes](#) to our accompanying consolidated financial statements for more information.

There are no additional material off-balance sheet arrangements.

Adjusted Free Cash Flow

Refer to [Non-GAAP Financial Measures](#) for our definition of adjusted free cash flow.

The following table shows adjusted free cash flow for fiscal 2022, fiscal 2021, and fiscal 2020 and the change between periods, as well as the ending balances of cash and cash equivalents.

<i>in millions</i>	Fiscal 2022	Fiscal 2021	Fiscal 2020	Change	
				Fiscal 2022 versus Fiscal 2021	Fiscal 2021 versus Fiscal 2020
Net cash provided by operating activities - continuing operations	\$ 1,132	\$ 1,209	\$ 973	\$ (77)	\$ 236
Net cash used in investing activities - continuing operations	(473)	(3,079)	(586)	2,606	(2,493)
Plus: Cash used in the acquisition of business, net of cash and restricted cash acquired ⁽¹⁾	—	2,614	—	(2,614)	2,614
Less: Proceeds from sales of assets and business, net of transactions fees, cash income taxes and hedging	(10)	(4)	(3)	(6)	(1)
Adjusted free cash flow from continuing operations	649	740	384	(91)	356
Net cash provided by (used in) operating activities - discontinued operations	11	(82)	—	93	(82)
Net cash provided by investing activities - discontinued operations	—	357	—	(357)	357
Less: Proceeds from sales of assets and business, net of transaction fees, cash income taxes and hedging - discontinued operations ⁽²⁾	—	(403)	—	403	(403)
Adjusted free cash flow	\$ 660	\$ 612	\$ 384	48	228
Cash and cash equivalents	\$ 1,070	\$ 998	\$ 2,392	\$ 72	\$ (1,394)

(1) The total of acquisition of business, net of cash and restricted cash acquired represents \$2.8 billion of merger consideration plus \$4 million related to the translation adjustment of the €55 million capital improvement investment for Duffel upon payout, net of \$105 million of cash and cash equivalents, \$41 million of discontinued operations cash and cash equivalents acquired, \$9 million of restricted cash, and \$9 million in contingent consideration paid in the acquisition of business.

(2) Proceeds from the sales of assets and business, net of transaction fees, cash income taxes and hedging - discontinued operations represents the proceeds from the sale of Duffel, net of cash sold of \$23 million and the proceeds from the sale of Lewisport.

Cash Flow Summary

<i>in millions</i>	Fiscal 2022	Fiscal 2021	Fiscal 2020	Change	
				Fiscal 2022 versus Fiscal 2021	Fiscal 2021 versus Fiscal 2020
Net cash provided by operating activities	\$ 1,143	\$ 1,127	\$ 973	\$ 16	\$ 154
Net cash used in investing activities	(473)	(2,722)	(586)	2,249	(2,136)
Net cash (used in) provided by financing activities	(615)	180	1,064	(795)	(884)

Operating Activities

The increase in net cash provided by operating activities primarily relates to higher segment income and favorable metal price lag, mostly offset by changes in working capital impacted by increasing aluminum prices and local market premiums.

Investing Activities

The change in net cash used in investing activities over the prior fiscal year primarily relates prior year costs associated with the acquisition of Aleris, partially offset by prior year net cash proceeds from investing activities - discontinued operations.

Financing Activities

The following represents proceeds from the issuance of long-term and short-term borrowings during fiscal 2022.

<i>in millions</i>	Fiscal 2022
3.250% Senior Notes, due November 2026 ⁽¹⁾	\$ 750
3.875% Senior Notes, due August 2031 ⁽¹⁾	750
Short-term issuances ⁽²⁾	415
1.8% Brazil Loan due June 2023	30
1.8% Brazil Loan due December 2023	20
Floating rate Term Loans, due March 2028	20
Proceeds from issuance of long-term and short-term borrowings	<u>\$ 1,985</u>

(1) The proceeds from the issuance of the 3.250% Senior Notes, due November 2026 and the 3.875% Senior Notes, due August 2031 were used to redeem the \$1.5 billion principal amount outstanding on the 5.875% Senior Notes, due September 2026.

(2) Of the \$415 million short-term issuances in fiscal 2022, \$315 million of issuances relate to the short-term loan entered into in January 2022. The proceeds of the short-term loan were applied to voluntarily prepay the outstanding principal balance on our Floating rate Term Loans, due June 2022.

The following represents principal payments of long-term and short-term borrowings during fiscal 2022.

<i>in millions</i>	Fiscal 2022
5.875% Senior Notes, due September 2026 ⁽¹⁾	\$ (1,551)
Floating rate Term Loans, due June 2022	(648)
Zhenjiang Term Loans, due May 2024	(129)
Short-term borrowings in Brazil	(53)
Floating rate Term Loans, due January 2025	(8)
Floating rate Term Loans, due March 2028	(5)
4.90% China Bank Loans, due August 2027	(3)
Finance leases and other repayments	(9)
Principal payments of long-term and short-term borrowings	<u>\$ (2,406)</u>

(1) This represents the \$1.5 billion principal on the 5.875% Senior Notes, due September 2026 that was redeemed during the period through the issuance of the 3.250% Senior Notes, due November 2026 and the 3.875% Senior Notes, due August 2031. An additional \$51 million payment was made using cash on hand for the resulting redemption premium.

The following represents inflows (outflows) from revolving credit facilities and other, net during fiscal 2022.

<i>in millions</i>	Fiscal 2022
ABL Revolver	\$ (74)
Korea credit facility	(17)
China credit facility	22
Revolving credit facilities and other, net	<u>\$ (69)</u>

In addition to the activities shown in the tables above during fiscal 2022 we paid \$25 million in debt issuance costs, \$22 million of which related to the issuance of new Senior Notes in the period and \$3 million related to prior period issuances. We also paid a return of capital to our common shareholder in the amount of \$100 million.

During fiscal 2021, there were \$3.0 billion issuances of long-term and short-term borrowings, including \$1.1 billion in issuances on our existing short-term credit agreement (the "Short Term Credit Agreement") and \$775 million in issuances in incremental term loans on our Term Loan Facility (the "2020 Term Loans"). The proceeds of these issuances were used to pay a portion of the consideration payable in the acquisition of Aleris.

We also issued \$588 million (€500 million) in aggregate principal amount 3.375% Senior Notes due 2029. The proceeds were used to pay down a portion of the term loans borrowed in 2017 under our Term Loan Facility (the "2017 Term Loans"), plus accrued and unpaid interest. We intend to allocate an amount equal to the net proceeds received from this issuance to finance and/or refinance new and/or existing eligible green projects, which are currently contemplated to consist of renewable energy or pollution prevention and control type projects.

Additionally, we entered into \$500 million in additional term loans under our existing Term Loan Facility (the "2021 Term Loans"), of which \$480 million were funded as of March 31, 2021 and \$20 million were funded on April 1, 2021. The proceeds of the 2021 Term Loans were utilized to pay a portion of our 2017 Term Loans.

We also issued \$63 million of short-term debt in Brazil and \$36 million on our China bank loans. As a result of our issuances in fiscal 2021, we paid \$44 million in debt issuance costs.

We made principal repayments of \$1.1 billion on our Short Term Credit Agreement, \$1.1 billion on our 2017 Term Loans, \$70 million on our short-term debt in Brazil, \$22 million on our term loan facility borrowed by Aleris Aluminum (Zhenjiang) Co., Ltd., \$8 million on our 2020 Term Loans, and \$7 million on finance leases and other repayments.

The net cash outflows from our revolving credit facilities relates to net outflows of \$472 million on our ABL Revolver and outflows of \$90 million on our Korea credit facilities, net of \$56 million of net proceeds from our China credit facilities.

Additionally, we paid \$9 million for contingent consideration in the acquisition of Aleris.

Non-Guarantor Information

As of March 31, 2022, the Company's subsidiaries that are not guarantors represented the following approximate percentages of (a) net sales, (b) Adjusted EBITDA (segment income), and (c) total assets of the Company, on a consolidated basis (including intercompany balances):

Item Description	Ratio
Consolidated net sales represented by net sales to third parties by non-guarantor subsidiaries (for fiscal 2022)	20 %
Consolidated Adjusted EBITDA represented by the non-guarantor subsidiaries (for fiscal 2022)	16
Consolidated assets are owned by non-guarantor subsidiaries (as of March 31, 2022)	16

Refer to [Non-GAAP Financial Measures](#) for our definition of Adjusted EBITDA (segment income). In addition, for fiscal 2022 and fiscal 2021, the Company's subsidiaries that are not guarantors had net sales of \$4.0 billion and \$2.9 billion, respectively, and, as of March 31, 2022, those subsidiaries had assets of \$3.3 billion and debt and other liabilities of \$2.0 billion (including intercompany balances).

CAPITAL ALLOCATION FRAMEWORK

In May 2021, Novelis announced a capital allocation framework which laid out the general guidelines for use of post-maintenance capital expenditure adjusted free cash flow for the next five years. The priority at that time was to reduce long-term debt by \$2.6 billion from its recent peak in the first quarter of fiscal 2021 after the Aleris acquisition and to target a net leverage ratio of approximately 2.5x. Having achieved both targets by the end of fiscal 2022, the priority has now shifted to organic growth capital expenditures, estimated to be more than \$4.5 billion over the next five years, while maintaining a medium-term net leverage ratio below 2.5x and continuing to guide approximately 8%-10% of post-maintenance capital expenditure adjusted free cash flow to be returned to our common shareholder. Payments to our common shareholder are at the discretion of our board of directors. Any such payments depend on, among other things, our financial resources, cash flows generated by our business, our cash requirements, restrictions under the instruments governing our indebtedness, being in compliance with the appropriate indentures and covenants under the instruments that govern our indebtedness, and other relevant factors.

During fiscal 2022, we paid a return of capital to our common shareholder in the amount of \$100 million.

ENVIRONMENT, HEALTH AND SAFETY

We strive to be a leader in environment, health and safety standards. Our environment, health and safety system is aligned with ISO 14001, an international environmental management standard, and OHSAS 18001 or ISO 45001, international occupational health and safety management standards. As of March 31, 2022 and 2021, 24 of our facilities were OHSAS 18001 or ISO 45001 certified. As of March 31, 2022 and 2021, 28 of our facilities were ISO 14001 certified. In addition as of March 31, 2022 and 2021, 30 of our facilities were certified to one of the following quality standards: ISO 9001, TS 16949, IATF 16949.

Our expenditures for environmental protection (including estimated and probable environmental remediation costs as well as general environmental protection costs at our facilities) and the betterment of working conditions in our facilities were \$18 million during fiscal 2022, of which \$16 million was expensed and \$2 million was capitalized. We expect that these expenditures will be approximately \$20 million in fiscal 2023, of which we estimate \$13 million will be expensed and \$7 million will be capitalized. Generally, expenses for environmental protection are recorded in cost of goods sold (exclusive of depreciation and amortization). However, significant remediation costs that are not associated with on-going operations are recorded in restructuring and impairment, net.

CRITICAL ACCOUNTING POLICIES AND ESTIMATES

Our discussion and analysis of our results of operations, liquidity and capital resources are based on our consolidated financial statements which have been prepared in accordance with U.S. GAAP. In connection with the preparation of our consolidated financial statements, we are required to make assumptions and estimates about future events, and apply judgments that affect the reported amounts of assets, liabilities, revenue, expenses, and the related disclosures. We base our assumptions, estimates and judgments on historical experience, current trends and other factors we believe to be relevant at the time we prepare our consolidated financial statements. On a regular basis, we review the accounting policies, assumptions, estimates and judgments to ensure that our consolidated financial statements are presented fairly and in accordance with U.S. GAAP. However, because future events and their effects cannot be determined with certainty, actual results could differ from our assumptions and estimates, and such differences could be material.

Our significant accounting policies are discussed in [Note 1 – Business and Summary of Significant Accounting Policies](#) to our accompanying consolidated financial statements. We believe the following accounting policies are the most critical to aid in fully understanding and evaluating our reported financial results, as they require management to make difficult, subjective or complex judgments, and to make estimates about the effect of matters that are inherently uncertain. Although management believes that the estimates and judgments discussed herein are reasonable, actual results could differ, which could result in gains or losses that could be material. We have reviewed these critical accounting policies and related disclosures with the Audit Committee of our board of directors.

Derivative Financial Instruments

We hold derivatives for risk management purposes and not for trading. We use derivatives to mitigate uncertainty and volatility caused by underlying exposures to metal prices, foreign exchange rates, interest rates, and energy prices. The fair values of all derivative instruments are recognized as assets or liabilities at the balance sheet date and are reported gross.

The majority of our derivative contracts are valued using industry-standard models that use observable market inputs as their basis, such as time value, forward interest rates, volatility factors, and current (spot) and forward market prices for commodity and foreign exchange rates. See [Note 17 – Financial Instruments and Commodity Contracts](#) and [Note 19 – Fair Value Measurements](#) to our accompanying consolidated financial statements for discussion on fair value of derivative instruments.

We may be exposed to losses in the future if the counterparties to our derivative contracts fail to perform. We are satisfied that the risk of such non-performance is remote due to our monitoring of credit exposures. Additionally, we enter into master netting agreements with contractual provisions that allow for netting of counterparty positions in case of default, and we do not face credit contingent provisions that would result in the posting of collateral.

For derivatives designated as fair value hedges, we assess hedge effectiveness by formally evaluating the high correlation of changes in the fair value of the hedged item and the derivative hedging instrument. The changes in the fair values of the underlying hedged items are reported in other current and noncurrent assets and liabilities in the consolidated balance sheets. Changes in the fair values of these derivatives and underlying hedged items generally offset, and the entire change in the fair value of derivatives is recorded in the statement of operations line item consistent with the underlying hedged item.

For derivatives designated as cash flow hedges or net investment hedges, we assess hedge effectiveness by formally evaluating the high correlation of the expected future cash flows of the hedged item and the derivative hedging instrument. The entire change in the fair value of the hedging instrument included in the assessment of hedge effectiveness is included in other comprehensive (loss) income and reclassified to earnings in the period in which earnings are impacted by the hedged items or in the period that the transaction becomes probable of not occurring. Gains or losses representing reclassifications of other comprehensive (loss) income to earnings are recognized in the same line item that is impacted by the underlying exposure. We exclude the time value component of foreign currency and aluminum price risk hedges when measuring and assessing effectiveness to align our accounting policy with risk management objectives when it is necessary. If at any time during the life of a cash flow hedge relationship we determine that the relationship is no longer effective, the derivative will no longer be designated as a cash flow hedge and future gains or losses on the derivative will be recognized in other (income) expenses, net.

For all derivatives designated as hedging relationships, gains or losses representing amounts excluded from effectiveness testing are recognized in other (income) expenses, net in our current period earnings. If no hedging relationship is designated, gains or losses are recognized in other (income) expenses, net in our current period earnings.

Consistent with the cash flows from the underlying risk exposure, we classify cash settlement amounts associated with designated derivatives as part of either operating or investing activities in the consolidated statements of cash flows. If no hedging relationship is designated, we classify cash settlement amounts as part of investing activities in the consolidated statement of cash flows.

Impairment of Goodwill

Goodwill represents the excess of the purchase price over the fair value of the identifiable net assets of acquired companies. As a result of Hindalco's indirect purchase of Novelis, we estimated fair value of the identifiable net assets using a number of factors, including the application of multiples and discounted cash flow estimates. The carrying value of goodwill for each of our reporting units, which is tested for impairment annually, follows.

<i>in millions</i>	<i>As of</i> March 31, 2022
North America	\$ 660
Europe	235
Asia	45
South America	141
Goodwill	<u>\$ 1,081</u>

Goodwill is not amortized; instead, it is tested for impairment annually or more frequently if indicators of impairment exist. On an ongoing basis, absent any impairment indicators, we perform our goodwill impairment testing as of March 31 of each fiscal year. We do not aggregate components of operating segments to arrive at our reporting units, and as such our reporting units are the same as our operating segments.

ASC 350, Intangibles - Goodwill provides an entity the option to first assess qualitative factors to determine whether the existence of events or circumstances leads to a determination that it is more likely than not that the estimated fair value of a reporting unit is less than its carrying amount. If an entity elects to perform a qualitative assessment and determines that an impairment is more likely than not, the entity is then required to perform the one-step quantitative impairment test, otherwise no further analysis is required. An entity also may elect not to perform the qualitative assessment and, instead, proceed directly to the one-step quantitative impairment test. The ultimate outcome of the goodwill impairment review for a reporting unit should be the same whether an entity chooses to perform the qualitative assessment or proceeds directly to the one-step quantitative impairment test.

For our fiscal 2022 test, we elected to perform the one-step quantitative impairment test, where we compared the fair value of each reporting unit to its carrying amount, and if the quantitative test indicates that the carrying value of a reporting unit exceeds the fair value, such excess is to be recorded as an impairment. For purposes of our quantitative analysis, our estimate of fair value for each reporting unit as of the testing date is based on a weighted average of the value indication from income and market approach. The approach to determining fair value for all reporting units is consistent given the similarity of our operations in each region.

Under the income approach, the fair value of each reporting unit is based on the present value of estimated future cash flows. The income approach is dependent on a number of significant management assumptions including sales volumes, conversion premium, capital spending, working capital changes and the discount rate. We estimate future cash flows for each of our reporting units based on our projections for the respective reporting unit. These projected cash flows are discounted to the present value using a weighted average cost of capital (discount rate). The discount rate is commensurate with the risk inherent in the projected cash flows and reflects the rate of return required by an investor in the current economic conditions. For our annual impairment test, we used a discount rate of 8.93% for all reporting units. An increase or decrease of 0.25% in the discount rate would have impacted the estimated fair value of each reporting unit by approximately \$126 million-\$517 million, depending on the relative size of the reporting unit. Additionally, an increase or decrease of 0.25% in the terminal year growth rate assumption would have impacted the estimated fair value of each reporting unit by approximately \$90 million-\$400 million, depending on the relative size of the reporting unit. The projections are based on both past performance and the expectations of future performance and assumptions used in our current operating plan. We use specific revenue growth assumptions for each reporting unit based on history and economic conditions, and the terminal year revenue growth assumptions were approximately 2.25%.

Under the market approach, the fair value of each reporting unit is determined based upon comparisons to public companies engaged in similar businesses. The market approach is dependent on a number of significant assumptions including selection of multiples and control premium.

As a result of our annual goodwill impairment test for fiscal 2022, no goodwill impairment was identified. The fair values of the reporting units exceeded their respective carrying amounts as of March 31, 2022 by 181% for North America, by 89% for Europe, by 177% for Asia, and by 473% for South America.

Pension and Other Postretirement Plans

We account for our pensions and other postretirement benefits in accordance with ASC 715, Compensation — Retirement Benefits. Liabilities and expense for pension plans and other postretirement benefits are determined using actuarial methodologies and incorporate significant assumptions, including the rate used to discount the future estimated liability, the long-term rate of return on plan assets, and several assumptions related to the employee workforce (compensation increases, health care cost trend rates, expected service period, retirement age, and mortality). These assumptions bear the risk of change as they require significant judgment and they have inherent uncertainties that management may not be able to control.

The actuarial models use an attribution approach that generally spreads the financial impact of changes to the plan and actuarial assumptions over the average remaining service lives of the employees in the plan or average life expectancy. The principle underlying the required attribution approach is that employees render service over their average remaining service lives on a relatively smooth basis and, therefore, the accounting for benefits earned under the pension or non-pension postretirement benefits plans should follow the same relatively smooth pattern. Changes in the liability due to changes in actuarial assumptions such as discount rate, rate of compensation increases and mortality, as well as annual deviations between what was assumed and what was experienced by the plan are treated as actuarial gains or losses. The actuarial gains and losses are initially recorded to other comprehensive (loss) income and subsequently amortized over periods of 15 years or less.

The most significant assumption used to calculate pension and other postretirement obligations is the discount rate used to determine the present value of benefits. The discount rate is based on spot rate yield curves and individual bond matching models for pension and other postretirement plans in Canada, the U.S., the U.K., and other eurozone countries, and on published long-term high quality corporate bond indices in other countries with adjustments made to the index rates based on the duration of the plans' obligations for each country, at the end of each fiscal year. This bond matching approach matches the bond yields with the year-to-year cash flow projections from the actuarial valuation to determine a discount rate that more accurately reflects the timing of the expected payments. The weighted average discount rate used to determine the pension benefit obligation was 3.1%, 2.5%, and 2.6% and other postretirement benefit obligation was 4.0%, 3.4% and 3.4% as of March 31, 2022, 2021, and 2020, respectively. The weighted average discount rate used to determine the net periodic benefit cost is the rate used to determine the benefit obligation at the end of the previous fiscal year.

As of March 31, 2022, an increase in the discount rate of 0.5%, assuming inflation remains unchanged, would result in a decrease of \$142 million in the pension and other postretirement obligations and in a pre-tax decrease of \$9 million in the net periodic benefit cost in the following year. A decrease in the discount rate of 0.5% as of March 31, 2022, assuming inflation remains unchanged, would result in an increase of \$159 million in the pension and other postretirement obligations and in a pre-tax increase of \$9 million in the net periodic benefit cost in the following year.

The long term expected return on plan assets is based upon historical experience, expected future performance as well as current and projected investment portfolio diversification. The weighted average expected return on plan assets was 4.9% for 2022, 5.1% for 2021, and 5.5% for 2020. The expected return on assets is a long-term assumption whose accuracy can only be measured over a long period based on past experience. A variation in the expected return on assets of 0.5% as of March 31, 2022 would result in a pre-tax variation of approximately \$7 million in the net periodic benefit cost in the following year.

Income Taxes

We account for income taxes using the asset and liability method. Under the asset and liability method, deferred tax assets and liabilities are recognized for the estimated future tax consequences attributable to differences between the financial statement carrying amounts of existing assets and liabilities and their respective tax bases. In addition, deferred tax assets are also recorded with respect to net operating losses and other tax attribute carryforwards. Deferred tax assets and liabilities are measured using enacted tax rates in effect for the year in which those temporary differences are expected to be recovered or settled. Valuation allowances are established when realization of the benefit of deferred tax assets is not deemed to be more likely than not. The effect on deferred tax assets and liabilities of a change in tax rates is recognized in income in the period that includes the enactment date.

We considered all available evidence, both positive and negative, in determining the appropriate amount of the valuation allowance against our deferred tax assets as of March 31, 2022. In evaluating the need for a valuation allowance, we consider all potential sources of taxable income, including income available in carryback periods, future reversals of taxable temporary differences, projections of taxable income, and income from tax planning strategies, as well as any other available and relevant information. Positive evidence includes factors such as a history of profitable operations, projections of future profitability within the carryforward period and potential income from prudent and feasible tax planning strategies. Negative evidence includes items such as cumulative losses, projections of future losses, and carryforward periods that are not long enough to allow for the utilization of the deferred tax asset based on existing projections of income. In certain jurisdictions, deferred tax assets related to loss carryforwards and other temporary differences exist without a valuation allowance where in our judgment the weight of the positive evidence more than offsets the negative evidence.

Upon changes in facts and circumstances, we may conclude that certain deferred tax assets for which no valuation allowance is currently recorded may not be realizable in future periods, resulting in a charge to income. Existing valuation allowances are re-examined under the same standards of positive and negative evidence. If it is determined that it is more likely than not that a deferred tax asset will be realized, the appropriate amount of the valuation allowance, if any, is released, in the period this determination is made.

During fiscal 2022, after considering all available evidence, we released a portion of the Canadian valuation allowance, resulting in a benefit of \$73 million. As of March 31, 2022, the Company concluded that valuation allowances totaling \$763 million were still required against its deferred tax assets comprised of the following:

- \$472 million of the valuation allowance relates to loss carryforwards in Canada and certain foreign jurisdictions, \$76 million relates to New York tax credit carryforwards, \$47 million relates to tax credit carryforwards in Canada, and \$66 million relates to loss carryforwards in U.S. states.
- \$102 million of the valuation allowance relates to other deferred tax assets originating from temporary differences in Canada and certain foreign jurisdictions.

In determining these amounts, the Company considered the reversal of existing temporary differences as a source of taxable income. The ultimate realization of the remaining deferred tax assets is contingent on the Company's ability to generate future taxable income within the carryforward period and within the period in which the temporary differences become deductible. Due to the history of negative earnings in these jurisdictions and future projections of losses, the Company believes it is more likely than not the deferred tax assets will not be realized prior to expiration.

Through March 31, 2022, the Company recognized deferred tax assets related to loss carryforwards and other temporary items of approximately \$900 million. The Company determined that existing taxable temporary differences will reverse within the same period and jurisdiction and are of the same character as the deductible temporary items generating sufficient taxable income to support realization of \$762 million of these deferred tax assets. Realization of the remaining \$138 million of deferred tax assets is dependent on our ability to earn pre-tax income aggregating approximately \$559 million in those jurisdictions to realize those deferred tax assets. The realization of our deferred tax assets is not dependent on tax planning strategies.

By their nature, tax laws are often subject to interpretation. Further complicating matters is that in those cases where a tax position is open to interpretation, differences of opinion can result in differing conclusions as to the amount of tax benefits to be recognized under ASC 740, Income Taxes. We utilize a two-step approach for evaluating tax positions. Recognition (Step 1) occurs when we conclude that a tax position, based solely on its technical merits, is more likely than not to be sustained upon examination. Measurement (Step 2) is only addressed if Step 1 has been satisfied. Under Step 2, we measure the tax benefit as the largest amount of benefit, determined on a cumulative probability basis that is more likely than not to be realized upon ultimate settlement. Consequently, the level of evidence and documentation necessary to support a position prior to being given recognition and measurement within the financial statements is a matter of judgment that depends on all available evidence.

Assessment of Loss Contingencies

We have legal and other contingencies, including environmental liabilities, which could result in significant losses upon the ultimate resolution of such contingencies. Environmental liabilities that are not legal asset retirement obligations are accrued on an undiscounted basis when it is probable that a liability exists for past events.

We have provided for losses in situations where we have concluded that it is probable that a loss has been or will be incurred and the amount of the loss is reasonably estimable. A significant amount of judgment is involved in determining whether a loss is probable and reasonably estimable due to the uncertainty involved in determining the likelihood of future events and estimating the financial statement impact of such events. If further developments or resolution of a contingent matter are not consistent with our assumptions and judgments, we may need to recognize a significant charge in a future period related to an existing contingency.

Fair Value of Contingent Consideration

The purchase price consideration for the sale of Duffel to ALVANCE, which closed on September 30, 2020, included a €100 million receivable that was deemed to be contingent consideration subject to the results of a binding arbitration proceeding under German law that is currently underway. The arbitration will determine the responsibility of ALVANCE to Novelis based on whether either or both parties breached any of their respective obligations under the purchase and sale agreements, and if so, their relative culpability for such breaches, potentially reduced by certain claims of ALVANCE against Novelis. Arbitration results are inherently uncertain and unpredictable, and there can be no assurance of the result the arbitral tribunal will reach. The arbitrators may award Novelis no more than €100 million and may not award any damages to ALVANCE.

We elected to account for the contingent consideration at fair value and mark to fair value on a quarterly basis. At September 30, 2020, the estimated fair value of this contingent consideration subject to arbitration was €93 million (\$109 million), measured based on the anticipated outcome, timeline of arbitration of greater than one year, and a discount rate of 5%.

As of March 31, 2021, the fair value was adjusted for the accretion of imputed interest to €95 million (\$112 million). This imputed interest is included net income from continuing operations on our consolidated statements of operations.

As of June 30, 2021, Novelis marked all outstanding receivables related to the sale of Duffel to an estimated fair value of €45 million (\$53 million), which resulted in a loss of €51 million (\$61 million) recorded in loss from discontinued operations, net of tax. As of March 31, 2022, there has been no change to this fair value, and the receivable. There is no assurance as to when we expect the post-closing arbitration process to conclude or whether we will receive any of the contingent consideration. If further developments or the resolution of arbitration are not consistent with our assumptions and judgments used in the calculation of fair value, we may need to recognize a significant loss that could be material to our results of operations. See [Note 3 – Discontinued Operations](#) for more information.

RECENTLY ISSUED ACCOUNTING STANDARDS

See [Note 1 – Business and Summary of Significant Accounting Policies](#) to our accompanying consolidated financial statements for a full description of recent accounting pronouncements, if applicable, including the respective expected dates of adoption and expected effects on results of operations and financial condition.

NON-GAAP FINANCIAL MEASURES

Segment Income

Segment income presents the sum of the results of our four operating segments on a consolidated basis. We believe that total segment income is an operating performance measure that measures operating results unaffected by differences in capital structures, capital investment cycles and ages of related assets among otherwise comparable companies. In reviewing our corporate operating results, we also believe it is important to review the aggregate consolidated performance of all of our segments on the same basis we review the performance of each of our regions and to draw comparisons between periods based on the same measure of consolidated performance.

Management believes investors' understanding of our performance is enhanced by including this non-GAAP financial measure as a reasonable basis for comparing our ongoing results of operations. Many investors are interested in understanding the performance of our business by comparing our results from ongoing operations from one period to the next and would ordinarily add back items that are not part of normal day-to-day operations of our business. By providing segment income, together with reconciliations, we believe we are enhancing investors' understanding of our business and our results of operations, as well as assisting investors in evaluating how well we are executing strategic initiatives.

However, segment income is not a measurement of financial performance under U.S. GAAP, and our segment income may not be comparable to similarly titled measures of other companies. Segment income has important limitations as an analytical tool and should not be considered in isolation or as a substitute for analysis of our results as reported under U.S. GAAP. For example, total segment income:

- does not reflect the Company's cash expenditures or requirements for capital expenditures or capital commitments;
- does not reflect changes in, or cash requirements for, the Company's working capital needs; and
- does not reflect any costs related to the current or future replacement of assets being depreciated and amortized.

We also use segment income:

- as a measure of operating performance to assist us in comparing our operating performance on a consistent basis because it removes the impact of items not directly resulting from our core operations;
- for planning purposes, including the preparation of our internal annual operating budgets and financial projections;
- to evaluate the performance and effectiveness of our operational strategies; and
- as a basis to calculate incentive compensation payments for our key employees.

Segment income is equivalent to our Adjusted EBITDA, which we refer to in our earnings announcements and other external presentations to analysts and investors. See [Note 23 – Segment, Geographical Area, Major Customer and Major Supplier Information](#) for our definition of segment income and reconciliation of net income attributable to our common shareholder to segment income.

Adjusted Free Cash Flow

Adjusted free cash flow consists of: (a) net cash provided by (used in) operating activities - continuing operations, (b) plus net cash provided by (used in) investing activities - continuing operations, (c) plus net cash provided by (used in) operating activities - discontinued operations, (d) plus net cash provided by (used in) investing activities - discontinued operations, (e) plus cash used in the acquisition of assets under a finance lease, (f) plus cash used in the acquisition of business, net of cash and restricted cash acquired, (g) plus accrued merger consideration, (h) less proceeds from sales of assets and business, net of transaction fees, cash income taxes and hedging, and (i) less proceeds from sales of assets and business, net of transaction fees, cash income taxes and hedging - discontinued operations. Management believes adjusted free cash flow is relevant to investors as it provides a measure of the cash generated internally that is available for debt service and other value creation opportunities. However, adjusted free cash flow does not necessarily represent cash available for discretionary activities, as certain debt service obligations must be funded out of adjusted free cash flow. Our method of calculating adjusted free cash flow may not be consistent with that of other companies.

Item 7A. Quantitative and Qualitative Disclosures About Market Risk.

We are exposed to certain market risks as part of our ongoing business operations, including risks from changes in metal prices (primarily aluminum, copper, zinc, and local market premiums), energy prices (electricity, natural gas, and diesel fuel), foreign currency exchange rates, and interest rates that could impact our results of operations and financial condition. We manage our exposure to these and other market risks through regular operating and financing activities and derivative financial instruments. We use derivative financial instruments as risk management tools only, and not for speculative purposes.

By their nature, all derivative financial instruments involve risk, including the credit risk of non-performance by counterparties. All derivative contracts are executed with counterparties that, in our judgment, are creditworthy. Our maximum potential loss may exceed the amount recognized in the accompanying March 31, 2022 consolidated balance sheet.

The decision of whether and when to execute derivative instruments, along with the duration of the instrument, can vary from period to period depending on market conditions and the relative costs of the instruments. The duration is linked to the timing of the underlying exposure, with the connection between the two being regularly monitored.

The market risks we are exposed to as part of our ongoing business operations are materially consistent with our risk exposures in the prior year, as we have not entered into any new material hedging programs.

Commodity Price Risks

We have commodity price risk with respect to purchases of certain raw materials including aluminum, copper, zinc, electricity, natural gas, and transport fuel.

Metal

A significant amount of our business is conducted under a conversion model, which allows us to pass through increases or decreases in the price of aluminum to our customers. Nearly all of our flat-rolled products have a price structure with three components: (1) a base aluminum price quoted off the LME; (2) a LMP; and (3) a "conversion premium" to produce the rolled product which reflects, among other factors, the competitive market conditions for that product. Base aluminum prices are typically driven by macroeconomic factors and global supply and demand for aluminum. The local market premiums tend to vary based on the supply and demand for metal in a particular region and associated transportation costs.

Increases or decreases in the average price of aluminum based on the LME directly impact net sales, cost of goods sold (exclusive of depreciation and amortization), and working capital. The timing of these impacts varies based on contractual arrangements with customers and metal suppliers in each region. These timing impacts are referred to as metal price lag. Metal price lag exists due to: (i) certain customer contracts containing fixed forward price commitments which result in exposure to changes in metal prices for the period of time between when our sales price fixes and the sale actually occurs, and (ii) the period of time between the pricing of our purchases of metal, holding and processing the metal, and the pricing of the sale of finished inventory to our customers.

We use derivative instruments to preserve our conversion margins and manage the timing differences associated with metal price lag related to base aluminum price. We use over-the-counter derivatives indexed to the LME (referred to as our "aluminum derivative contracts") to reduce our exposure to fluctuating metal prices associated with the period of time between the pricing of our purchases of inventory and the pricing of the sale of that inventory to our customers. We also purchase forward LME aluminum contracts simultaneous with our sales contracts with customers that contain fixed metal prices. These LME aluminum forward contracts directly hedge the economic risk of future metal price fluctuations to better match the purchase price of metal with the sales price of metal.

Sensitivities

The following table presents the estimated potential negative effect on the fair values of these derivative instruments as of March 31, 2022, given a 10% change in prices. Direction of the change in price corresponds with the direction that would cause a negative impact on the fair value of these derivative instruments.

<i>\$ in millions</i>	Change in Price	Change in Fair Value
Aluminum	10 %	\$ (315)
Copper	(10)	—
Zinc	(10)	—
Local market premiums	10	—

Energy

We use several sources of energy in the manufacturing and delivery of our aluminum rolled products. For fiscal 2022, natural gas and electricity represented approximately 98% of our energy consumption by cost. We also use fuel oil and transport fuel. The majority of energy usage occurs at our casting centers and during the hot rolling of aluminum.

We purchase our natural gas and diesel fuel on the open market, subjecting us to market price fluctuations. We seek to stabilize our future exposure to natural gas and diesel fuel prices through the use of forward purchase contracts.

A portion of our electricity requirements are purchased pursuant to long-term contracts in the local regions in which we operate. A number of our facilities are located in regions with regulated prices, which affords relatively stable costs. In North America, we are currently analyzing the options to potentially fix a portion of the cost of our electricity requirements.

Fluctuating energy costs worldwide, due to the changes in supply and demand, and international and geopolitical events, expose us to earnings volatility as changes in such costs cannot be immediately recovered under existing contracts and sales agreements, and may only be mitigated in future periods under future pricing arrangements.

Sensitivities

The following table presents the estimated potential negative effect on the fair values of these derivative instruments as of March 31, 2022, given a 10% decline in spot prices for energy contracts.

<i>\$ in millions</i>	Change in Price	Change in Fair Value
Electricity	(10)%	\$ —
Natural Gas	(10)	(5)
Diesel Fuel	(10)	(2)

Foreign Currency Exchange Risks

Exchange rate movements have an impact on our operating results. In Europe, where we have predominantly local currency selling prices and operating costs, we benefit as the euro strengthens, but are adversely affected as the euro weakens. For our Swiss operations, where operating costs are incurred primarily in the Swiss franc and a large portion of revenues are denominated in the euro, we benefit as the franc weakens but are adversely affected as the franc strengthens. In South Korea, where we have local currency operating costs and U.S. dollar denominated selling prices for exports, we benefit as the won weakens but are adversely affected as the won strengthens. In Brazil, where we have predominately U.S. dollar selling prices and local currency manufacturing costs, we benefit as the real weakens, but are adversely affected as the real strengthens.

It is our policy to minimize exposures from non-functional currency denominated transactions within each of our operating segments. We use foreign exchange forward contracts, options and cross-currency swaps to manage exposure arising from recorded assets and liabilities, firm commitments, and forecasted cash flows denominated in currencies other than the functional currency of certain operations, which include forecasted net sales, forecasted purchase commitments, capital expenditures, and net investment in foreign subsidiaries. Our most significant non-U.S. dollar functional currency operations have the euro and the Korean won as their functional currencies, respectively. Our Brazilian operations are U.S. dollar functional.

We also face translation risks related to the changes in foreign currency exchange rates which are generally not hedged. Amounts invested in these foreign operations are translated into U.S. dollars at the exchange rates in effect at the balance sheet date. Any resulting translation adjustments are recorded as a component of accumulated other comprehensive loss on our consolidated balance sheets. Net sales and expenses at these non-U.S. dollar functional currency entities are translated into varying amounts of U.S. dollars depending upon whether the U.S. dollar weakens or strengthens against other currencies. Therefore, changes in exchange rates may either positively or negatively affect our net sales and expenses as expressed in U.S. dollars.

Any negative impact of currency movements on the currency contracts we have entered into to hedge foreign currency commitments to purchase or sell goods and services would be offset by an approximately equal and opposite favorable exchange impact on the commitments being hedged. For a discussion of accounting policies and other information relating to currency contracts, see [Note 1 – Business and Summary of Significant Accounting Policies](#) and [Note 17 – Financial Instruments and Commodity Contracts](#) to our accompanying consolidated financial statements.

Sensitivities

The following table presents the estimated potential negative effect on the fair values of these derivative instruments as of March 31, 2022, given a 10% change in rates. Direction of the change in exchange rate corresponds with the direction that would cause the change in exchange rate to negatively impact the fair value of these derivative instruments.

<i>\$ in millions</i>	<u>Change in Exchange Rate</u>	<u>Change in Fair Value</u>
Currency measured against the U.S. dollar		
Brazilian real	(10)%	\$ (39)
Euro	(10)	(44)
Korean won	(10)	(79)
Canadian dollar	(10)	(3)
British pound	(10)	(25)
Swiss franc	(10)	(39)
Chinese yuan	10	(2)

Interest Rate Risks

We use interest rate swaps to manage our exposure to changes in benchmark interest rates which impact our variable-rate debt.

The interest rate paid on our Floating rate Term Loans, due January 2025 is LIBOR (1.01%) plus a spread of 1.75%. As of March 31, 2022, the stated interest rate was 2.76%. As of March 31, 2022, a 100 basis point increase or decrease in LIBOR interest rates would have had a \$8 million impact on our annual pre-tax income.

The interest rate paid on our Floating rate Term Loans, due March 2028 is LIBOR (1.01%) plus a spread of 2.00%. As of March 31, 2022, the stated interest rate was 3.01%. As of March 31, 2022, a 100 basis point increase or decrease in LIBOR interest rates would have had a \$5 million impact on our annual pre-tax income.

From time to time, we have used interest rate swaps to manage our debt cost. As of March 31, 2022, there were no USD LIBOR based interest rate swaps outstanding.

Item 8. Financial Statements and Supplementary Data.

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Management's Report on Internal Control over Financial Reporting

Management is responsible for establishing and maintaining adequate internal control over financial reporting as defined in Rule 13a-15(f) under the Exchange Act. The Company's internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of the Company's financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. Our internal control over financial reporting includes those policies and procedures that:

- Pertain to the maintenance of records that in reasonable detail accurately and fairly reflect the transactions and dispositions of the assets of the Company;
- Provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the Company are being made only in accordance with authorizations of management and directors of the Company; and
- Provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use or disposition of the Company's assets that could have a material effect on the Company's consolidated financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

Management has assessed the effectiveness of the Company's internal control over financial reporting as of March 31, 2022. In making this assessment, management used the criteria established by the Committee of Sponsoring Organizations of the Treadway Commission ("COSO") in "*Internal Control — Integrated Framework (2013)*." Based on its assessment, management has concluded that, as of March 31, 2022, the Company's internal control over financial reporting was effective based on those criteria.

The effectiveness of the Company's internal control over financial reporting as of March 31, 2022 has been audited by PricewaterhouseCoopers LLP, an independent registered public accounting firm, as stated in their report which appears herein.

/s/ Steven Fisher

Steven Fisher
President and Chief Executive Officer
May 11, 2022

/s/ Devinder Ahuja

Devinder Ahuja
Executive Vice President and Chief Financial Officer
May 11, 2022

Report of Independent Registered Public Accounting Firm

To the Board of Directors and Shareholder of Novelis Inc.

Opinions on the Financial Statements and Internal Control over Financial Reporting

We have audited the accompanying consolidated balance sheets of Novelis Inc. and its subsidiaries (the "Company") as of March 31, 2022 and 2021, and the related consolidated statements of operations, comprehensive income (loss), shareholder's (deficit) equity, and cash flows for each of the three years in the period ended March 31, 2022, including the related notes (collectively referred to as the "consolidated financial statements"). We also have audited the Company's internal control over financial reporting as of March 31, 2022, based on criteria established in *Internal Control - Integrated Framework* (2013) issued by the Committee of Sponsoring Organizations of the Treadway Commission (COSO).

In our opinion, the consolidated financial statements referred to above present fairly, in all material respects, the financial position of the Company as of March 31, 2022 and 2021, and the results of its operations and its cash flows for each of the three years in the period ended March 31, 2022 in conformity with accounting principles generally accepted in the United States of America. Also in our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of March 31, 2022, based on criteria established in *Internal Control - Integrated Framework* (2013) issued by the COSO.

Basis for Opinions

The Company's management is responsible for these consolidated financial statements, for maintaining effective internal control over financial reporting, and for its assessment of the effectiveness of internal control over financial reporting, included in the accompanying Management's Report on Internal Control over Financial Reporting. Our responsibility is to express opinions on the Company's consolidated financial statements and on the Company's internal control over financial reporting based on our audits. We are a public accounting firm registered with the Public Company Accounting Oversight Board (United States) (PCAOB) and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB and in accordance with auditing standards generally accepted in the United States of America. Those standards require that we plan and perform the audits to obtain reasonable assurance about whether the consolidated financial statements are free of material misstatement, whether due to error or fraud, and whether effective internal control over financial reporting was maintained in all material respects.

Our audits of the consolidated financial statements included performing procedures to assess the risks of material misstatement of the consolidated financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the consolidated financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the consolidated financial statements. Our audit of internal control over financial reporting included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, and testing and evaluating the design and operating effectiveness of internal control based on the assessed risk. Our audits also included performing such other procedures as we considered necessary in the circumstances. We believe that our audits provide a reasonable basis for our opinions.

Definition and Limitations of Internal Control over Financial Reporting

A company's internal control over financial reporting is a process designed to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles. A company's internal control over financial reporting includes those policies and procedures that (i) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (ii) provide reasonable assurance that transactions are recorded as necessary to permit preparation of financial statements in accordance with generally accepted accounting principles, and that receipts and expenditures of the company are being made only in accordance with authorizations of management and directors of the company; and (iii) provide reasonable assurance regarding prevention or timely detection of unauthorized acquisition, use, or disposition of the company's assets that could have a material effect on the financial statements.

Because of its inherent limitations, internal control over financial reporting may not prevent or detect misstatements. Also, projections of any evaluation of effectiveness to future periods are subject to the risk that controls may become inadequate because of changes in conditions, or that the degree of compliance with the policies or procedures may deteriorate.

Report of Independent Registered Public Accounting Firm

Critical Audit Matter

The critical audit matter communicated below is a matter arising from the current period audit of the consolidated financial statements that was communicated or required to be communicated to the audit committee and that (i) relates to accounts or disclosures that are material to the consolidated financial statements and (ii) involved our especially challenging, subjective, or complex judgments. The communication of critical audit matters does not alter in any way our opinion on the consolidated financial statements, taken as a whole, and we are not, by communicating the critical audit matter below, providing a separate opinion on the critical audit matter or on the accounts or disclosures to which it relates.

Goodwill Impairment Assessment

As described in Notes 1 and 8 to the consolidated financial statements, the Company's consolidated goodwill balance was \$1,081 million as of March 31, 2022. Management conducts an impairment test as of the last day of March of each year, or more frequently if events or circumstances indicate that the carrying value of goodwill may be impaired. As disclosed by management, potential impairment is identified by comparing the estimated fair value of each reporting unit to its carrying amount. If the carrying value exceeds the fair value, management records an impairment charge in an amount equal to that excess. Management estimates fair value based on a weighted average of the value indication from the market and income approaches. The determination of fair value using the market and income approaches requires the use of management's significant assumptions related to selection of market multiples and control premium for the market approach and sales volumes, conversion premium, capital spending, working capital changes and the discount rate for the income approach.

The principal considerations for our determination that performing procedures relating to the goodwill impairment assessment is a critical audit matter are (i) the significant judgment by management when developing the fair value measurement of the reporting units; (ii) a high degree of auditor judgment, subjectivity, and effort in performing procedures and evaluating management's significant assumptions related to market multiples and control premium for the market approach and sales volumes, conversion premium capital spending, and the discount rate for the income approach; and (iii) the audit effort involved the use of professionals with specialized skill and knowledge.

Addressing the matter involved performing procedures and evaluating audit evidence in connection with forming our overall opinion on the consolidated financial statements. These procedures included testing the effectiveness of controls relating to management's goodwill impairment assessment, including controls over the valuation of the Company's reporting units. These procedures also included, among others (i) testing management's process for developing the fair value estimate of the reporting units; (ii) evaluating the appropriateness of the income and market approaches and the weighting of the approaches; (iii) testing the completeness and accuracy of underlying data used in the approaches; and (iv) evaluating the reasonableness of the significant assumptions used by management in the income and market approaches. Evaluating management's assumptions related to sales volumes and prices, costs to produce, and capital spending involved evaluating whether the assumptions used by management were reasonable considering (i) the current and past performance of the reporting units; (ii) the consistency with external market and industry data; and (iii) whether these assumptions were consistent with evidence obtained in other areas of the audit. Professionals with specialized skill and knowledge were used to assist in evaluating the appropriateness of the income and market approaches, the weighting of the approaches, and evaluating the reasonableness of the discount rate, control premium and market multiples assumptions.

/s/ PricewaterhouseCoopers LLP

Atlanta, Georgia
May 11, 2022

We have served as the Company's auditor since 2006.

Novelis Inc.
CONSOLIDATED STATEMENTS OF OPERATIONS

<i>in millions</i>	Fiscal 2022	Fiscal 2021	Fiscal 2020
Net sales	\$ 17,149	\$ 12,276	\$ 11,217
Cost of goods sold (exclusive of depreciation and amortization)	14,354	9,980	9,231
Selling, general and administrative expenses	631	551	498
Depreciation and amortization	550	543	361
Interest expense and amortization of debt issuance costs	227	267	248
Research and development expenses	92	83	84
Loss on extinguishment of debt, net	64	14	71
Restructuring and impairment, net	1	29	43
Equity in net (income) loss of non-consolidated affiliates	(8)	(1)	2
Business acquisition and other related costs	—	11	63
Other (income) expenses, net	(61)	103	18
	<u>15,850</u>	<u>11,580</u>	<u>10,619</u>
Income from continuing operations before income tax provision	1,299	696	598
Income tax provision	281	238	178
Net income from continuing operations	1,018	458	420
Loss from discontinued operations, net of tax	(63)	(51)	—
Loss on sale of discontinued operations, net of tax	—	(170)	—
Net loss from discontinued operations	(63)	(221)	—
Net income	955	237	420
Net income attributable to noncontrolling interests	1	1	—
Net income attributable to our common shareholder	<u>\$ 954</u>	<u>\$ 236</u>	<u>\$ 420</u>

See accompanying notes to the consolidated financial statements.

Novelis Inc.
CONSOLIDATED STATEMENTS OF COMPREHENSIVE INCOME (LOSS)

<i>in millions</i>	Fiscal 2022	Fiscal 2021	Fiscal 2020
Net income	\$ 955	\$ 237	\$ 420
Other comprehensive income (loss):			
Currency translation adjustment	(71)	214	(73)
Net change in fair value of effective portion of cash flow hedges	(402)	(144)	(10)
Net change in pension and other benefits	193	243	(73)
Other comprehensive (loss) income before income tax effect	(280)	313	(156)
Income tax (benefit) provision related to items of other comprehensive income	(48)	25	(26)
Other comprehensive (loss) income, net of tax	(232)	288	(130)
Comprehensive income	723	525	290
Comprehensive income (loss) attributable to noncontrolling interest, net of tax	23	35	(16)
Comprehensive income attributable to our common shareholder	<u>\$ 700</u>	<u>\$ 490</u>	<u>\$ 306</u>

See accompanying notes to the consolidated financial statements.

Novelis Inc.
CONSOLIDATED BALANCE SHEETS

<i>in millions, except number of shares</i>	March 31,	
	2022	2021
ASSETS		
Current assets:		
Cash and cash equivalents	\$ 1,070	\$ 998
Accounts receivable, net		
— third parties (net of allowance for credit losses of \$6 and \$5 as of March 31, 2022 and March 31, 2021, respectively)	2,590	1,687
— related parties	222	166
Inventories	3,038	1,928
Prepaid expenses and other current assets	195	198
Fair value of derivative instruments	377	137
Assets held for sale	5	5
Current assets of discontinued operations	6	15
Total current assets	7,503	5,134
Property, plant and equipment, net	4,624	4,687
Goodwill	1,081	1,083
Intangible assets, net	623	696
Investment in and advances to non-consolidated affiliates	832	838
Deferred income tax assets	158	130
Other long-term assets		
— third parties	274	316
— related parties	1	1
Total assets	\$ 15,096	\$ 12,885
LIABILITIES AND SHAREHOLDER'S EQUITY		
Current liabilities:		
Current portion of long-term debt	\$ 26	\$ 71
Short-term borrowings	529	236
Accounts payable		
— third parties	3,869	2,498
— related parties	320	230
Fair value of derivative instruments	959	280
Accrued expenses and other current liabilities	774	670
Current liabilities of discontinued operations	21	16
Total current liabilities	6,498	4,001
Long-term debt, net of current portion	4,967	5,653
Deferred income tax liabilities	158	162
Accrued postretirement benefits	669	878
Other long-term liabilities	295	305
Total liabilities	12,587	10,999
Commitments and contingencies		
Shareholder's equity:		
Common stock, no par value; Unlimited number of shares authorized; 1,000 shares issued and outstanding as of March 31, 2022 and March 31, 2021	—	—
Additional paid-in capital	1,304	1,404
Retained earnings	1,818	864
Accumulated other comprehensive loss	(620)	(366)
Total equity of our common shareholder	2,502	1,902
Noncontrolling interests	7	(16)
Total equity	2,509	1,886
Total liabilities and equity	\$ 15,096	\$ 12,885

See accompanying notes to the consolidated financial statements. Refer to [Note 9 – Consolidation](#) for information on our consolidated VIE.

Novelis Inc.
CONSOLIDATED STATEMENTS OF CASH FLOWS

<i>in millions</i>	Fiscal 2022	Fiscal 2021	Fiscal 2020
OPERATING ACTIVITIES			
Net income	\$ 955	\$ 237	\$ 420
Net loss from discontinued operations	(63)	(221)	—
Net income from continuing operations	\$ 1,018	\$ 458	\$ 420
Adjustments to determine net cash provided by operating activities:			
Depreciation and amortization	\$ 550	\$ 543	\$ 361
Loss (gain) on unrealized derivatives and other realized derivatives in investing activities, net	79	1	(4)
Gain on sale of business	(15)	—	—
Loss on sale of assets	8	1	1
Impairment charges	—	1	18
Loss on extinguishment of debt	64	14	71
Deferred income taxes	27	49	—
Equity in net (income) loss of non-consolidated affiliates	(8)	(1)	2
Gain on foreign exchange remeasurement of debt	(10)	(3)	—
Amortization of debt issuance costs and carrying value adjustments	18	28	17
Other, net	4	—	2
Changes in assets and liabilities including assets and liabilities held for sale (net of effects of the acquisition and divestitures):			
Accounts receivable	(1,030)	(323)	304
Inventories	(1,184)	(94)	23
Accounts payable	1,540	569	(171)
Other assets	(6)	91	(62)
Other liabilities	77	(125)	(9)
Net cash provided by operating activities - continuing operations	1,132	1,209	973
Net cash provided by (used in) operating activities - discontinued operations	11	(82)	—
Net cash provided by operating activities	\$ 1,143	\$ 1,127	\$ 973
INVESTING ACTIVITIES			
Capital expenditures	\$ (446)	\$ (485)	\$ (610)
Acquisition of business, net of cash and restricted cash acquired	—	(2,614)	—
Proceeds from sales of assets, third party, net of transaction fees and hedging	1	4	3
Proceeds from the sale of a business	9	—	—
Proceeds from investment in and advances to non-consolidated affiliates, net	—	9	3
(Outflows) proceeds from settlement of derivative instruments, net	(53)	(5)	5
Other	16	12	13
Net cash used in investing activities - continuing operations	(473)	(3,079)	(586)
Net cash provided by investing activities - discontinued operations	—	357	—
Net cash used in investing activities	\$ (473)	\$ (2,722)	\$ (586)
FINANCING ACTIVITIES			
Proceeds from issuance of long-term and short-term borrowings	\$ 1,985	\$ 3,042	\$ 1,696
Principal payments of long-term and short-term borrowings	(2,406)	(2,301)	(1,225)
Revolving credit facilities and other, net	(69)	(506)	633
Debt issuance costs	(25)	(44)	(40)
Contingent consideration paid in acquisition of business	—	(9)	—
Return of capital to our common shareholder	(100)	—	—
Net cash (used in) provided by financing activities - continuing operations	(615)	182	1,064
Net cash used in financing activities - discontinued operations	—	(2)	—
Net cash (used in) provided by financing activities	\$ (615)	\$ 180	\$ 1,064
Net increase (decrease) in cash and cash equivalents and restricted cash	\$ 55	\$ (1,415)	\$ 1,451
Effect of exchange rate changes on cash	2	40	(9)
Cash, cash equivalents and restricted cash — beginning of period	1,027	2,402	960
Cash, cash equivalents and restricted cash — end of period	\$ 1,084	\$ 1,027	\$ 2,402
Cash and cash equivalents	\$ 1,070	\$ 998	\$ 2,392
Restricted cash (included in other long-term assets)	14	15	10
Restricted cash (included in prepaid expenses and other current assets)	—	14	—
Cash, cash equivalents and restricted cash — end of period	\$ 1,084	\$ 1,027	\$ 2,402
Supplemental Disclosures:			
Interest paid	\$ 210	\$ 240	\$ 222
Income taxes paid	251	169	172
Accrued capital expenditures as of March 31	84	77	56

See accompanying notes to the consolidated financial statements.

Novelis Inc.
CONSOLIDATED STATEMENTS OF SHAREHOLDER'S (DEFICIT) EQUITY

<i>in millions, except number of shares</i>	Equity of our Common Shareholder						
	Common Stock		Additional Paid- in Capital	Retained Earnings	Accumulated Other Comprehensive Loss	Non-controlling Interests	Total Equity
	Shares	Amount					
Balance as of March 31, 2019	1,000	\$ —	\$ 1,404	\$ 208	\$ (506)	\$ (35)	\$ 1,071
Net income attributable to our common shareholder	—	—	—	420	—	—	420
Currency translation adjustment, included in other comprehensive (loss) income	—	—	—	—	(73)	—	(73)
Change in fair value of effective portion of hedges, net of tax benefit of \$6, included in other comprehensive (loss) income	—	—	—	—	(4)	—	(4)
Change in pension and other benefits, net of tax benefit of \$20, included in other comprehensive (loss) income	—	—	—	—	(37)	(16)	(53)
Balance as of March 31, 2020	1,000	—	1,404	628	(620)	(51)	1,361
Net income attributable to our common shareholder	—	—	—	236	—	—	236
Net income attributable to noncontrolling interests	—	—	—	—	—	1	1
Currency translation adjustment, included in other comprehensive (loss) income	—	—	—	—	214	—	214
Change in fair value of effective portion of cash flow hedges, net of tax benefit of \$37, included in other comprehensive (loss) income	—	—	—	—	(107)	—	(107)
Change in pension and other benefits, net of tax provision of \$62, included in other comprehensive (loss) income	—	—	—	—	147	34	181
Balance as of March 31, 2021	1,000	—	1,404	864	(366)	(16)	1,886
Net income attributable to our common shareholder	—	—	—	954	—	—	954
Net income attributable to noncontrolling interests	—	—	—	—	—	1	1
Currency translation adjustment, included in other comprehensive (loss) income	—	—	—	—	(71)	—	(71)
Change in fair value of effective portion of cash flow hedges, net of tax benefit of \$100, included in other comprehensive (loss) income	—	—	—	—	(302)	—	(302)
Change in pension and other benefits, net of tax provision of \$52 included in, other comprehensive (loss) income	—	—	—	—	119	22	141
Return of capital to our common shareholder	—	—	(100)	—	—	—	(100)
Balance as of March 31, 2022	1,000	\$ —	\$ 1,304	\$ 1,818	\$ (620)	\$ 7	\$ 2,509

See accompanying notes to the consolidated financial statements.

1. BUSINESS AND SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

In this Form 10-K, references herein to "Novelis," the "Company," "we," "our," or "us" refer to Novelis Inc. and its subsidiaries unless the context specifically indicates otherwise. References herein to "Hindalco" refer to Hindalco Industries Limited. Hindalco acquired Novelis in May 2007. All of the outstanding shares of Novelis are owned directly by AV Metals Inc. and indirectly by Hindalco. Unless otherwise specified, the period referenced is the current fiscal year. All tonnages are stated in metric tonnes. One metric tonne is equivalent to 2,204.6 pounds. One kt is 1,000 metric tonnes.

Organization and Description of Business

We produce aluminum sheet and light gauge products for use in the packaging market, which includes beverage and food can and foil products, as well as for use in the automotive, transportation, aerospace, electronics, architectural, and industrial product markets. As of March 31, 2022, we had manufacturing operations in nine countries on four continents: North America, South America, Asia, and Europe, through 33 operating facilities, which may include any combination of hot or cold rolling, finishing, casting, or recycling capabilities. We have recycling operations in 15 of our operating facilities to recycle post-consumer aluminum, such as used-beverage cans, and post-industrial aluminum, such as class scrap.

Consolidation Policy

Our consolidated financial statements have been prepared in accordance with U.S. GAAP and include the assets, liabilities, revenues, and expenses of all wholly owned subsidiaries, majority-owned subsidiaries over which we exercise control, and entities in which we have a controlling financial interest or are deemed to be the primary beneficiary. We eliminate intercompany accounts and transactions from our consolidated financial statements.

We use the equity method to account for our investments in entities that we do not control but have the ability to exercise significant influence over operating and financial policies. Consolidated net income attributable to our common shareholder includes our share of net income (loss) of these entities. The difference between consolidation and the equity method impacts certain of our financial ratios because of the presentation of the detailed line items reported in the consolidated financial statements for consolidated entities, compared to a two-line presentation of investment in and advances to non-consolidated affiliates and equity in net (income) loss of non-consolidated affiliates.

Use of Estimates and Assumptions

The preparation of our consolidated financial statements in accordance with U.S. GAAP requires us to make estimates and assumptions. These estimates and assumptions affect the reported amounts of assets and liabilities and the disclosures of contingent assets and liabilities as of the date of the financial statements as well as the reported amounts of revenues and expenses during the reporting periods. The principal areas of judgment relate to (1) impairment of goodwill; (2) actuarial assumptions related to pension and other postretirement benefit plans; (3) tax uncertainties and valuation allowances; (4) assessment of loss contingencies, including environmental and litigation liabilities; (5) the fair value of derivative financial instruments; and (6) the fair value of the contingent consideration resulting from the sale of Duffel. Future events and their effects cannot be predicted with certainty, and accordingly, our accounting estimates require the exercise of judgment. The accounting estimates used in the preparation of our consolidated financial statements may change as new events occur, more experience is acquired, additional information is obtained, and our operating environment changes. We evaluate and update our assumptions and estimates on an ongoing basis and may employ outside experts to assist in our evaluations. Actual results could differ from the estimates we have used.

For more information regarding our use of estimates in the determination of fair values of assets acquired and liabilities assumed in the acquisition of Aleris, see [Note 2 – Business Combination](#).

Risks and Uncertainties

We are exposed to a number of risks in the normal course of our business that could potentially affect our financial position, results of operations, and cash flows.

Risks & Uncertainty resulting from COVID-19

Beginning late in the fourth quarter of fiscal 2020 and carrying into fiscal 2022, the COVID-19 pandemic, and its unprecedented negative economic implications, have affected production and sales across a range of industries around the world.

Our global operations, similar to those of many other large, multi-national corporations, have felt this impact on customer demand, disruptions to our supply chain, interruptions to our production, and delays of shipments to our customers.

Novelis Inc.
NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS

While much of our customer demand and shipments recovered in the majority of our end markets, the overall extent of the impact of the COVID-19 pandemic on our operating results, cash flows, liquidity, and financial condition will depend on certain developments, including the duration and spread of the outbreak (including the emergence of variants of the virus) and its impact on our customers, employees, and vendors. We believe this will be primarily driven by the severity and duration of the pandemic, the pandemic's impact on the U.S. and global economies, and the timing, scope, and effectiveness of federal, state, and local governmental responses, including the revision of governmental quarantine or other public health measures and the availability of vaccines or other medical remedies and preventative measures.

Although we have made our best estimates based upon current information, the effects of the COVID-19 pandemic on our business may result in future changes to our estimates and assumptions based on its duration. Actual results could materially differ from the estimates and assumptions developed by management. If so, we may be subject to future impairment charges as well as changes to recorded reserves and valuations.

Laws and regulations

We operate in an industry that is subject to a broad range of environmental, health and safety laws and regulations in the jurisdictions in which we operate. These laws and regulations impose increasingly stringent environmental, health and safety protection standards and permitting requirements regarding, among other things, air emissions; wastewater discharges; the handling, storage, and disposal of hazardous substances and wastes; the remediation of contaminated sites and restoration of natural resources; carbon and other greenhouse gas emissions; and employee health and safety. Some environmental laws, such as the U.S. Comprehensive Environmental Response, Compensation, and Liability Act, also known as CERCLA or Superfund, and comparable state laws impose joint and several liability for the cost of environmental remediation, natural resource damages, third-party claims, and other expenses, without regard to the fault or the legality of the original conduct.

The costs of complying with these laws and regulations, including participation in assessments and remediation of contaminated sites and installation of pollution control facilities, have been, and in the future could be, significant. In addition, these laws and regulations may also result in substantial environmental liabilities associated with divested assets, third-party locations, and past activities. In certain instances, these costs and liabilities, as well as related actions to be taken by us, could be accelerated or increased if we were to close, divest of, or change the principal use of certain facilities with respect to which we may have environmental liabilities or remediation obligations. Currently, we are involved in a number of compliance efforts, remediation activities, and legal proceedings concerning environmental matters, including certain activities and proceedings arising under U.S. Superfund and comparable laws in other jurisdictions where we have operations.

We have established liabilities for environmental remediation where appropriate. However, the cost of addressing environmental matters (including the timing of any charges related thereto) cannot be predicted with certainty, and these liabilities may not ultimately be adequate, especially in light of potential changes in environmental conditions, changing interpretations of laws and regulations by regulators and courts, the discovery of previously unknown environmental conditions, the risk of governmental orders to carry out additional compliance on certain sites not initially included in remediation in progress, our potential liability to remediate sites for which provisions have not been previously established, and the adoption of more stringent environmental laws. Such future developments could result in increased environmental costs and liabilities and could require significant capital expenditures, any of which could have a material adverse effect on our financial position, results of operations, or cash flows. Furthermore, the failure to comply with our obligations under applicable environmental, health and safety laws and regulations could subject us to administrative, civil, or criminal penalties, obligations to pay damages or other costs, and injunctions or other orders, including orders to cease operations. In addition, the presence of environmental contamination at our properties could adversely affect our ability to sell a property, receive full value for a property, or use a property as collateral for a loan.

Some of our current and potential operations are located or could be located in or near communities that may regard such operations as having a detrimental effect on their social and economic circumstances. Environmental laws typically provide for participation in permitting decisions, site remediation decisions and other matters. Concern about environmental justice issues may affect our operations. Should such community objections be presented to government officials, the consequences of such a development may have a material adverse impact upon the profitability or, in extreme cases, the viability of an operation. In addition, such developments may adversely affect our ability to expand or enter into new operations in such location or elsewhere and may also have an effect on the cost of our environmental remediation projects.

Novelis Inc.
NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS

We use a variety of hazardous materials and chemicals in our rolling processes and in connection with maintenance work on our manufacturing facilities. Because of the nature of these substances or related residues, we may be liable for certain costs, including, among others, costs for health-related claims or removal or re-treatment of such substances. Certain of our current and former facilities incorporated asbestos-containing materials, a hazardous substance that has been the subject of health-related claims for occupation exposure. In addition, although we have developed environmental, health and safety programs for our employees, including measures to reduce employee exposure to hazardous substances, and conduct regular assessments at our facilities, we are currently, and in the future may be, involved in claims and litigation filed on behalf of persons alleging injury predominantly as a result of occupational exposure to substances at our current or former facilities. It is not possible to predict the ultimate outcome of these claims and lawsuits due to the unpredictable nature of personal injury litigation. If these claims and lawsuits, individually or in the aggregate, were finally resolved against us, our financial position, results of operations, and cash flows could be adversely affected.

Materials and labor

In the aluminum rolled products industry, our raw materials are subject to continuous price volatility. We may not be able to pass on the entire cost of the increases to our customers or offset fully the effects of higher raw material costs through productivity improvements, which may cause our profitability to decline. In addition, there is a potential time lag between changes in prices under our purchase contracts and the point when we can implement a corresponding change under our sales contracts with our customers. As a result, we could be exposed to fluctuations in raw materials prices which could have a material adverse effect on our financial position, results of operations, and cash flows. Significant price increases may result in our customers substituting other materials, such as plastic or glass, for aluminum or switching to another aluminum rolled products producer, which could have a material adverse effect on our financial position, results of operations, and cash flows.

We consume substantial amounts of energy in our rolling operations and our cast house operations. The factors that affect our energy costs and supply reliability tend to be specific to each of our facilities. A number of factors could materially adversely affect our energy position including, but not limited to increases in the cost of natural gas; increases in the cost of supplied electricity or fuel oil related to transportation; interruptions in energy supply due to equipment failure or other causes; and the inability to extend energy supply contracts upon expiration on favorable terms. A significant increase in energy costs or disruption of energy supplies or supply arrangements could have a material adverse effect on our financial position, results of operations, and cash flows.

A substantial portion of our employees are represented by labor unions under a large number of collective bargaining agreements with varying durations and expiration dates. Although we have not experienced a material impact to our operations from a strike or work stoppage in recent years, we may not be successful in preventing such an event from occurring in the future at one or more of our manufacturing facilities. In addition, we may not be able to satisfactorily renegotiate our collective bargaining agreements when they expire. Any work stoppages or material changes in the terms of our labor agreements could have an adverse impact on our financial condition.

Geographic markets

We are, and will continue to be, subject to financial, political, economic, and business risks in connection with our global operations. We have made investments and carry on production activities in various emerging markets, including China, Brazil, and South Korea, and we market our products in these countries, as well as certain other countries in Asia, Africa, and the Middle East. While we anticipate higher growth or attractive production opportunities from these emerging markets, they also present a higher degree of risk than more developed markets. In addition to the business risks inherent in developing and servicing new markets, economic conditions may be more volatile, legal and regulatory systems may be less developed and predictable, and the possibility of various types of adverse governmental action may be more pronounced. In addition, inflation, fluctuations in currency and interest rates, competitive factors, civil unrest, and labor problems could affect our revenues, expenses, and results of operations. Our operations could also be adversely affected by acts of war (including Russia's recent invasion of Ukraine), terrorism, or the threat of any of these events as well as government actions such as controls on imports, exports and prices, tariffs, new forms of taxation, changes in fiscal regimes, and increased government regulation in the countries in which we operate or service customers. Unexpected or uncontrollable events or circumstances in any of these markets could have a material adverse effect on our financial position, results of operations, and cash flows.

Other risks and uncertainties

In addition, refer to [Note 17 – Financial Instruments and Commodity Contracts](#), [Note 19 – Fair Value Measurements](#), and [Note 22 – Commitments and Contingencies](#) for a discussion of financial instruments and commitments and contingencies.

Net Sales

We recognize revenue in accordance with ASC 606, Revenue from Contracts with Customers.

Novelis Inc.
NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS

The Company's contracts with customers consist of purchase orders with standard terms and conditions. These contracts typically consist of the manufacture of products, which represent single performance obligations that are satisfied upon transfer of control of the product to the customer at a point in time. Transfer of control is assessed based on alternative use of the products we produce and our enforceable right to payment for performance to date under the contract terms. Transfer of control and revenue recognition generally occur upon shipment or delivery of the product, which is when title, ownership, and risk of loss pass to the customer and is based on the applicable shipping terms. The shipping terms vary across all businesses and depend on the product, the country of origin, and the type of transportation (truck, train, or vessel). The length of payment terms can vary per contract, but none extend beyond one year. Revenue is recognized net of any volume rebates or other incentives.

Occasionally we receive advance payments to secure product to be delivered in future periods. These advance payments are recorded as deferred revenue, and revenue is recognized as our performance obligations are satisfied throughout the term of the applicable contract.

Certain of our contracts contain take-or-pay clauses which allow us to recover an agreed upon penalty if a buyer does not purchase contractual minimums as defined in the underlying contract within a set timeframe, which is generally within one year. Additionally, certain of our contracts may contain incentive payments to our customers that are deferred and amortized as a reduction to the amount of revenue recorded on a straight-line basis over the term of these contracts. During fiscal 2021 and fiscal 2020, we recognized \$38 million and \$29 million in net sales, respectively, associated with these customer contractual obligations. During fiscal 2022, amounts recognized in net sales associated with these customer contractual obligations were not material.

We disaggregate revenue from contracts with customers on a geographic basis. This disaggregation also achieves the disclosure objective to depict how the nature, amount, timing, and uncertainty of net sales and cash flows are affected by economic factors. We manage our activities on the basis of geographical regions and are organized under four operating segments: North America, South America, Asia, and Europe. See [Note 23 – Segment, Geographical Area, Major Customer and Major Supplier Information](#) for further information about our segment revenue.

Cost of Goods Sold (Exclusive of Depreciation and Amortization)

Cost of goods sold (exclusive of depreciation and amortization) includes all costs associated with inventories, including the procurement of materials, the costs to convert such materials into finished products, and the costs of warehousing and distributing finished goods to customers. Material procurement costs include inbound freight charges as well as purchasing, receiving, inspection, and storage costs. Conversion costs include the costs of direct production inputs such as labor and energy, as well as allocated overheads from indirect production centers and plant administrative support areas. Warehousing and distribution costs include inside and outside storage costs, outbound freight charges, and the costs of internal transfers.

Selling, General and Administrative Expenses

Selling, general and administrative expenses include selling, marketing, and advertising expenses; salaries, travel, and office expenses of administrative employees and contractors; legal and professional fees; software license fees; the provision for credit losses; and factoring expenses.

Research and Development Expenses

We incur costs in connection with R&D programs that are expected to contribute to future earnings and charge such costs against income as incurred. Research and development expenses consist primarily of salaries and administrative costs.

Restructuring Activities

Restructuring charges, which are recorded within restructuring and impairment, net on our consolidated statements of operations, include employee severance and benefit costs, impairments of certain assets, and other costs associated with exit activities. Restructuring costs are determined based on estimates, which are prepared at the time the restructuring actions were approved by management, and are periodically reviewed and updated for changes in estimates. We apply the provisions of ASC 420, Exit or Disposal Cost Obligations ("ASC 420") and ASC 712, Compensation — Nonretirement Postemployment Benefits ("ASC 712"). Severance and benefit costs related to restructuring activities are accounted for under ASC 420 and/or ASC 712 and are recognized when management with the proper level of authority has committed to a restructuring plan and communicated those actions to employees. Impairment losses are based upon the estimated fair value less costs to sell, with fair value estimated based on existing market prices for similar assets. Other exit costs include environmental remediation costs and contract termination costs, primarily related to equipment and facility lease obligations. At each reporting date, we evaluate the accruals for restructuring costs to ensure the accruals are still appropriate. See [Note 4 – Restructuring and Impairment](#) for further discussion.

Business Acquisition and Other Related Costs

Business acquisition and other related costs includes costs associated with the acquisition of Aleris, including legal and professional fees associated with the transaction. See [Note 2 – Business Combination](#) for further details about the transaction.

Carbon Emission Allowances

Emission allowances are recognized when there is reasonable assurance that we will comply with the respective conditions required and that the allowances or grants will be received. The allowances are recognized as income over the respective periods in which the intended expenses are offset. We recognize emission allowances as non-amortizing intangible assets since the allowance benefit is an offset against a future expense demonstrating compliance with the respective regulation and never received in the form of cash. Although the intangible is not amortized, it is subject to impairment testing under the indefinite lived intangible asset impairment model. The intangible asset is recognized at nominal value once we have satisfied all requirements, are granted the allowance, and are able to exercise control. Any excess credits are accrued.

Cash and Cash Equivalents

Cash and cash equivalents includes investments that are highly liquid and have maturities of three months or less when purchased. The carrying values of cash and cash equivalents approximate their fair value due to the short-term nature of these instruments.

We maintain amounts on deposit with various financial institutions, which may at times exceed federally insured limits. However, management periodically evaluates the creditworthiness of those institutions, and we have not experienced any losses on such deposits.

Restricted Cash

Restricted cash primarily relates to cash deposits for employee benefits and is disclosed on the consolidated statement of cash flows. Restricted cash is included in prepaid expenses and other current assets and other long-term assets on the consolidated balance sheets.

Accounts Receivable, Net

Our accounts receivable are geographically dispersed. We do not obtain collateral relating to our accounts receivable. We do not believe there are any significant concentrations of revenues from any particular customer or group of customers that would subject us to any significant credit risks in the collection of our accounts receivable. We report accounts receivable at the estimated net realizable amount we expect to collect from our customers.

Additions to the allowance for credit losses are made by means of the provision for credit losses. We write-off uncollectible accounts receivable against the allowance for credit losses after exhausting collection efforts. For each of the periods presented, we performed an analysis of our historical cash collection patterns and considered the impact of any known material events in determining the allowance for credit losses. See [Note 5 – Accounts Receivable](#) for further information.

Inventories

We carry our inventories at the lower of their cost or net realizable value, reduced by obsolete and excess inventory. We use the average cost method to determine cost. Included in inventories are stores inventories, which are carried at average cost. See [Note 6 – Inventories](#) for further discussion.

Derivative Instruments

We hold derivatives for risk management purposes rather than for trading. We use derivatives to mitigate uncertainty and volatility caused by underlying exposures to metal prices, foreign exchange rates, interest rates, and energy prices. The fair values of all derivative instruments are recognized as assets or liabilities at the balance sheet date and are reported gross.

We may be exposed to losses in the future if counterparties to our derivative contracts fail to perform. We are satisfied that the risk of such non-performance is remote due to our monitoring of credit exposures. Additionally, we enter into master netting agreements with contractual provisions that allow for netting of counterparty positions in case of default, and we do not face credit contingent provisions that would result in the posting of collateral.

In accordance with ASC 815, Derivatives and Hedging, for cash flow hedges we recognize and defer the entire periodic change in the fair value of the hedging instrument in other comprehensive (loss) income. The amounts recorded in other comprehensive (loss) income are subsequently reclassified to earnings in the same line item impacted by the hedged item when the hedged item affects earnings.

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For derivatives designated as cash flow hedges or net investment hedges, we assess hedge effectiveness by formally evaluating the high correlation of the expected future cash flows of the hedged item and the derivative hedging instrument. The entire change in the fair value of the hedging instrument included in the assessment of hedge effectiveness is included in other comprehensive (loss) income and reclassified to earnings in the period in which earnings are impacted by the hedged items or in the period that the transaction becomes probable of not occurring. Gains or losses representing reclassifications of other comprehensive (loss) income to earnings are recognized in the same line item that is impacted by the underlying exposure. We exclude the time value component of foreign currency and aluminum price risk hedges when measuring and assessing effectiveness to align our accounting policy with risk management objectives when it is necessary. If at any time during the life of a cash flow hedge relationship we determine that the relationship is no longer effective, the derivative will no longer be designated as a cash flow hedge and future gains or losses on the derivative will be recognized in other (income) expenses, net.

For derivatives designated as fair value hedges, we assess hedge effectiveness by formally evaluating the high correlation of changes in the fair value of the hedged item and the derivative hedging instrument. The changes in the fair values of the underlying hedged items are reported in prepaid expenses and other current assets, other long-term assets, accrued expenses and other current liabilities, and other long-term liabilities in the consolidated balance sheets. Changes in the fair values of these derivatives and underlying hedged items generally offset, and the entire change in the fair value of derivatives is recorded in the consolidated statement of operations line item consistent with the underlying hedged item.

If no hedging relationship is designated, gains or losses are recognized in other (income) expenses, net in our consolidated statements of operations.

Consistent with the cash flows from the underlying risk exposure, we classify cash settlement amounts associated with designated derivatives as part of either operating or investing activities in the consolidated statements of cash flows. If no hedging relationship is designated, we classify cash settlement amounts as part of investing activities in the consolidated statement of cash flows.

The majority of our derivative contracts are valued using industry-standard models that use observable market inputs as their basis, such as time value, forward interest rates, volatility factors, and current ("spot") and forward market prices for commodity and foreign exchange rates. See [Note 17 – Financial Instruments and Commodity Contracts](#) and [Note 19 – Fair Value Measurements](#) for additional discussion related to derivative instruments.

Property, Plant and Equipment

We record land, buildings, leasehold improvements, and machinery and equipment at cost. We record assets under finance lease obligations at the lower of their fair value or the present value of the aggregate future minimum lease payments as of the beginning of the lease term. We generally depreciate our assets using the straight-line method over the shorter of the estimated useful life of the assets or the lease term, excluding any lease renewals, unless the lease renewals are reasonably certain. See [Note 7 – Property, Plant and Equipment](#) for further discussion. We assign useful lives to and depreciate major components of our property, plant and equipment.

The ranges of estimated useful lives follow.

	Range in Years
Buildings	30 to 40
Leasehold improvements	7 to 20
Machinery and equipment	2 to 25
Furniture, fixtures and equipment	3 to 10
Equipment under finance lease obligations	5 to 15

Most of our large scale machinery, including hot mills, cold mills, continuous casting mills, furnaces, and finishing mills have useful lives of 15 to 25 years. Supporting machinery and equipment, including automation and work rolls, have useful lives of 2 to 15 years.

Maintenance and repairs of property and equipment are expensed as incurred. We capitalize replacements and improvements that increase the estimated useful life of an asset. We also capitalize construction costs and interest incurred while major construction and development projects are in progress. These amounts are capitalized as construction in progress within property, plant and equipment until the asset is placed into service. Once placed into service, the asset, including the associated capitalized interest, is reclassified from construction in progress to the appropriate property, plant and equipment component and depreciation commences.

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We retain fully depreciated assets in property and accumulated depreciation accounts until they are removed from service. In the case of sale, retirement, or disposal, the asset cost and related accumulated depreciation balances are removed from the respective accounts, and the resulting net amount, after consideration of any proceeds, is included as a gain or loss in other (income) expenses, net or gain on assets held for sale in our consolidated statements of operations.

We account for operating leases under the provisions of ASC 842, Leases. This pronouncement requires us to recognize escalating rents, including any rent holidays, on a straight-line basis over the term of the lease for those lease agreements where we receive the right to control the use of the entire leased property at the beginning of the lease term.

Goodwill

We test for impairment at least annually as of the last day of each fiscal year, unless a triggering event occurs that would require an interim impairment assessment. We do not aggregate components of operating segments to arrive at our reporting units and, as such, our reporting units are the same as our operating segments.

In performing our goodwill impairment test, we have the option to first assess qualitative factors to determine whether the existence of events or circumstances leads to a determination that it is more likely than not that the estimated fair value of a reporting unit is less than its carrying amount. If we perform a qualitative assessment and determine that an impairment is more likely than not, then we perform the one-step quantitative impairment test, otherwise no further analysis is required. We also may elect not to perform the qualitative assessment and, instead, proceed directly to the one-step quantitative impairment test. The ultimate outcome of the goodwill impairment assessment will be the same whether we choose to perform the qualitative assessment or proceed directly to the one-step quantitative impairment test.

No goodwill impairment was identified for fiscal 2022, fiscal 2021, or fiscal 2020. See [Note 8 – Goodwill and Intangible Assets](#) for further discussion.

We use the present value of estimated future cash flows to establish the estimated fair value of our reporting units as of the testing date. This approach includes many assumptions related to future growth rates, discount factors, and tax rates, among other considerations. Changes in economic and operating conditions impacting these assumptions could result in goodwill impairment in future periods. Additionally, we use the market approach to corroborate the estimated fair value. Both approaches are weighted equally when calculating our estimated fair value. If the carrying amount of a reporting unit's goodwill exceeds its estimated fair value, we would recognize an impairment charge in an amount equal to that excess in our consolidated statements of operations. During our analysis for fiscal 2022, fiscal 2021, and fiscal 2020, the estimated fair value of each of our reporting units exceeded the carrying amount of the reporting unit's goodwill, and thus, no reporting unit failed step one of testing.

When a business within a reporting unit is disposed of, goodwill is allocated to the gain or loss on disposition using the relative fair value methodology.

Long-Lived Assets and Other Intangible Assets

We amortize the cost of intangible assets over their respective estimated useful lives to their estimated residual value. See [Note 8 – Goodwill and Intangible Assets](#) for further discussion.

We assess the recoverability of long-lived assets (excluding goodwill) and finite-lived intangible assets, whenever events or changes in circumstances indicate that we may not be able to recover the asset's carrying amount. We measure the recoverability of assets to be held and used by a comparison of the carrying amount of the asset (groups) to the expected, undiscounted future net cash flows to be generated by that asset (groups), or, for identifiable intangible assets, by determining whether the amortization of the intangible asset balance over its remaining life can be recovered through undiscounted future cash flows. The amount of impairment of identifiable intangible assets is based on the present value of estimated future cash flows. We measure the amount of impairment of other long-lived assets and intangible assets (excluding goodwill) as the amount by which the carrying value of the asset exceeds the fair value of the asset, which is generally determined as the present value of estimated future cash flows or as the appraised value. Impairments of long-lived assets and intangible assets are included in restructuring and impairment, net in the consolidated statement of operations. See [Note 4 – Restructuring and Impairment](#) for further discussions.

Assets and Liabilities Held for Sale

We classify long-lived assets (disposal groups) to be sold as held for sale in the period in which all of the following criteria are met: management, having the authority to approve the action, commits to a plan to sell the asset (disposal group); the asset (disposal group) is available for immediate sale in its present condition subject only to terms that are usual and customary for sales of such assets (disposal groups); an active program to locate a buyer and other actions required to complete the plan to sell the asset (disposal group) have been initiated; the sale of the asset (disposal group) is probable, and transfer of the asset (disposal group) is expected to qualify for recognition as a completed sale within one year, except if events or circumstances beyond our control extend the period of time required to sell the asset (disposal group) beyond one year; the asset (disposal group) is being actively marketed for sale at a price that is reasonable in relation to its current fair value; and actions required to complete the plan indicate that it is unlikely that significant changes to the plan will be made or that the plan will be withdrawn.

We initially measure a long-lived asset (disposal group) that is classified as held for sale at the lower of its carrying value or fair value less any costs to sell. Any loss resulting from this measurement is recognized in the period in which the held for sale criteria are met. Conversely, gains are not recognized on the sale of a long-lived asset (disposal group) until the date of sale. We assess the fair value of a long-lived asset (disposal group) less any costs to sell each reporting period it remains classified as held for sale and report any reduction in fair value as an adjustment to the carrying value of the asset (disposal group). Upon being classified as held for sale we cease depreciation. We continue to depreciate long-lived assets to be disposed of other than by sale.

Upon determining that a long-lived asset (disposal group) meets the criteria to be classified as held for sale, we report the assets and liabilities of the disposal group in our consolidated balance sheets as assets held for sale and liabilities held for sale, respectively.

Investment in and Advances to Non-Consolidated Affiliates

We assess the potential for other-than-temporary impairment of our equity method investments when impairment indicators are identified. We consider all available information, including the recoverability of the investment, the earnings and near-term prospects of the affiliate, factors related to the industry, conditions of the affiliate, and our ability, if any, to influence the management of the affiliate. We assess fair value based on valuation methodologies, as appropriate, including the present value of estimated future cash flows, estimates of sales proceeds, and external appraisals. If an investment is considered to be impaired and the decline in value is other than temporary, we record an appropriate write-down. See [Note 10 – Investment in and Advances to Non-Consolidated Affiliates and Related Party Transactions](#) for further discussion.

Financing Costs

We amortize financing costs and premiums, and accrete discounts, over the remaining life of the related debt using the effective interest amortization method, unless the impact of utilizing the straight-line method results in an immaterial difference. The expense is included in interest expense and amortization of debt issuance costs in our consolidated statements of operations. We record discounts and unamortized financing costs as a direct deduction from, or premiums as a direct addition to, the face amount of the financing.

Fair Value of Financial Instruments

ASC 820, Fair Value Measurements and Disclosures ("ASC 820"), defines fair value, establishes a framework for measuring fair value, and expands disclosures about fair value measurements. ASC 820 also applies to measurements under other accounting pronouncements, such as ASC 825, Financial Instruments ("ASC 825") that require or permit fair value measurements. ASC 825 requires disclosures of the fair value of financial instruments. Our financial instruments include: cash and cash equivalents; certificates of deposit; accounts receivable; accounts payable; foreign currency, energy and interest rate derivative instruments; cross-currency swaps; metal option and forward contracts; share-based compensation; related party notes receivables and payables; letters of credit; short-term borrowings; and long-term debt.

The carrying amounts of cash and cash equivalents, certificates of deposit, accounts receivable, accounts payable and current related party notes receivable and payable approximate their fair value because of the short-term maturity and highly liquid nature of these instruments. The fair value of our letters of credit is deemed to be the amount of payment guaranteed on our behalf by third-party financial institutions. We determine the fair value of our short-term borrowings and long-term debt based on various factors including maturity schedules, call features and current market rates. We also use quoted market prices, when available, or the present value of estimated future cash flows to determine fair value of our share-based compensation liabilities, short-term borrowings and long-term debt. When quoted market prices are not available for various types of financial instruments (such as currency, energy and interest rate derivative instruments, swaps, options, and forward contracts), we use standard pricing models with market-based inputs, which take into account the present value of estimated future cash flows. See [Note 19 – Fair Value Measurements](#) for further discussion.

Pensions and Postretirement Benefits

Our pension obligations relate to funded defined benefit pension plans in the U.S., Canada, Switzerland, and the U.K.; unfunded pension plans in the U.S., Canada, and Germany; unfunded lump sum indemnities in France and Italy; and partially funded lump sum indemnities in South Korea. Our other postretirement obligations include unfunded health care and life insurance benefits provided to retired employees in Canada, the U.S., and Brazil.

We account for our pensions and other postretirement benefits in accordance with ASC 715, Compensation — Retirement Benefits ("ASC 715"). We recognize the funded status of our benefit plans as a net asset or liability, with an offsetting adjustment to accumulated other comprehensive loss in shareholder's equity. The funded status is calculated as the difference between the fair value of plan assets and the benefit obligation. For fiscal 2022 and fiscal 2021, we used March 31 as the measurement date.

We use standard actuarial methods and assumptions to account for our pension and other postretirement benefit plans. Pension and postretirement benefit obligations are actuarially calculated using management's best estimates of the rate used to discount the future estimated liability, the long-term rate of return on plan assets, and several assumptions related to the employee workforce (compensation increases, health care cost trend rates, expected service period, retirement age, and mortality). Pension and postretirement benefit expense includes the actuarially computed cost of benefits earned during the current service period, the interest cost on accrued obligations, the expected return on plan assets based on fair market value and the straight-line amortization of net actuarial gains and losses and adjustments due to plan amendments, curtailments, and settlements. Net actuarial gains and losses are amortized over periods of 15 years or less, which represent the group's average future service life of the employees or the group's average life expectancy. See [Note 15 – Postretirement Benefit Plans](#) for further discussion.

Noncontrolling Interests in Consolidated Affiliates

These financial statements reflect the application of ASC 810, Consolidations, which establishes accounting and reporting standards that require: (i) the ownership interest in subsidiaries held by parties other than the parent to be clearly identified and presented in the consolidated balance sheet within shareholder's (deficit) equity, but separate from the parent's (deficit) equity; (ii) the amount of consolidated net income attributable to the parent and the noncontrolling interest to be clearly identified and presented on the face of the consolidated statement of operations and (iii) changes in a parent's ownership interest while the parent retains its controlling financial interest in its subsidiary to be accounted for consistently.

Our consolidated financial statements include all assets, liabilities, revenues, and expenses of less-than-100%-owned affiliates that we control or for which we are the primary beneficiary. We record a noncontrolling interest for the allocable portion of income or loss and comprehensive income or loss to which the noncontrolling interest holders are entitled based upon their ownership share of the affiliate. Distributions made to the holders of noncontrolling interests are charged to the respective noncontrolling interest balance.

Losses attributable to the noncontrolling interest in an affiliate may exceed our interest in the affiliate's equity. The excess and any further losses attributable to the noncontrolling interest shall be attributed to those interests. The noncontrolling interest shall continue to be attributed its share of losses even if that attribution results in a deficit noncontrolling interest balance.

Environmental Liabilities

We record accruals for environmental matters when it is probable that a liability has been incurred and the amount of the liability can be reasonably estimated based on current law and existing technologies. We adjust these accruals periodically as assessment and remediation efforts progress or as additional technical or legal information becomes available. Accruals for environmental liabilities are stated at undiscounted amounts. Environmental liabilities are included in our consolidated balance sheets in accrued expenses and other current liabilities and other long-term liabilities, depending on their short- or long-term nature. Any receivables for related insurance or other third-party recoveries for environmental liabilities are recorded when it is probable that a recovery will be realized and are included in prepaid expenses and other current assets on our consolidated balance sheets.

Costs related to environmental matters are charged to expense. Estimated future incremental operations, maintenance, and management costs directly related to remediation are accrued in the period in which such costs are determined to be probable and estimable. See [Note 22 – Commitments and Contingencies](#) for further discussion.

Litigation Contingencies

We accrue for loss contingencies associated with outstanding litigation, claims, and assessments for which management has determined it is probable that a loss contingency exists and the amount of loss can be reasonably estimated. We expense professional fees associated with litigation claims and assessments as incurred. See [Note 22 – Commitments and Contingencies](#) for further discussion.

Income Taxes

We account for income taxes using the asset and liability method. This approach recognizes the amount of income taxes payable or refundable for the current year, as well as deferred tax assets and liabilities for the future tax consequence of events recognized in the consolidated financial statements and income tax returns. Deferred income tax assets and liabilities are adjusted to recognize the effects of changes in tax laws or enacted tax rates. Under ASC 740, Income Taxes ("ASC 740"), a valuation allowance is required when it is more likely than not that some portion of the deferred tax assets will not be realized. Realization is dependent on generating sufficient taxable income through various sources.

We record tax benefits related to uncertain tax positions taken or expected to be taken on a tax return when such benefits meet a more than likely than not threshold. Otherwise, these tax benefits are recorded when a tax position has been effectively settled, the statute of limitation has expired or the appropriate taxing authority has completed their examination. Interest and penalties related to uncertain tax positions are recognized as part of the provision for income taxes and are accrued beginning in the period that such interest and penalties would be applicable under relevant tax law until such time that the related tax benefits are recognized. See [Note 21 – Income Taxes](#) for further discussion.

Share-Based Compensation

In accordance with ASC 718, Compensation — Stock Compensation ("ASC 718"), we recognize compensation expense for a share-based award over an employee's requisite service period based on the award's grant date fair value, subject to adjustment. Our share-based awards are settled in cash and are accounted for as liability based awards. As such, liabilities for awards under these plans are required to be measured at fair value at each reporting date until the date of settlement. See [Note 14 – Share-Based Compensation](#) for further discussion.

Foreign Currency Translation

The assets and liabilities of foreign operations, whose functional currency is other than the U.S. dollar (located in Europe and Asia), are translated to U.S. dollars at the period end exchange rates, and revenues and expenses are translated at average exchange rates for the period. Differences arising from this translation are included in the currency translation adjustment component of accumulated other comprehensive loss and noncontrolling interests, both of which are on our consolidated balance sheets. If there is a planned or completed sale or liquidation of our ownership in a foreign operation, the relevant currency translation adjustment is recognized in our consolidated statement of operations.

For all operations, the monetary items denominated in currencies other than the functional currency are remeasured at period-end exchange rates, and transaction gains and losses are included in other (income) expenses, net in our consolidated statements of operations. Non-monetary items are remeasured at historical rates.

Business Combinations

Occasionally, we may enter into business combinations. In accordance with ASC 805, Business Combinations ("ASC 805"), we generally recognize the identifiable assets acquired, the liabilities assumed, and any noncontrolling interests in an acquiree at their fair values as of the date of acquisition. We measure goodwill as the excess of consideration transferred, which we also measure at fair value, over the net of the acquisition date fair values of the identifiable assets acquired and liabilities assumed. The acquisition method of accounting requires us to make significant estimates and assumptions regarding the fair values of the elements of a business combination as of the date of acquisition, including the fair values of identifiable intangible assets, deferred tax asset valuation allowances, liabilities including those related to debt, pensions and other postretirement plans, uncertain tax positions, contingent consideration, and contingencies. Significant estimates and assumptions include subjective and/or complex judgements regarding items such as discount rate, revenue growth rates, projected EBITDA margins, customer attrition rates, economic lives, and other factors, which are used to derive the estimated future cash flows that we expect to generate from the acquired assets.

The acquisition method of accounting also requires us to refine these estimates over a measurement period not to exceed one year to reflect new information obtained about facts and circumstances that existed as of the acquisition date that, if known, would have affected the measurement of the amounts recognized as of that date. If we are required to adjust provisional amounts that we have recorded for the fair values of assets and liabilities in connection with acquisitions, these adjustments could have a material impact on our financial condition and results of operations. If the subsequent actual results and updated projections of the underlying business activity change compared with the assumptions and projections used to develop these values, we could record future impairment charges. In addition, we have estimated the economic lives of certain acquired assets, and these lives are used to calculate depreciation and amortization expense. If our estimates of the economic lives change, depreciation or amortization expenses could be increased or decreased or the acquired asset could be impaired. See [Note 2. Business Combination](#) for further discussion.

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Recently Adopted Accounting Standards

Standard	Adoption	Description	Disclosure Impact
ASU 2018-18, <i>Collaborative Arrangements (Topic 808): Clarifying the interaction between Topic 808 and Topic 606</i> (Issued November 2018)	October 1, 2020	The standard clarifies the interaction between Topic 808, collaborative agreements, and Topic 806, Revenue from Contracts with Customers. Targeted improvements served to clarify when transactions between collaborative arrangement participants should be accounted for as revenue under Topic 606.	The Company has evaluated the impact of this standard, noting that the adoption has no impact on our consolidated financial statements. We will apply this guidance to any collaborative arrangements entered into in the future.
ASU 2020-04, <i>Reference Rate Reform (Topic 848): Facilitation of the Effects of Reference Rate Reform on Financial Reporting</i> along with additional technical improvements and clarifications since issued (Issued March 2020)	April 1, 2020	The standard provides transitional guidance and optional expedients and exceptions for applying U.S. GAAP to contract modifications and hedging relationships which reference LIBOR or another reference rate expected to be discontinued.	The Company has evaluated the impact of this standard, noting that there is no impact to our current contracts or hedging relationships. The Company will monitor the impact on future transactions through December 31, 2022.
ASU 2019-12, <i>Income Taxes (Topic 740): Simplifying the Accounting for Income Taxes</i> (Issued December 2019)	April 1, 2020	The standard simplifies the accounting for income taxes by eliminating certain exceptions in ASC 740 related to the methodology for calculating income taxes in an interim period. It also clarifies and simplifies other aspects of the accounting for income taxes, improving the consistent application and simplification of U.S. GAAP.	The Company elected to early adopt the standard on a prospective basis. The most significant impact to the Company is the removal of a limit on the tax benefit recognized on pre-tax losses in interim periods. The adoption of this standard removed the limit on the tax benefit recognized on pre-tax losses during an interim period, which allowed the Company to recognize a higher tax benefit in the first quarter than previously allowable.
ASU 2019-04, <i>Codification Improvements to Topic 326, Financial Instruments - Credit Losses, Topic 815, Derivatives and Hedging, and Topic 825, Financial Instruments</i>	April 1, 2020	The standard provides various codification updates and improvements to address comments received.	The adoption of this standard did not have a material impact on the consolidated financial statements or disclosures.
ASU 2018-12, <i>Consolidation (Topic 810): Targeted Improvements to Related Party Guidance for Variable Interest Entities</i> (Issued October 2018)	April 1, 2020	This standard eliminates the requirement that entities consider indirect interests held through related parties under common control in their entirety when assessing whether a decision-making fee is a variable interest. Instead, the reporting entity must consider such indirect interests on a proportionate basis.	The Company has evaluated the impact of this standard, noting that there is no impact to our current variable interests. We have updated our accounting policies to ensure appropriate treatment if these are entered into in the future. The adoption of this standard did not have a material impact on the consolidated financial statements or disclosures.
ASU 2018-15, <i>Intangibles—Goodwill and Other—Internal-Use Software (Subtopic 350-40): Customer's Accounting for Implementation Costs Incurred in a Cloud Computing Arrangement That Is a Service Contract</i> (Issued August 2018)	April 1, 2020	This standard requires capitalization of implementation costs incurred in a hosting arrangement that is a service contract. This change will better align with requirements for capitalizing implementation costs incurred to develop or obtain internal-use software (and hosting arrangements that include an internal-use software license). The accounting for the service element of a hosting arrangement that is a service contract is not affected.	The Company has evaluated the impact of this standard, noting that we do not have these types of arrangements. We have updated our accounting policies to ensure appropriate treatment if these are entered into in the future. The adoption of this standard did not have a material impact on the consolidated financial statements or disclosures.
ASU 2018-14, <i>Compensation—Retirement Benefits—Defined Benefit Plans—General (Subtopic 715-20): Disclosure Framework—Changes to the Disclosure Requirements for Defined Benefit Plans</i> (Issued August 2018)	April 1, 2020	This standard added requirements for new disclosures such as requiring a narrative description of the reasons for significant gains and losses affecting the benefit obligation for the period and also an explanation of any other significant changes in the benefit obligation or plan assets that are not otherwise apparent in the other disclosures required by ASC 715. Further, the standard removes some currently required disclosures such as (a) the requirement (for public entities) to disclose the effects of a one-percentage-point change on the assumed health care costs and the effect of this change in rates on service cost, interest cost, and the benefit obligation for postretirement health care benefits and (b) the amounts in accumulated other comprehensive income expected to be recognized in net periodic benefit costs over the next fiscal year.	The Company has evaluated the impact of this standard. We have updated our pension and postretirement disclosure accordingly, which did not have a material impact on the consolidated financial statements.
ASU 2017-04, <i>Intangibles—Goodwill and Other (Topic 350): Simplifying the Test for Goodwill Impairment</i> (Issued January 2017)	April 1, 2020	This standard removes Step 2 from the goodwill impairment test. As amended, the goodwill impairment test will consist of one step comparing the fair value of a reporting unit with its carrying amount. Under the simplified model, a goodwill impairment is calculated as the difference between the carrying amount of the reporting unit and its fair value, but not to exceed the carrying amount of goodwill allocated to that reporting unit. This standard will need to be considered each time Novelis performs an assessment of goodwill for impairment under the quantitative test.	The Company has evaluated the impact of this standard. We have updated our goodwill impairment assessment process accordingly, which did not have a material impact on the consolidated financial statements.

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ASU 2016-13, <i>Financial Instrument-Credit Losses (Topic 326): Measurement of Credit Losses on Financial Instruments</i> along with additional technical improvements and clarifications since issued (Issued June 2016)	April 1, 2020	The standard provides financial statement users with more decision-useful information about expected credit losses on financial instruments and other commitments to extend credit held by a reporting entity at each reporting date. The current expected credit loss ("CECL") model requires the Company to measure all expected credit losses for financial instruments held at the reporting date based on historical experience, current conditions, and reasonable supportable forecasts.	We have updated our policies and processes for reserves against our financial instruments to factor in expected credit losses. This adoption did not have a material impact on the consolidated financial statements.
ASU 2019-07, <i>Codification Updates to SEC Sections</i> (Issued July 2019)	July 1, 2019	The standard provides various codification updates and improvements to address comments received.	The adoption of this standard did not have a material impact on the consolidated financial statements or disclosures.
ASU 2018-16, <i>Derivatives and Hedging (Topic 815): Inclusion of the Secured Overnight Financing Rate (SOFR) Overnight Index Swap (OIS) Rate as a Benchmark Interest Rate for Hedge Accounting Purposes</i> (Issued October 2018)	April 1, 2019	The standard permits the use of the OIS based on the SOFR as a U.S. benchmark interest rate for purposes of hedge accounting under Topic 815 as requested by the Federal Reserve Board during deliberations leading to the issuance of ASU 2017-12. The FASB recognized that although the OIS rate based on SOFR is not yet widely recognized and quoted within the U.S. financial market, the attributes of the repo rates underlying the calculation of SOFR are recognized.	The adoption of this standard did not have a material impact on the consolidated financial statements or disclosures.
ASU 2018-09, <i>Codification Improvements</i> (Issued July 2018)	April 1, 2019	The standard provides various codification updates and improvements to address comments received.	The adoption of this standard did not have a material impact on the consolidated financial statements or disclosures.
ASU 2016-02, <i>Leases (Topic 842)</i> along with additional technical improvements, practical expedients, and clarifications since issued. (Issued February 2016)	April 1, 2019	The standard requires organizations that lease assets to recognize assets and liabilities for the rights and obligations created by the leases on balance sheet. The standard requires qualitative and quantitative disclosures to help investors and financial statement users better understand the amount, timing and uncertainty of cash flows arising from leases.	We recognized right-of-use assets and lease liabilities on our consolidated balance sheets with no impact to the opening balance of retained earnings. The adoption of this standard did not have a material effect on the consolidated statement of operations or the consolidated statement of cash flows.

Recently Issued Accounting Standards (Not Yet Adopted)

We have reviewed the recent accounting pronouncements and concluded they are either not applicable to the business or no material effect is expected on the consolidated financial statements as a result of future adoption.

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NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS

2. BUSINESS COMBINATION

On April 14, 2020, Novelis completed its acquisition of 100% of the issued and outstanding shares of Aleris, a global supplier of rolled aluminum products, pursuant to an Agreement and Plan of Merger, dated as of July 26, 2018 (the "Merger Agreement"). The closing purchase price of \$2.8 billion consisted of \$775 million less transaction costs for the equity value, as well as approximately \$2.0 billion for the extinguishment of Aleris' current outstanding debt and a \$50 million earn-out payment. The \$775 million base equity payment was reduced by \$64 million of Aleris transaction costs, resulting in \$711 million of cash for equity consideration. As a result, the acquisition increases the Company's footprint as an aluminum rolled products manufacturer by expanding the portfolio of services provided to its customers. Refer to [Note 3 – Discontinued Operations](#) for more details on the Duffel and Lewisport divestitures required as a condition of the acquisition. As a condition to the sale of the Duffel plant, we were required by the European Commission to make a payment of €55 million (approximately \$60 million at the date of acquisition) to support capital improvements at the Duffel plant upon sale.

The final calculation of merger consideration paid to Aleris follows.

<i>in millions</i>	Amount
Cash for equity consideration ⁽¹⁾	\$ 711
Repayment of Aleris' debt (including prepayment penalties and accrued interest) ⁽²⁾	1,954
Earn-out consideration ⁽³⁾	50
Payment associated with Duffel capital expenditures ⁽⁴⁾	60
Fair value of merger consideration	<u>\$ 2,775</u>

- (1) Under the terms of the Merger Agreement, this represents the cash consideration, which is the base consideration for the settlement of all shares of common stock outstanding, including shares issued in connection with the conversion of the 6% Senior Subordinated Exchangeable Notes due 2020 issued by Aleris International, Inc. into Aleris common shares, and the settlement of stock options and restricted stock units, less transaction costs of \$64 million. The transaction costs are removed from the base consideration as these costs were incurred by Aleris prior to the closing date and were not reimbursed by Novelis. Additionally, under the terms of the Merger Agreement, there is a €8 million (approximately \$9 million at the date of acquisition) German tax indemnification included in the cash for equity consideration that will be payable to the selling shareholders upon the condition that the existing Aleris German tax receivable is received from the German tax authorities. During the third quarter of fiscal 2021, Novelis settled this payable with the selling shareholders.
- (2) On the closing date, all of the outstanding historical debt of Aleris, except for certain non-recourse multi-currency secured term loan facilities (collectively, the "Zhenjiang Term Loans"), was repaid in connection with the merger. In addition, prepayment penalties and accrued interest of approximately \$12 million and \$16 million, respectively, associated with the Aleris debt were paid in connection with such repayment.
- (3) Under the terms of the Merger Agreement, this represents the fair value of the earn-out consideration which was based upon Aleris meeting specified commercial margin targets. On the closing date, Aleris had met all of the specified targets in the Merger Agreement and the selling shareholders received the \$50 million cash payment.
- (4) In connection with obtaining the regulatory antitrust approvals, the European Commission required Novelis to pay the buyer of Duffel an additional €55 million (approximately \$60 million at the date of acquisition) to fund capital expenditures that would be required so that Duffel can operate as a standalone business. This amount was paid on September 30, 2020 and is included in acquisition of business, net of cash and restricted cash acquired in the consolidated statement of cash flows for fiscal 2021.

The acquisition was accounted for as a business combination using the acquisition method of accounting in accordance with ASC 805. The purchase price was allocated to the assets acquired and liabilities assumed based on the fair values at the date of acquisition. The excess of the purchase price over the fair value of the net assets acquired was allocated to goodwill, none of which is expected to be deductible for tax purposes. Goodwill is primarily attributed to synergies from future expected economic benefits, including enhanced revenue growth from expanded capabilities and geographic presence, as well as cost savings from duplicative overhead, streamlined operations, and enhanced operational efficiency.

The accompanying consolidated balance sheets include the assets and liabilities of Aleris, which were measured at fair value as of the acquisition date. The discontinued operations financial statement line items in the table below relate to Duffel and Lewisport.

Novelis Inc.
NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS

The preliminary allocation of purchase price recorded for Aleris as of June 30, 2020 and subsequently revised for measurement period adjustments follows.

<i>in millions</i>	Assets Acquired as of June 30, 2020 ⁽¹⁾	Measurement Period Adjustments	Assets Acquired as of March 31, 2021 ⁽¹⁾
Cash and cash equivalents	\$ 105	\$ —	\$ 105
Accounts receivable ⁽²⁾	251	17	268
Inventories	379	—	379
Prepaid expenses and other current assets ⁽³⁾	24	—	24
Fair value of derivative instruments	46	—	46
Current assets of discontinued operations ⁽⁴⁾	463	1	464
Property, plant and equipment ⁽⁵⁾	949	(5)	944
Goodwill ⁽⁶⁾⁽⁷⁾⁽⁸⁾⁽⁹⁾	328	141	469
Intangible assets, net ⁽⁵⁾⁽⁶⁾	149	318	467
Deferred income tax assets ⁽⁷⁾	114	(20)	94
Other long-term assets	39	—	39
Long-term assets of discontinued operations ⁽⁸⁾	944	(390)	554
Total assets	\$ 3,791	\$ 62	\$ 3,853
	Liabilities Assumed as of June 30, 2020 ⁽¹⁾	Measurement Period Adjustments	Liabilities Assumed as of March 31, 2021 ⁽¹⁾
Current portion of long-term debt	\$ 24	\$ —	\$ 24
Accounts Payable ⁽²⁾	141	17	158
Fair value of derivative instruments	25	—	25
Accrued expenses and other current liabilities	143	—	143
Current liabilities of discontinued operations	166	—	166
Long-term debt, net of current portion	125	—	125
Deferred income tax liabilities ⁽⁷⁾	37	4	41
Accrued postretirement benefits	164	—	164
Other long-term liabilities ⁽⁹⁾	41	41	82
Long-term liabilities of discontinued operations	150	—	150
Total liabilities	\$ 1,016	\$ 62	\$ 1,078
Net assets acquired			\$ 2,775
Total purchase price			\$ 2,775

- (1) In connection with the acquisition of Aleris, the Company acquired two businesses which were required to be sold. Therefore, such businesses were classified as held for sale and were included within the current assets of discontinued operations, long-term assets of discontinued operations, current liabilities of discontinued operations, and long-term liabilities of discontinued operations line items in the above allocation of purchase price (see [Note 3 – Discontinued Operations](#)). As of March 31, 2021, both of these businesses were sold and are no longer included in the consolidated balance sheets of Novelis.
- (2) The measurement period adjustment related to the presentational alignment of pending derivative settlements on a gross basis in accordance with Novelis' policy during the second quarter of fiscal 2021.
- (3) Included in prepaid expenses and other current assets is \$9 million of restricted cash acquired related to cash deposits restricted for the payment of the Zhenjiang Term Loans.
- (4) Included in current assets of discontinued operations is \$41 million of cash and cash equivalents acquired related to our discontinued operations.
- (5) The measurement period adjustment of \$5 million related to presentational alignment of certain capitalized software in accordance with Novelis' policy during the third quarter of fiscal 2021.
- (6) The measurement period adjustment related to revisions in the valuation of intangible assets based on refinements to key assumptions, such as discount rates and growth rates, of \$261 million and \$52 million during the second and third quarters of fiscal 2021, respectively.
- (7) The measurement period adjustment related to deferred tax impacts of the measurement period adjustments and other tax adjustments, resulting in a decrease in deferred tax assets of \$34 million during the second quarter, an increase of \$22 million during the third quarter, and a decrease of \$8 million during the fourth quarter of fiscal 2021, respectively. Deferred tax liabilities were adjusted by \$4 million in the fourth quarter of fiscal 2021.
- (8) The measurement period adjustment related to estimated costs to sell the Duffel and Lewisport businesses, in addition to revisions to key assumptions of the valuation of Lewisport and Duffel's property, plant and equipment, of \$284 million and \$75 million during the second and third quarters of fiscal 2021, respectively, and revisions to key assumptions related to Lewisport's intangible assets of \$31 million during the second quarter of fiscal 2021.
- (9) The measurement period adjustment related to certain uncertain tax positions and customs related adjustments identified during the third quarter of fiscal 2021.

Novelis Inc.
NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS

The fair values of assets acquired and liabilities are final as of March 31, 2021. The fair values of the assets acquired and liabilities assumed of discontinued operations were determined using estimated sales prices. The fair values of the continuing operations assets acquired and liabilities assumed were determined using the income and cost approaches. In many cases, the determination of the fair values required estimates about discount rates, future expected cash flows, and other future events that were judgmental and subject to change. The fair value measurements are primarily based on significant inputs that are not observable in the market and thus represent Level 3 measurements in the fair value hierarchy as defined in ASC 820. Intangible assets consisting of customer relationships, technology, and trade names were valued using the multi-period excess earnings method or the relief from royalty method, both of which are forms of the income approach. A cost and market approach was applied, as appropriate, for inventory and property and equipment, including land.

Customer relationship intangible assets were valued using the multi-period excess earnings method. The significant assumptions used include the estimated annual net cash flows (including appropriate revenue and profit attributable to the asset, retention rate, applicable tax rate, and contributory asset charges, among other factors), the discount rate, reflecting the risks inherent in the future cash flow stream, an assessment of the asset's life cycle, and the tax amortization benefit, among other factors.

Technology and trade name intangible assets were valued using the relief from royalty method. The significant assumptions used include the estimated annual net cash flows (including appropriate revenue attributable to the asset, applicable tax rate, royalty rate, and other factors such as technology related obsolescence rates), the discount rate, reflecting the risks inherent in the future cash flow stream, and the tax amortization benefit, among other factors.

Inventory was valued using the replacement cost or market approach, as appropriate. The replacement cost approach, which estimates value by determining the current cost of replacing an asset with another of equivalent economic utility, was used to determine the estimated replacement cost of raw materials. The market approach was used to determine the estimated selling price less costs to sale for work in progress and finished goods.

Property and equipment, including land, were valued using the cost or market approach, as appropriate. For assets valued using the cost approach, the cost to replace a given asset reflects the estimated reproduction or replacement cost for the property, less an allowance for loss in value due to depreciation. The market approach, which estimates value by leveraging comparable land sale data/listings and qualitatively comparing them to the in-scope properties, was used to value the land.

The assumed long-term debt in China was valued using an income approach. The significant assumptions used include the estimated annual cash flows and interest and credit spreads, among other factors.

The assumed pension and postretirement liabilities were valued using an income approach. The significant assumptions used include the estimated annual cash flows, the discount rate, and the estimated return on asset rate, among other factors.

The fair value of the assets acquired includes current accounts receivables of \$268 million related to continuing operations and \$78 million related to discontinued operations. The gross amount due is \$346 million, of which less than \$1 million is expected to be uncollectible.

The fair value of the assets acquired includes \$22 million and \$7 million of operating lease right-of-use assets and finance lease assets, respectively. The fair value of liabilities assumed includes \$9 million and \$7 million of operating lease liabilities and finance lease liabilities, respectively, of which, \$4 million and \$3 million of operating lease liabilities and finance lease liabilities, respectively, are current liabilities.

The Company has allocated the goodwill associated with the Aleris acquisition to the regions in the amounts below.

<i>in millions</i>	North America	Europe	Asia	Total
Goodwill	\$ 375	\$ 53	\$ 41	\$ 469

Novelis Inc.
NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS

The amounts allocated to intangible assets are as follows.

<i>in millions</i>	Gross Carrying Amount ⁽¹⁾	Weighted-Average Useful Life
Trade name	\$ 10	2.5 years
Technology	52	15.1 years
Customer relationships	403	22.5 years
Other intangibles	2	N/A
Total	\$ 467	21.2 years

(1) In connection with the acquisition of Aleris, Novelis acquired two businesses which we were obligated to sell. As such, gross carrying amounts exclude amounts held for sale (see [Note 3 – Discontinued Operations](#)).

Between the acquisition date and March 31, 2021, the results of continuing operations for Aleris of \$1.6 billion of net sales and \$144 million of net loss have been included within the accompanying consolidated statement of operations for fiscal 2021.

The following unaudited supplemental pro forma combined financial information presents the Company's results of operations for fiscal 2021 and fiscal 2020 as if the acquisition of Aleris had occurred on April 1, 2019. The pro forma financial information is presented for comparative purposes only and is not necessarily indicative of the Company's operating results that may have actually occurred had the acquisition of Aleris been completed on April 1, 2019. In addition, the unaudited pro forma financial information does not give effect to any anticipated cost savings, operating efficiencies, or other synergies that may be associated with the acquisition or any estimated costs that have been or will be incurred by the Company to integrate the assets and operations of Aleris.

<i>in millions</i>	Fiscal 2021	Fiscal 2020
Net sales	\$ 12,330	\$ 13,175
Net income	306	412

The unaudited pro forma financial information reflects pro forma adjustments to present the combined pro forma results of operations as if the acquisition had occurred on April 1, 2019 to give effect to certain events the Company believes to be directly attributable to the acquisition. These pro forma adjustments primarily include:

- the elimination of Aleris historical depreciation and amortization expense and the recognition of new depreciation and amortization expense;
- an adjustment to interest expense to reflect the additional borrowings of the Company in conjunction with the acquisition and the repayment of Aleris' historical debt in conjunction with the acquisition;
- an adjustment to present acquisition-related transaction costs and other one-time costs directly attributable to the acquisition as if they were incurred in the earliest period presented; and
- the related income tax effects of the adjustments noted above.

3. DISCONTINUED OPERATIONS

On April 14, 2020, we closed the acquisition of Aleris for \$2.8 billion. As a result of the antitrust review processes in the European Union, the U.S., and China required for approval of the acquisition, we were obligated to divest Aleris' European and North American automotive assets, including the Duffel and Lewisport plants. See [Note 2 – Business Combination](#) for more details on the acquisition and related accounting treatment.

Duffel

On September 30, 2020, we completed the sale of Duffel to Liberty House Group through its subsidiary, ALVANCE, the international aluminum business of the GFG Alliance. Upon closing, we received €210 million (\$246 million as of September 30, 2020) in cash and a €100 million (\$117 million as of September 30, 2020) receivable that was deemed to be contingent consideration subject to the results of a binding arbitration proceeding under German law that is currently underway. The arbitration will determine the responsibility of ALVANCE to Novelis based on whether either or both parties breached any of their respective obligations under the purchase and sale agreements, and if so, their relative culpability for such breaches, potentially reduced by certain claims of ALVANCE against Novelis. Arbitration results are inherently uncertain and unpredictable, and there can be no assurance of the result the arbitral tribunal will reach. The arbitrators may award Novelis no more than €100 million and may not award any damages to ALVANCE. In addition, we recorded a €15 million (\$18 million) receivable for net debt and working capital adjustments.

We elected to account for the contingent consideration at fair value and mark to fair value on a quarterly basis. As of March 31, 2021, the fair value of the contingent consideration was adjusted for the accretion of imputed interest to €95 million (\$112 million) and was included within in other long-term assets — third parties on our consolidated balance sheet.

For fiscal 2021, the results of operations of Duffel were presented within loss from discontinued operations, net of tax in the consolidated statement of operations and cash flows of Duffel were presented as discontinued operations in the consolidated statement of cash flows. During fiscal 2021, cash flows from the sale of Duffel totaled \$223 million, which represents \$246 million in cash proceeds less \$23 million in cash sold.

As of June 30, 2021, Novelis marked all outstanding receivables related to the sale of Duffel to an estimated fair value of €45 million (\$53 million), which resulted in a loss of €51 million (\$61 million) recorded in loss from discontinued operations, net of tax. As of March 31, 2022, there has been no change to this fair value, and the receivable is included in other long-term assets in our consolidated balance sheet as of March 31, 2022. There is no assurance as to when we expect the post-closing arbitration process to conclude or whether we will receive any of the contingent consideration.

As of March 31, 2022, certain assets and liabilities of Duffel remain within current assets of discontinued operations and current liabilities of discontinued operations on our consolidated balance sheets, which pertain to certain accounts receivable and accounts payable balances remaining to be settled.

Lewisport

On November 8, 2020, we entered into a definitive agreement with American Industrial Partners for the sale of Lewisport and closed the sale on November 30, 2020. Upon closing, we received \$180 million in cash proceeds. In addition, we received \$19 million for net working capital adjustments during the third quarter of fiscal 2022.

For fiscal 2021, the results of operations of Lewisport were presented within loss from discontinued operations, net of tax in the consolidated statement of operations and cash flows of Lewisport were presented as discontinued operations in the consolidated statements of cash flows.

Loss on Sale of Discontinued Operations

As a result of the transactions above, for fiscal 2021 we recorded a loss on sale of discontinued operations of \$170 million, net of taxes, associated with the sales of Duffel and Lewisport. Cash flows from the sales of Duffel and Lewisport are included in the consolidated statements of cash flows for fiscal 2021 as net cash provided by investing activities - discontinued operations. An offsetting \$46 million in net cash provided by investing activities - discontinued operations for fiscal 2021 relates primarily to capital expenditures and outflows from the sale of derivative instruments for Duffel and Lewisport during the period prior to their divestiture.

Novelis Inc.
NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS

4. RESTRUCTURING AND IMPAIRMENT

Restructuring and impairment, net includes restructuring costs, impairments, and other related expenses or reversal of expenses. As of March 31, 2022, \$6 million of restructuring liability is included in accrued expenses and other current liabilities, while the remainder is within other long-term liabilities in our accompanying consolidated balance sheet.

<i>in millions</i>	North America	Europe	Asia	South America	Other Operations	Total
Restructuring liability balance as of March 31, 2019	\$ 1	\$ 3	\$ —	\$ 13	\$ —	\$ 17
Restructuring and impairment expenses, net ⁽¹⁾	5	33	2	3	—	43
Cash payments	—	(4)	—	(1)	—	(5)
Foreign currency and other ⁽²⁾	(5)	(11)	(2)	(3)	—	(21)
Restructuring liability balance as of March 31, 2020	\$ 1	\$ 21	\$ —	\$ 12	\$ —	\$ 34
Restructuring and impairment expenses, net ⁽³⁾	6	14	—	1	8	29
Cash payments	(3)	(17)	—	(3)	(5)	(28)
Foreign currency and other ⁽²⁾	(1)	1	—	(1)	—	(1)
Restructuring liability balance as of March 31, 2021	\$ 3	\$ 19	\$ —	\$ 9	\$ 3	\$ 34
Restructuring and impairment expenses (reversal), net ⁽⁴⁾	2	(5)	2	2	—	1
Cash payments	(3)	(11)	(1)	(3)	(3)	(21)
Foreign currency and other	—	—	—	(1)	—	(1)
Restructuring liability balance as of March 31, 2022	\$ 2	\$ 3	\$ 1	\$ 7	\$ —	\$ 13

(1) Restructuring and impairment expenses, net for fiscal 2020 primarily relates to the closure of certain non-core operations in Europe, impairment charges on intangible software assets and certain long-lived assets unrelated to restructuring activities in North America and Asia, and the closure of smelter facilities in South America.

(2) Foreign currency and other includes the impact of foreign currency on our restructuring liability as well as the removal of other non-cash expenses recorded and included within restructuring and impairment expenses, net in the table above that are not recorded through the restructuring liability. For fiscal 2021 and fiscal 2020 impairment charges and other non-cash expenses included in restructuring and expenses, net were \$1 million and \$18 million, respectively.

(3) Restructuring and impairment expenses, net for fiscal 2021 primarily relates to the reorganization and right sizing of the acquired Aleris business.

(4) Restructuring and impairment expenses (reversal), net for fiscal 2022 primarily relates to reorganization activities resulting from the Aleris acquisition, mostly offset by a partial release of certain restructuring liabilities as a result of changes in estimated costs.

Novelis Inc.
NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS

5. ACCOUNTS RECEIVABLE

Accounts receivable, net consists of the following.

<i>in millions</i>	March 31,	
	2022	2021
Trade accounts receivable	\$ 2,339	\$ 1,551
Other accounts receivable	257	141
Accounts receivable — third parties	2,596	1,692
Allowance for credit losses — third parties	(6)	(5)
Accounts receivable, net — third parties	<u>\$ 2,590</u>	<u>\$ 1,687</u>
Accounts receivable, net — related parties	\$ 222	\$ 166

Allowance for Credit Losses

As of March 31, 2022 and 2021, our allowance for credit losses represented approximately 0.2% and 0.3% of gross accounts receivable — third parties, respectively.

Activity in the allowance for credit losses is as follows.

<i>in millions</i>	Balance at Beginning of Period	Additions Charged to Expense	Accounts Recovered/(Written- Off)	Foreign Exchange and Other	Balance at End of Period
Fiscal 2022	\$ 5	\$ 1	\$ —	\$ —	\$ 6
Fiscal 2021	8	—	(3)	—	5
Fiscal 2020	7	3	(1)	(1)	8

Factoring of Trade Receivables

We factor trade receivables based on local cash needs and in an attempt to balance the timing of cash flows of trade payables and receivables. Factored invoices are not included in our consolidated balance sheets when we do not retain a financial or legal interest. If a financial or legal interest is retained, we classify these factorings as secured borrowings.

The following tables summarize amounts relating to our factoring activities.

<i>in millions</i>	Fiscal 2022	Fiscal 2021	Fiscal 2020
Factoring expense ⁽¹⁾	\$ 59	\$ 27	\$ 41

(1) Factoring expense is included within selling, general and administrative expenses in our accompanying statements of operations.

<i>in millions</i>	March 31,	
	2022	2021
Factored receivables outstanding	\$ 751	\$ 444

Novelis Inc.
NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS

6. INVENTORIES

Inventories consists of the following.

<i>in millions</i>	March 31,	
	2022	2021
Finished goods	\$ 677	\$ 455
Work in process	1,511	874
Raw materials	620	407
Supplies	230	192
Inventories	<u>\$ 3,038</u>	<u>\$ 1,928</u>

7. PROPERTY, PLANT AND EQUIPMENT

Property, plant and equipment, net consists of the following.

<i>in millions</i>	March 31,	
	2022	2021
Land and property rights	\$ 205	\$ 202
Buildings	1,864	1,607
Machinery and equipment ⁽¹⁾	5,821	5,390
Gross property, plant and equipment (excluding construction in progress)	7,890	7,199
Accumulated depreciation and amortization	(3,686)	(3,385)
Property, plant and equipment, net (excluding construction in progress)	4,204	3,814
Construction in progress	420	873
Property, plant and equipment, net ⁽²⁾	\$ 4,624	\$ 4,687

(1) In addition to equipment under finance leases, machinery and equipment also includes furniture, fixtures, and equipment.

(2) Included in property, plant and equipment, net are \$30 million and \$22 million of finance leases as of March 31, 2022 and 2021, respectively. This balance of finance leases represents gross finance leases of \$41 million, net of accumulated amortization of \$11 million, and \$33 million, net of accumulated amortization of \$11 million, as of March 31, 2022 and 2021, respectively. Of the \$41 million and \$33 million of gross finance leases as of March 31, 2022 and 2021, \$40 million and \$32 million were included in machinery and equipment, respectively. The remainder is included in buildings.

During fiscal 2022, fiscal 2021, and fiscal 2020, we capitalized \$18 million, \$26 million, and \$14 million of interest related to construction of property, plant and equipment and intangibles under development, respectively.

Depreciation expense related to property, plant and equipment, net is shown in the table below.

<i>in millions</i>	Fiscal 2022	Fiscal 2021	Fiscal 2020
Depreciation expense related to property, plant and equipment, net	\$ 457	\$ 451	\$ 298

Asset impairments

Impairment charges are recorded in restructuring and impairment, net on our consolidated statements of operations. See [Note 4 – Restructuring and Impairment](#) for additional information.

Asset Retirement Obligations

An asset retirement obligation is recognized in the period in which sufficient information exists to determine the fair value of the liability along with a corresponding increase to the carrying amount of the related property, plant and equipment, which is then depreciated over its useful life. As of March 31, 2022, our asset retirement obligations relate to sites, primarily in North America and Europe, that have government imposed or other legal remediation obligations. The following is a summary of our asset retirement obligation activity. The current portion of our asset retirement obligations is included in accrued expenses and other current liabilities in our consolidated balance sheets, while the long-term portion is included in other long-term liabilities. As of March 31, 2022, \$20 million was included in other long-term liabilities.

<i>in millions</i>	Asset Retirement Obligation at Beginning of Period	Obligations Incurred	Acquisition	Foreign Exchange & Other Adjustments	Settlements	Asset Retirement Obligation at End of Period
Fiscal 2022	\$ 25	\$ —	\$ —	\$ —	\$ (4)	\$ 21
Fiscal 2021	24	2	3	(3)	(1)	25
Fiscal 2020	29	—	—	(1)	(4)	24

Novelis Inc.
NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS

8. GOODWILL AND INTANGIBLE ASSETS

A summary of the changes in the carrying value of goodwill for fiscal 2022 and fiscal 2021 follows.

<i>in millions</i>	North America	Europe	Asia	South America	Total
Carrying value of goodwill at March 31, 2020 ⁽¹⁾	\$ 285	\$ 181	\$ —	\$ 141	\$ 607
Acquisition ⁽²⁾	375	53	41	—	469
Foreign currency translation adjustment	—	4	3	—	7
Carrying value of goodwill at March 31, 2021 ⁽¹⁾	660	238	44	141	1,083
Foreign currency translation adjustment	—	(3)	1	—	(2)
Carrying value of goodwill at March 31, 2022 ⁽¹⁾	\$ 660	\$ 235	\$ 45	\$ 141	\$ 1,081

(1) Carrying value of goodwill at March 31, 2022, 2021, and 2020 is net of accumulated impairment of \$860 million for North America, \$330 million for Europe, and \$150 million for South America.

(2) Relates to the goodwill generated through the purchase of Aleris in fiscal 2021.

The components of intangible assets, net are as follows.

<i>in millions</i>	March 31, 2022				March 31, 2021		
	Weighted Average Life	Gross Carrying Amount	Accumulated Amortization	Net Carrying Amount	Gross Carrying Amount	Accumulated Amortization	Net Carrying Amount
Tradenames	18.9 years	\$ 152	\$ (113)	\$ 39	\$ 152	\$ (102)	\$ 50
Technology and software	9.8 years	492	(395)	97	471	(356)	115
Customer-related intangible assets	22.3 years	854	(367)	487	858	(330)	528
Other intangibles	N/A	2	(2)	—	4	(1)	3
	17.8 years	\$ 1,500	\$ (877)	\$ 623	\$ 1,485	\$ (789)	\$ 696

During fiscal 2020, we recorded impairment charges related to certain intangible software assets. In fiscal 2022 and fiscal 2021, we did not record impairment charges on any intangible assets. All intangible assets are amortized using the straight-line method. For additional information refer to [Note 4 – Restructuring and Impairment](#).

Amortization expense related to intangible assets, net is as follows.

<i>in millions</i>	Fiscal 2022	Fiscal 2021	Fiscal 2020
Amortization expense related to intangible assets included in depreciation and amortization	\$ 93	\$ 92	\$ 63

Estimated total amortization expense related to intangible assets, net for each of the five succeeding fiscal years is as follows (in millions). Actual amounts may differ from these estimates due to such factors as customer turnover, raw material consumption patterns, impairments, additional intangible asset acquisitions, or other events.

Fiscal Year Ending March 31,	Amount
2023	\$ 79
2024	63
2025	61
2026	60
2027	60

Novelis Inc.
NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS

9. CONSOLIDATION

Variable Interest Entities

The entity that has a controlling financial interest in a VIE is referred to as the primary beneficiary and consolidates the VIE. An entity is deemed to have a controlling financial interest and is the primary beneficiary of a VIE if it has both the power to direct the activities of the VIE that most significantly impact the VIE's economic performance and an obligation to absorb losses or the right to receive benefits that could potentially be significant to the VIE.

Logan is a consolidated joint venture in which we hold 40% ownership. Our joint venture partner is Tri-Arrows. Logan processes metal received from Novelis and Tri-Arrows and charges the respective partner a fee to cover expenses. Logan is a thinly capitalized VIE that relies on the regular reimbursement of costs and expenses from Novelis and Tri-Arrows to fund its operations. Novelis is considered the primary beneficiary and consolidates Logan since it has the power to direct activities that most significantly impact Logan's economic performance, an obligation to absorb expected losses, and the right to receive benefits that could potentially be significant to the VIE.

Other than the contractually required reimbursements, we do not provide additional material support to Logan. Logan's creditors do not have recourse to our general credit. There are significant other assets used in the operations of Logan that are not part of the joint venture, as they are directly owned and consolidated by Novelis or Tri-Arrows.

The following table summarizes the carrying value and classification of assets and liabilities owned by the Logan joint venture and consolidated in our consolidated balance sheets.

<i>in millions</i>	March 31,	
	2022	2021
ASSETS		
Current assets:		
Cash and cash equivalents	\$ 3	\$ 5
Accounts receivable, net	50	69
Inventories	115	81
Prepaid expenses and other current assets	8	4
Total current assets	176	159
Property, plant and equipment, net	22	19
Goodwill	12	12
Deferred income tax assets	41	57
Other long-term assets	6	8
Total assets	<u>\$ 257</u>	<u>\$ 255</u>
LIABILITIES		
Current liabilities:		
Accounts payable	\$ 53	\$ 38
Accrued expenses and other current liabilities	28	26
Total current liabilities	81	64
Accrued postretirement benefits	153	214
Other long-term liabilities	2	5
Total liabilities	<u>\$ 236</u>	<u>\$ 283</u>

10. INVESTMENT IN AND ADVANCES TO NON-CONSOLIDATED AFFILIATES AND RELATED PARTY TRANSACTIONS

Included in the accompanying consolidated financial statements are transactions and balances arising from business we conducted with our equity method non-consolidated affiliates.

Alunorf

Alunorf is a joint venture investment between Novelis Deutschland GmbH, a subsidiary of Novelis, and Speira GmbH. Each of the parties to the joint venture holds a 50% interest in the equity, profits and losses, shareholder voting, management control, and rights to use the production capacity of the facility. Alunorf tolls aluminum and charges the respective partner a fee to cover the associated expenses.

UAL

UAL is a joint venture investment between Novelis Korea Ltd., a subsidiary of Novelis, and Kobe. UAL is a thinly capitalized VIE that relies on the regular reimbursement of costs and expenses from Novelis and Kobe. UAL is controlled by an equally represented Board of Directors in which neither entity has sole decision-making ability regarding production operations or other significant decisions. Furthermore, neither entity has the ability to take the majority share of production or associated costs over the life of the joint venture. Our risk of loss is limited to the carrying value of our investment in and inventory-related receivables from UAL. UAL's creditors do not have recourse to our general credit. Therefore, UAL is accounted for as an equity method investment, and Novelis is not considered the primary beneficiary. UAL currently produces flat-rolled aluminum products exclusively for Novelis and Kobe. As of March 31, 2022, Novelis and Kobe both hold 50% interests in UAL.

AluInfra

AluInfra is a joint venture investment between Novelis Switzerland SA, a subsidiary of Novelis, and Constellium SE. Each of the parties to the joint venture holds a 50% interest in the equity, profits and losses, shareholder voting, management control, and rights to use the facility.

The following table summarizes the assets, liabilities, and equity of our equity method non-consolidated affiliates in the aggregate as of March 31, 2022 and 2021.

<i>in millions</i>	March 31,	
	2022	2021
ASSETS		
Current assets	\$ 658	\$ 476
Non-current assets	815	862
Total assets	<u>\$ 1,473</u>	<u>\$ 1,338</u>
LIABILITIES		
Current liabilities	\$ 417	\$ 283
Non-current liabilities	370	389
Total liabilities	<u>\$ 787</u>	<u>\$ 672</u>
EQUITY		
Total equity	<u>\$ 686</u>	<u>\$ 666</u>
Total liabilities and equity	<u>\$ 1,473</u>	<u>\$ 1,338</u>

As of March 31, 2022, the investment in Alunorf exceeded our proportionate share of the net assets by \$427 million. The difference is primarily related to the unamortized fair value adjustments that are included in our investment balance as a result of the acquisition of Novelis by Hindalco in 2007.

As of March 31, 2022, the investment in UAL exceeded our proportionate share of the net assets by \$46 million. The difference primarily relates to goodwill.

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The following table summarizes the results of operations of our equity method non-consolidated affiliates in the aggregate for fiscal 2022, fiscal 2021, and fiscal 2020 as well as the nature and amounts of significant transactions that we had with our non-consolidated affiliates. The amounts in the table below are disclosed at 100% of the operating results of these affiliates.

<i>in millions</i>	Fiscal 2022	Fiscal 2021	Fiscal 2020
Net sales	\$ 1,755	\$ 1,216	\$ 1,178
Costs and expenses related to net sales	1,691	1,191	1,160
Income tax provision	18	7	5
Net income	<u>\$ 46</u>	<u>\$ 18</u>	<u>\$ 13</u>
Purchase of tolling services from Alunorf	\$ 312	\$ 251	\$ 243

Related Party Transactions

Included in the accompanying consolidated financial statements are transactions and balances arising from business we conduct with our non-consolidated affiliates and our indirect parent company, Hindalco.

The following table describes related party balances in the accompanying consolidated balance sheets. We had no other material related party balances with non-consolidated affiliates.

<i>in millions</i>	March 31,	
	2022	2021
Accounts receivable, net — related parties	\$ 222	\$ 166
Other long-term assets — related parties	1	1
Accounts payable — related parties	320	230

Transactions with Hindalco

We occasionally have related party transactions with Hindalco. During fiscal 2022, fiscal 2021, and fiscal 2020, we recorded net sales of less than \$1 million between Novelis and Hindalco, which primarily related to certain services and sales of equipment. As of March 31, 2022 and 2021, there were \$1 million and \$2 million of accounts receivable, net — related parties net of accounts payable — related parties related to transactions with Hindalco, respectively. During fiscal 2022 and fiscal 2021, Novelis purchased \$2 million in raw materials from Hindalco.

Return of Capital

During fiscal 2022, we paid a return of capital to our common shareholder in the amount of \$100 million. No such payments were made during fiscal 2021 or fiscal 2020.

Novelis Inc.
NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS

11. LEASES

We lease certain land, buildings, and equipment under non-cancelable operating lease arrangements and certain equipment and office space under finance lease arrangements. We used the following policies and/or assumptions in evaluating our lease population.

- Lease determination: Novelis considers a contract to be or to contain a lease if the contract conveys the right to control the use of identified property, plant, or equipment (an identified asset) for a period of time in exchange for consideration.
- Discount rate: When our lease contracts do not provide a readily determinable implicit rate, we use the estimated incremental borrowing rate based on information available at the inception of the lease. The discount rate is determined by region and asset class.
- Variable payments: Novelis includes payments that are based on an index or rate within the calculation of right-of-use leased assets and lease liabilities, which is initially measured at the lease commencement date. Other variable lease payments include, but are not limited to, maintenance, service, and supply costs. These costs are disclosed as a component of total lease costs.
- Purchase options: Certain leases include options to purchase the leased property. The depreciable life of assets and leasehold improvements are limited by the expected lease term unless there is a transfer of title or purchase option reasonably certain of exercise.
- Renewal options: Most leases include one or more options to renew with renewal terms that can extend the lease term from one or more years. The exercise of lease renewal options is at our sole discretion.
- Residual value guarantees, restrictions, or covenants: Our lease agreements do not contain any material residual value guarantees or material restrictive covenants.
- Short-term leases: Leases with an initial term of 12 months or less are not recorded on the balance sheet. We recognize lease expense for these leases on a straight-line basis over the lease term and expense the associated operating lease costs to selling, general and administrative expenses on the consolidated statements of operations.
- Non-lease components: Leases that contain non-lease components (primarily equipment maintenance) are accounted for as a single component and recorded on the consolidated balance sheets for certain asset classes including real estate and certain equipment. Non-lease components include, but are not limited to, common area maintenance, service arrangements, and supply agreements.

The table below presents the classification of leasing assets and liabilities within our consolidated balance sheets.

<i>in millions</i>	Consolidated Balance Sheet Classification	March 31,	
		2022	2021
ASSETS			
Operating lease right-of-use assets	Other long-term assets	\$ 100	\$ 106
Finance lease assets ⁽¹⁾	Property, plant and equipment, net	30	22
Total lease assets		\$ 130	\$ 128
LIABILITIES			
Current:			
Operating lease liabilities	Accrued expenses and other current liabilities	\$ 23	\$ 25
Finance lease liabilities	Current portion of long-term debt	7	6
Long-term:			
Operating lease liabilities	Other long-term liabilities	58	63
Finance lease liabilities	Long-term debt, net of current portion	23	16
Total lease liabilities		\$ 111	\$ 110

(1) Finance lease assets are recorded net of accumulated depreciation of \$11 million as of March 31, 2022 and March 31, 2021.

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The table below presents the classification of lease related expenses or income as reported within the consolidated statements of operations. Amortization of and interest on liabilities related to finance leases were \$7 million during fiscal 2022 and fiscal 2021.

<i>in millions</i>	Income Statement Classification	Fiscal 2022	Fiscal 2021	Fiscal 2020
Operating lease costs ⁽¹⁾	Selling, general and administrative expenses	\$ 57	\$ 57	\$ 51

(1) Operating lease costs include short-term leases and variable lease costs.

Future minimum lease payments as of March 31, 2022, for our operating and finance leases having an initial or remaining non-cancelable lease term in excess of one year are as follows (in millions).

Fiscal Year Ending March 31,	Operating leases ⁽¹⁾	Finance leases ⁽²⁾
2023	\$ 24	\$ 8
2024	20	15
2025	15	4
2026	9	2
2027	6	1
Thereafter	16	1
Total minimum lease payments	90	31
Less: interest	9	1
Present value of lease liabilities	\$ 81	\$ 30

(1) Operating lease payments related to options to extend lease terms that are reasonably certain of being exercised are immaterial as of March 31, 2022. As of March 31, 2022, there were \$47 million of undiscounted future minimum lease payments excluded from above related to an operating lease signed but not yet commenced. This new lease is intended to replace our current global headquarters in Atlanta, Georgia. We expect the lease to commence in fiscal 2023.

(2) Finance lease payments related to options to extend lease terms that are reasonably certain of being exercised are immaterial, and we do not have leases signed but not yet commenced as of March 31, 2022.

The following table presents the weighted-average remaining lease term and discount rates.

	March 31,	
	2022	2021
Weighted-average remaining lease term		
Operating leases	6.0 years	6.1 years
Finance leases	2.9 years	4.7 years
Weighted-average discount rate		
Operating leases	3.71 %	3.70 %
Finance leases	2.19 %	2.37 %

The following table presents supplemental information on our leases for fiscal 2022, fiscal 2021, and fiscal 2020.

<i>in millions</i>	Fiscal 2022	Fiscal 2021	Fiscal 2020
Cash paid for amounts included in the measurement of lease liabilities			
Operating cash flows from operating leases	\$ 59	\$ 66	\$ 64
Financing cash flows from finance leases	5	7	—
Leased assets obtained in exchange for new finance lease liabilities ⁽¹⁾	16	17	1
Leased assets obtained in exchange for new operating lease liabilities ⁽²⁾	16	21	13

(1) For fiscal 2021, we excluded \$7 million of finance lease asset additions that were obtained through the acquisition of Aleris.

(2) For fiscal 2021, we excluded \$22 million of operating lease right-of-use asset additions that were obtained through the acquisition of Aleris.

Novelis Inc.
NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS

12. ACCRUED EXPENSES AND OTHER CURRENT LIABILITIES

Accrued expenses and other current liabilities consists of the following.

<i>in millions</i>	March 31,	
	2022	2021
Accrued compensation and benefits	\$ 251	\$ 255
Accrued interest payable	43	48
Accrued income taxes	67	70
Other current liabilities	413	297
Accrued expenses and other current liabilities	<u>\$ 774</u>	<u>\$ 670</u>

Novelis Inc.
NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS

13. DEBT

Debt consists of the following.

<i>in millions</i>	Interest Rates ⁽¹⁾	March 31, 2022			March 31, 2021		
		Principal	Unamortized Carrying Value Adjustments ⁽²⁾	Carrying Value	Principal	Unamortized Carrying Value Adjustments ⁽²⁾	Carrying Value
Short-term borrowings	1.66 %	\$ 529	\$ —	\$ 529	\$ 236	\$ —	\$ 236
Floating rate Term Loans, due June 2022		—	—	—	648	(5)	643
Floating rate Term Loans, due January 2025	2.76 %	760	(11)	749	767	(15)	752
Floating rate Term Loans, due March 2028	3.01 %	495	(8)	487	480	(9)	471
Zhenjiang Term Loans, due May 2024		—	—	—	124	2	126
5.875% Senior Notes, due September 2026		—	—	—	1,500	(13)	1,487
3.250% Senior Notes, due November 2026	3.250 %	750	(10)	740	—	—	—
3.375% Senior Notes, due April 2029	3.375 %	556	(10)	546	588	(13)	575
4.750% Senior Notes, due January 2030	4.75 %	1,600	(25)	1,575	1,600	(28)	1,572
3.875% Senior Notes, due August 2031	3.875 %	750	(10)	740	—	—	—
4.90% China Bank Loans, due August 2027	4.90 %	76	—	76	76	—	76
1.80% Brazil Loan, due June 2023	1.80 %	30	—	30	—	—	—
1.80% Brazil Loan, due December 2023	1.80 %	20	—	20	—	—	—
Finance lease obligations and other debt, due through June 2028 ⁽³⁾	2.22 %	30	—	30	22	—	22
Total debt		\$ 5,596	\$ (74)	\$ 5,522	\$ 6,041	\$ (81)	\$ 5,960
Less: Short-term borrowings		(529)	—	(529)	(236)	—	(236)
Current portion of long-term debt		(26)	—	(26)	(71)	—	(71)
Long-term debt, net of current portion		\$ 5,041	\$ (74)	\$ 4,967	\$ 5,734	\$ (81)	\$ 5,653

(1) Interest rates are the stated rates of interest on the debt instrument (not the effective interest rate) as of March 31, 2022, and therefore exclude the effects of accretion and amortization of debt issuance costs related to refinancing transactions and additional borrowings. We present stated rates of interest because they reflect the rate at which cash will be paid for future debt service.

(2) Amounts include unamortized debt issuance costs, fair value adjustments, and debt discounts.

(3) See [Note 11 – Leases](#) for more information.

Principal repayment requirements for our total debt over the next five years and thereafter using exchange rates as of March 31, 2022 for our debt denominated in foreign currencies are as follows (in millions).

<i>As of March 31, 2022</i>	Amount
Short-term borrowings and current portion of long-term debt due within one year	\$ 555
2 years	87
3 years	766
4 years	23
5 years	777
Thereafter	3,388
Total debt	\$ 5,596

Short-Term Borrowings

As of March 31, 2022, our short-term borrowings totaled \$529 million, consisting of \$313 million under our short-term loan entered into in January 2022, \$101 million in short-term China loans (CNY 640 million), \$100 million in Brazil loans, and \$15 million of borrowings on our ABL Revolver.

Novelis Inc.
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In January 2022, we entered into a \$315 million short-term loan with Axis Bank Limited, IFSC Banking Unit, Gift City, as administrative agent and lender. The proceeds of the short-term loan were applied to voluntarily prepay the 2017 Term Loans, as defined below. The short-term loan matures on November 30, 2022, is subject to 0.25% quarterly amortization payments, and accrues interest at SOFR plus 0.90%. The short-term loan is unsecured and guaranteed by certain of the Company's direct and indirect U.S. and Canadian subsidiaries, and the agreement contains voluntary prepayment provisions, affirmative and negative covenants, and events of default substantially similar to those under our Term Loan Facility, other than changes to reflect the unsecured nature of the short-term loan.

Senior Secured Credit Facilities

As of March 31, 2022, the senior secured credit facilities consisted of (i) a secured term loan credit facility ("Term Loan Facility") and (ii) a \$1.5 billion asset based loan facility ("ABL Revolver"). The senior secured credit facilities contain various affirmative covenants, including covenants with respect to our financial statements, litigation and other reporting requirements, insurance, payment of taxes, employee benefits, and (subject to certain limitations) causing new subsidiaries to pledge collateral and guaranty our obligations. The senior secured credit facilities also include various customary negative covenants and events of default, including limitations on our ability to incur additional indebtedness; sell certain assets; enter into sale and leaseback transactions; make investments, loans, and advances; pay dividends or returns of capital and distributions beyond certain amounts; engage in mergers, amalgamations, or consolidations; engage in certain transactions with affiliates; and prepay certain indebtedness. The Term Loan Facility also contains a financial maintenance covenant that prohibits Novelis' senior secured net leverage ratio as of the last day of each fiscal quarter period as measured on a rolling four quarter basis from exceeding 3.50 to 1.00, subject to customary equity cure rights. The senior secured credit facilities include a cross-default provision under which lenders could accelerate repayment of the loans if a payment or non-payment default arises under any other indebtedness with an aggregate principal amount of more than \$100 million (or, in the case of the Term Loan Facility, under the ABL Revolver regardless of the amount outstanding). The senior secured credit facilities are guaranteed by the Company's direct parent, AV Metals Inc., and certain of the Company's direct and indirect subsidiaries and are secured by a pledge of substantially all of the assets of the Company and the guarantors.

Term Loan Facility

The Term Loan Facility requires customary mandatory prepayments with excess cash flow, other asset sale proceeds, casualty event proceeds, and proceeds of prohibited indebtedness, all subject to customary reinvestment rights and exceptions. The loans under the Term Loan Facility may be prepaid, in full or in part, at any time at Novelis' election without penalty or premium. The Term Loan Facility allows for additional term loans to be issued in an amount not to exceed \$300 million (or its equivalent in other currencies) plus an unlimited amount if, after giving effect to such incurrences on a pro forma basis, the secured net leverage ratio does not exceed 3.00 to 1.00. The Term Loan Facility also allows for additional term loans to be issued in an amount to refinance loans outstanding under the Term Loan Facility. The lenders under the Term Loan Facility have not committed to provide any such additional term loans.

As of March 31, 2022, we were in compliance with the covenants for our Term Loan Facility.

2017 Term Loans

In January 2017, we borrowed \$1.8 billion of term loans due June 2022 (the "2017 Term Loans") under our Term Loan Facility.

During fiscal 2021, we made in \$1.1 billion in principal payments beyond our scheduled quarterly amortization payments on our 2017 Term Loans using the proceeds from the issuance of the 2021 Term Loans and the 2029 Senior Notes, as defined below.

During fiscal 2022, we made \$615 million in principal payments beyond our scheduled quarterly amortization payments on our 2017 Term Loans, a portion of which was paid using cash on hand, the proceeds of our short-term loan due November 30, 2022 we entered into in January 2022, and the April 2021 proceeds from our 2021 Term Loans, as defined below.

As of March 31, 2022, the 2017 Term Loans have been fully repaid.

2020 Term Loans

In April 2020, we borrowed \$775 million of term loans due January 2025 (the "2020 Term Loans") under our Term Loan Facility. The proceeds of the 2020 Term Loans were used to pay a portion of the consideration payable in the acquisition of Aleris (including the repayment of Aleris' outstanding indebtedness) as well as fees and expenses related to the acquisition of the 2020 Term Loans. The 2020 Term Loans mature on January 21, 2025 and are subject to 0.25% quarterly amortization payments. The 2020 Term Loans accrue interest at LIBOR plus 1.75%. We incurred debt issuance costs of \$15 million for the 2020 Term Loans, which will be amortized as an increase to interest expense and amortization of debt issuance costs over the term of the loan.

Novelis Inc.
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2021 Term Loans

In March 2021, we borrowed \$480 million of term loans due March 2028 (the "2021 Term Loans") under our Term Loan Facility, with an additional \$20 million being borrowed under the 2021 Term Loans in April 2021. The 2021 Term Loans mature on March 31, 2028 and are subject to 0.25% quarterly amortization payments. The 2021 Term Loans accrue interest at LIBOR plus 2.00%. The proceeds of the 2021 Term Loans were applied to repay a portion of the 2017 Term Loans. We incurred debt issuance costs of \$9 million for the 2021 Term Loans, which will be amortized as an increase to interest expense and amortization of debt issuance costs over the term of the loan.

ABL Revolver

As of March 31, 2022, the commitments under our senior secured ABL Revolver are \$1.5 billion.

In October 2021, we entered into an amendment to our existing ABL Revolver. Prior to the USD LIBOR transition date, loans denominated in USD under the ABL Revolver will continue to bear interest at a rate of LIBOR plus a spread of 1.25% to 1.75% based on excess availability. The amendment provides that on and after the USD LIBOR transition date, loans denominated in USD will bear interest at a rate of the applicable replacement reference plus a spread of 1.25% to 1.75% as adjusted under the terms of the ABL Revolver based on excess availability. In the case of USD loans accruing interest at Term SOFR, the margin adjustment is 0.11 for a one-month interest period, .026 for a three month interest period, and 0.43 for a six month interest period. Thus, the applicable interest rate for a one-month interest period would be Term SOFR plus a spread of approximately 1.36% to 1.86% depending on availability. The USD LIBOR transition date is defined as the earlier of (a) when the ICE Benchmark Administration ceases to provide the USD LIBOR and there is no available tenor of USD LIBOR or the Financial Conduct Authority announces all available tenors of USD LIBOR are no longer representative or (b) an early opt-in effective date. The ABL Revolver also permits us to elect to borrow USD loans that accrue interest at a base rate (determined based on the greater of a prime rate or an adjusted federal funds rate) plus a prime spread of .25% to .75% based on excess availability. The amendment also provides for replacement reference rates for loans denominated in euros, British pounds, and Swiss francs upon the transition event applicable to each such currency.

The ABL Revolver has a provision that allows the ABL Revolver to be increased by an additional \$750 million, subject to lenders providing commitments for the increase. The ABL Revolver has various customary covenants including maintaining a specified minimum fixed charge coverage ratio of 1.25 to 1 if excess availability is less than the greater of (1) \$115 million and (2) 10% of the lesser of the total ABL Revolver commitment and the borrowing base. The ABL Revolver matures on April 15, 2024, provided that in the event that the Term Loan Facility or certain other indebtedness is outstanding 90 days prior to its maturity (and not refinanced with a maturity date later than October 15, 2024), then the ABL Revolver will mature 90 days prior to the maturity date for such other indebtedness, as applicable; unless excess availability under the ABL Revolver is at least (1) 20% of the lesser of the total ABL Revolver commitment and the borrowing base or (2) 15% of the lesser of the total ABL Revolver commitment and the borrowing base, while also maintaining the minimum fixed charge ratio test of at least 1.25 to 1.

As of March 31, 2022, we were in compliance with the covenants for our ABL Revolver.

As of March 31, 2022, we had \$15 million in borrowings under our ABL Revolver. We utilized \$158 million of our ABL Revolver for letters of credit. We had availability of \$1.3 billion on the ABL Revolver, including \$17 million of remaining availability which can be utilized for letters of credit.

Zhenjiang Loans

Through the Aleris acquisition, the Company assumed \$141 million in debt borrowed by Aleris Aluminum (Zhenjiang) Co., Ltd. under a loan agreement comprised of non-recourse multi-currency secured term loan facilities and a revolving facility (collectively the "Zhenjiang Loans"), which consisted of a \$29 million USD term loan facility, a \$112 million (RMB 791 million) term loan facility (collectively, the "Zhenjiang Term Loans"), and a revolving facility (the "Zhenjiang Revolver"). There were no balances outstanding under the Zhenjiang Revolver as of the date of the Aleris acquisition.

In May 2021, the Zhenjiang Term Loans were repaid in full, and the Zhenjiang Revolver matured having had no borrowings since the Aleris acquisition. As such, the covenants under the agreement are no longer in effect.

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Senior Notes

The Senior Notes are guaranteed, jointly and severally, on a senior unsecured basis, by Novelis Inc. and certain of its subsidiaries. The Senior Notes contain customary covenants and events of default that will limit our ability and, in certain instances, the ability of certain of our subsidiaries to incur additional debt and provide additional guarantees; pay dividends or return capital beyond certain amounts and make other restricted payments; create or permit certain liens; make certain asset sales; use the proceeds from the sales of assets and subsidiary stock; create or permit restrictions on the ability of certain of Novelis' subsidiaries to pay dividends or make other distributions to Novelis or certain of Novelis' subsidiaries, as applicable; engage in certain transactions with affiliates; enter into sale and leaseback transactions; designate subsidiaries as unrestricted subsidiaries; and consolidate, merge or transfer all or substantially all of our assets and the assets of certain of our subsidiaries. During any future period in which either Standard & Poor's Ratings Group, Inc. or Moody's Investors Service, Inc. have assigned an investment grade credit rating to the Senior Notes and no default or event of default under the indenture has occurred and is continuing, certain of the covenants will be suspended. The Senior Notes include customary events of default, including a cross-acceleration event of default. The Senior Notes also contain customary call protection provisions for our bondholders that extend through November 2023 for the 3.250% Senior Notes due November 2026, through April 2024 for the 3.375% Senior Notes due April 2029, through January 2025 for the 4.750% Senior Notes due January 2030, and through August 2026 for the 3.875% Senior Notes due August 2031.

As of March 31, 2022, we were in compliance with the covenants for our Senior Notes.

5.875% Senior Notes due September 2026

In September 2016, Novelis Corporation, an indirect wholly owned subsidiary of Novelis Inc., issued \$1.5 billion in aggregate principal amount of 5.875% Senior Notes due September 2026.

The proceeds from the August 2021 issuance of the 2026 Senior Notes and the 2031 Senior Notes, as defined below, were used to fully fund the redemption of the 5.875% Senior Notes due September 2026. As a result, the 5.875% Senior Notes due September 2026 were no longer outstanding as of March 31, 2022.

2026 Senior Notes

In August 2021, Novelis Corporation, an indirect wholly owned subsidiary of Novelis Inc., issued \$750 million in aggregate principal amount of 3.250% Senior Notes due November 2026 (the "2026 Senior Notes"). The 2026 Senior Notes mature on November 15, 2026 and are subject to semi-annual interest payments that will accrue at a rate of 3.250% per year. The net proceeds of the offering, together with cash on hand, were used to (i) fund the redemption of a portion of the 5.875% Senior Notes due September 2026, plus the redemption premium and accrued and unpaid interest thereon and (ii) pay certain fees and expenses in connection with the foregoing and the offering of the notes. We incurred debt issuance costs of \$11 million for the 2026 Senior Notes, which will be amortized as an increase to interest expense and amortization of debt issuance costs over the term of the note.

2029 Senior Notes

In March 2021, Novelis Sheet Ingot GmbH, an indirect wholly owned subsidiary of Novelis Inc., organized under the laws of Ireland, issued €500 million in aggregate principal amount of 3.375% Senior Notes due April 2029 (the "2029 Senior Notes"). The 2029 Senior Notes are subject to semi-annual interest payments and mature on April 15, 2029. The proceeds were used to pay down a portion of the 2017 Term Loans, plus accrued and unpaid interest. In addition, we intend to allocate an amount equal to the net proceeds received from this issuance to finance and/or refinance new and/or existing eligible green projects, which are currently contemplated to consist of renewable energy or pollution prevention and control type projects. We incurred debt issuance costs of \$13 million for the 2029 Senior Notes, which will be amortized as an increase to interest expense and amortization of debt issuance costs over the term of the note.

2030 Senior Notes

In January 2020, Novelis Corporation, an indirect wholly owned subsidiary of Novelis Inc., issued \$1.6 billion in aggregate principal amount of 4.750% Senior Notes due January 2030 (the "2030 Senior Notes"). The 2030 Senior Notes are subject to semi-annual interest payments and mature on January 30, 2030.

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2031 Senior Notes

In August 2021, Novelis Corporation, an indirect wholly owned subsidiary of Novelis Inc., issued \$750 million in aggregate principal amount of 3.875% Senior Notes due August 2031 (the "2031 Senior Notes"). The 2031 Senior Notes mature on August 15, 2031 and are subject to semi-annual interest payments that will accrue at a rate of 3.875% per year. The net proceeds of the offering, together with cash on hand, were used to (i) fund the redemption a portion of the 5.875% Senior Notes due September 2026, plus the redemption premium and accrued and unpaid interest thereon and (ii) pay certain fees and expenses in connection with the foregoing and the offering of the notes. We incurred debt issuance costs of \$11 million for the 2031 Senior Notes, which will be amortized as an increase to interest expense and amortization of debt issuance costs over the term of the note.

China Bank Loans

In September 2019, we entered into a credit agreement with the Bank of China to provide up to CNY 500 million in unsecured loans to support certain capital expansion projects in China. As of March 31, 2022, we had \$76 million (CNY 480 million) of borrowings on our China bank loans.

Brazil Loans

In December 2021, we borrowed \$30 million and \$20 million of bank loans in Brazil due June 16, 2023 and December 15, 2023, respectively. These bank loans are subject to 1.80% interest due in full at the respective maturity date.

Loss on Extinguishment of Debt, Net

During fiscal 2020, we incurred \$71 million in loss on extinguishment of debt, net primarily related to the write-off of unamortized debt issuance costs and a cash payment of a redemption premium for the redemption of our 6.25% Senior Notes due August 2024, as well as the expiration of certain amendments under our Term Loan Facility and our short term credit agreement.

During fiscal 2021, we recorded \$14 million in loss on extinguishment of debt, net, primarily related to the partial repayment of our 2017 Term Loans during fiscal 2021 and the early repayment of certain short-term debt.

During fiscal 2022, we recorded \$64 million in loss on extinguishment of debt, net. This primarily relates to the write-off of unamortized debt issuance costs of \$13 million and a \$51 million cash payment of a redemption premium for the redemption of our 5.875% Senior Notes, due September 2026. Additionally, a loss on extinguishment of debt of \$2 million was recorded as a result of the repayment of our 2017 Term Loans, which was offset by a gain on extinguishment of debt of \$2 million resulting from the repayment of the Zhenjiang Term Loans.

14. SHARE-BASED COMPENSATION

The Company's board of directors has authorized long-term incentive plans, under which Hindalco SARs, Novelis SARs, phantom RSUs, and Novelis PUs are granted to certain executive officers and key employees.

The Hindalco SARs vest at the rate of 33% per year, subject to the achievement of an annual performance target. Fiscal years ended March 31, 2016 SARs expire in May of the seventh year from the original grant date, while the fiscal year ended March 31, 2017 and onwards SARs expire seven years from their original grant date. The performance criterion for vesting of the Hindalco SARs is based on the actual overall Novelis operating EBITDA compared to the target established and approved each fiscal year. The minimum threshold for vesting each year is 75% of each annual target operating EBITDA. Given that the performance criterion is based on an earnings target in a future period for each fiscal year, the grant date of the awards for accounting purposes is generally not established until the performance criterion has been defined.

Each Hindalco SAR is to be settled in cash based on the difference between the market value of one Hindalco share on the date of grant and the market value on the date of exercise. Each Novelis SAR is to be settled in cash based on the difference between the fair value of one Novelis phantom share on the original date of grant and the fair value of a phantom share on the date of the exercise. The amount of cash paid to settle Hindalco SARs and Novelis SARs is limited to three times the target payout, depending on the plan year. The Hindalco SARs and Novelis SARs do not transfer any shareholder rights in Hindalco or Novelis to a participant. The Hindalco SARs and Novelis SARs are classified as liability awards and are remeasured at fair value each reporting period until the SARs are settled.

The RSUs are based on Hindalco's stock price. The RSUs vest either in full three years from the grant date or 33% per year over three years, subject to continued employment with the Company, but are not subject to performance criteria. Each RSU is to be settled in cash equal to the market value of one Hindalco share. The payout on the RSUs is limited to three times the market value of one Hindalco share measured on the original date of grant. The RSUs are classified as liability awards and expensed over the requisite service period (three years) based on the Hindalco stock price as of each balance sheet date.

Total compensation expense related to Hindalco SARs, Novelis SARs, and RSUs under the plans for the respective periods is presented in the table below. These amounts are included in selling, general and administrative expenses in our consolidated statements of operations. As the performance criteria for the fiscal years ending March 31, 2023, 2024, and 2025 have not yet been established, measurement periods for Hindalco SARs relating to those periods have not yet commenced. As a result, only compensation expense for vested and current year Hindalco SARs and Novelis SARs has been recorded.

<i>in millions</i>	Fiscal 2022	Fiscal 2021	Fiscal 2020
Total compensation expense	\$ 40	\$ 41	\$ (1)

The table below shows the RSUs activity for fiscal 2022.

	Number of RSUs	Grant Date Fair Value (in INR)	Aggregate Intrinsic Value (USD in millions)
RSUs outstanding as of March 31, 2021	7,236,419	146.46	\$ 31
Granted	1,787,910	388.30	14
Exercised	(3,343,896)	161.67	17
Forfeited/Cancelled	(266,713)	161.93	—
RSUs outstanding as of March 31, 2022	<u>5,413,720</u>	216.17	33

During fiscal 2021, we granted 5,016,919 RSUs with a grant date fair value of INR 118.34, and the aggregate intrinsic value of RSUs exercised was \$4 million.

During fiscal 2020, we granted 2,685,744 RSUs with a grant date fair value of INR 198.88, and the aggregate intrinsic value of RSUs exercised was \$9 million.

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Total cash payments made to settle RSUs were \$17 million, \$4 million, and \$9 million in fiscal 2022, fiscal 2021, and fiscal 2020, respectively.

As of March 31, 2022, unrecognized compensation expense related to the RSUs was \$10 million, which will be recognized over the remaining weighted average vesting period of 1.4 years.

The table below shows Hindalco SARs activity for fiscal 2022.

	Number of Hindalco SARs	Weighted Average Exercise Price (in INR)	Weighted Average Remaining Contractual Term (in years)	Aggregate Intrinsic Value (USD in millions)
Hindalco SARs outstanding as of March 31, 2021	13,038,526	157.56	5.3	\$ 28
Granted	2,411,503	388.30	6.3	6
Exercised	(6,976,625)	177.03	—	24
Forfeited/Cancelled	(187,780)	177.28	—	—
Hindalco SARs outstanding as of March 31, 2022	<u>8,285,624</u>	207.88	5.2	41
Hindalco SARs exercisable as of March 31, 2022	<u>393,803</u>	164.28	2.7	2

During fiscal 2021, we granted 6,934,923 Hindalco SARs with a grant date fair value of INR 118.11, and the aggregate intrinsic value of Hindalco SARs exercised was \$9 million.

During fiscal 2020, we granted 3,475,995 Hindalco SARs with a grant date fair value of INR 198.88, and the aggregate intrinsic value of Hindalco SARs exercised was \$3 million.

The cash payments made to settle Hindalco SAR liabilities were \$24 million, \$9 million, and \$3 million in fiscal 2022, fiscal 2021, and fiscal 2020, respectively.

As of March 31, 2022, unrecognized compensation expense related to the non-vested Hindalco SARs (assuming all future performance criteria are met) was \$10 million that are expected to be recognized over a weighted average period of 1.3 years.

The table below shows the Novelis SARs activity for fiscal 2022.

	Number of Novelis SARs	Weighted Average Exercise Price (in USD)	Weighted Average Remaining Contractual Term (in years)	Aggregate Intrinsic Value (USD in millions)
Novelis SARs outstanding as of March 31, 2021	10,165	\$ 82.37	1.0	\$ 1
Exercised	(1,660)	83.24	—	—
Forfeited/Cancelled	(4,933)	94.40	—	—
Novelis SARs outstanding as of March 31, 2022	<u>3,572</u>	65.35	0.2	—
Novelis SARs exercisable as of March 31, 2022	<u>3,572</u>	65.35	0.2	—

During fiscal 2021 and fiscal 2020, the aggregate intrinsic value of Novelis SARs exercised was \$1 million.

The cash payments made to settle Novelis SAR liabilities for fiscal 2021 and fiscal 2020 were \$1 million.

The fair value of each unvested Hindalco SAR was estimated using the following assumptions.

	Fiscal 2022	Fiscal 2021	Fiscal 2020
Risk-free interest rate	3.59%-6.58%	3.32%-6.18%	4.73%-6.89%
Dividend yield	0.48 %	0.32 %	1.27 %
Volatility	39%-50%	40%-57%	36%-85%

The fair value of each unvested Novelis SAR was estimated using the following assumptions.

	Fiscal 2022	Fiscal 2021	Fiscal 2020
Risk-free interest rate	0.23%	0.03%-0.08%	—%-0.35%
Dividend yield	— %	— %	— %
Volatility	29%	28%-45%	24%-40%

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The fair value of each unvested Hindalco SAR was based on the difference between the fair value of a long call and a short call option. The fair value of each of these call options was determined using the Monte Carlo Simulation model. We used historical stock price volatility data of Hindalco on the National Stock Exchange of India to determine expected volatility assumptions. The risk-free interest rate is based on Indian treasury yields interpolated for a time period corresponding to the remaining contractual life. The forfeiture rate is estimated based on actual historical forfeitures. The dividend yield is estimated to be the annual dividend of the Hindalco stock over the remaining contractual lives of the Hindalco SARs. The value of each vested Hindalco SAR is remeasured at fair value each reporting period based on the excess of the current stock price over the exercise price, not to exceed the maximum payout as defined by the plans. The fair value of the Hindalco SARs is being recognized over the requisite performance and service period of each tranche, subject to the achievement of any performance criteria.

The fair value of each unvested Novelis SAR was based on the difference between the fair value of a long call and a short call option. The fair value of each of these call options was determined using the Monte Carlo Simulation model. We used the historical volatility of comparable companies to determine expected volatility assumptions. The risk-free interest rate is based on U.S. treasury yields for a time period corresponding to the remaining contractual life. The forfeiture rate is estimated based on actual historical forfeitures of Hindalco SARs. The value of each vested Novelis SAR is remeasured at fair value each reporting period based on the percentage increase in the current Novelis phantom stock price over the exercise price, not to exceed the maximum payout as defined by the plans. The fair value of the Novelis SARs is being recognized over the requisite performance and service period of each tranche, subject to the achievement of any performance criteria.

15. POSTRETIREMENT BENEFIT PLANS

Our pension obligations relate to: (1) funded defined benefit pension plans in the U.S., Canada, Switzerland, and the U.K., (2) funded and unfunded defined benefit pension plans in Germany, (3) unfunded lump sum indemnities payable upon retirement to employees in France and Italy, and (4) partially funded lump sum indemnities in South Korea. Our other postretirement obligations (other benefits, as shown in certain tables below) include unfunded health care and life insurance benefits provided to retired employees in the U.S., Canada, and Brazil. We have combined our domestic (i.e. Canadian Plans) and foreign (i.e. all plans other than Canadian Plans) postretirement benefit plan disclosures because our domestic benefit obligation is not significant as compared to our total benefit obligation, as our foreign benefit obligation is 97% of the total benefit obligation, and the assumptions used to value domestic and foreign plans were not significantly different.

In connection with the acquisition of Aleris, the Company acquired postretirement benefit plans in fiscal 2021 covering certain employees in Europe and the U.S. Upon acquisition, the Company recognized the funded status of the defined benefit plans as an asset or a liability within other long-term assets or other long-term liabilities in the consolidated balance sheet. The plan assets were recognized at fair value. The Company recognizes actuarial gains and losses and prior service costs in the consolidated balance sheet and recognizes changes in these amounts during the year in which changes occur through other comprehensive (loss) income. The Company uses various assumptions when computing amounts relating to its defined benefit pension plan obligations and their associated expenses (including the discount rate and the expected rate of return on plan assets).

During the second quarter of fiscal 2021, Novelis announced the freeze of future benefit accruals under the Novelis Pension Plan and the Terre Haute Pension Plan in the U.S., effective December 31, 2020. Novelis elected to remeasure both plans' plan assets and obligations as of August 31, 2020, which was the nearest calendar month-end date to the announcements of said freezes. A curtailment loss of \$1 million was recorded related to the Terre Haute plan during fiscal 2021.

During the first quarter of fiscal 2022, Novelis announced the freeze of future benefit accruals under the Canada Pension Plan, effective for union participants as of December 31, 2021 and non-union participants as of December 31, 2023. Novelis remeasured the plan's assets and obligations as of April 30, 2021, which was the nearest calendar month-end to the announcement of this freeze. A curtailment gain of \$3 million was recorded related to the Canada Pension Plan during fiscal 2022.

During the second quarter of fiscal 2022, Novelis entered into an agreement to transfer the liabilities associated with a portion of the retirees and beneficiaries of the Canada Novelis Pension Plan to an insurer through a purchase of buy-out annuities. The premium payment was made to the insurer on August 10, 2021. Novelis remeasured the plan's assets and obligations as of July 31, 2021, which was the nearest calendar month-end to the premium payment for this settlement. The insurer took responsibility for the payments to these transferred members effective November 1, 2021. As a result of this transaction, a settlement gain of \$4 million was recorded during fiscal 2022.

Employer Contributions to Plans

For pension plans, our policy is to fund an amount required to provide for contractual benefits attributed to service to-date and amortize unfunded actuarial liabilities typically over periods of 15 years or less. We also participate in savings plans in Canada and the U.S., as well as defined contribution pension plans in the U.S., the U.K., Canada, Germany, Italy, Switzerland, and Brazil.

We contributed the following amounts to all plans.

<i>in millions</i>	Fiscal 2022	Fiscal 2021	Fiscal 2020
Funded pension plans	\$ 49	\$ 72	\$ 52
Unfunded pension plans	17	17	12
Savings and defined contribution pension plans	51	40	33
Total contributions	<u>\$ 117</u>	<u>\$ 129</u>	<u>\$ 97</u>

In fiscal 2021, contributions to funded pension plans of \$5 million and unfunded pension plans of \$1 million are attributable to discontinued operations. During fiscal 2023, we expect to contribute \$20 million to our funded pension plans, \$16 million to our unfunded pension plans, and \$53 million to our savings and defined contribution pension plans.

Benefit Obligations, Fair Value of Plan Assets, Funded Status, and Amounts Recognized in Financial Statements

The increase in the discount rates in fiscal 2022, as compared to fiscal 2021, was the primary driver of actuarial gains in fiscal 2022.

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NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS

The following tables present the change in benefit obligation, change in fair value of plan assets, and the funded status for pension and other benefits.

<i>in millions</i>	Pension Benefit Plans		Other Benefit Plans	
	Fiscal 2022	Fiscal 2021	Fiscal 2022	Fiscal 2021
Benefit obligation at beginning of period	\$ 2,298	\$ 2,054	\$ 188	\$ 176
Service cost	31	42	9	10
Interest cost	56	55	7	7
Members' contributions	5	5	—	—
Benefits paid	(85)	(82)	(6)	(7)
Amendments	(4)	1	(39)	—
Curtailments, settlements and special termination benefits	(51)	(45)	—	—
Actuarial gains	(163)	(8)	(18)	(13)
Other	(3)	189	—	14
Currency (gains) losses	(36)	87	—	1
Benefit obligation at end of period	\$ 2,048	\$ 2,298	\$ 141	\$ 188
Benefit obligation of funded plans	\$ 1,640	\$ 1,819	\$ —	\$ —
Benefit obligation of unfunded plans	408	479	141	188
Benefit obligation at end of period	\$ 2,048	\$ 2,298	\$ 141	\$ 188

<i>in millions</i>	Pension Benefit Plans	
	Fiscal 2022	Fiscal 2021
Change in fair value of plan assets		
Fair value of plan assets at beginning of period	\$ 1,596	\$ 1,298
Actual return on plan assets	11	213
Members' contributions	5	5
Benefits paid	(86)	(82)
Company contributions	66	83
Settlements	(48)	(3)
Other	(4)	28
Currency (losses) gains	(14)	54
Fair value of plan assets at end of period	\$ 1,526	\$ 1,596

<i>in millions</i>	March 31,			
	2022		2021	
	Pension Benefit Plans	Other Benefit Plans	Pension Benefit Plans	Other Benefit Plans
Funded status				
Assets less the benefit obligation of funded plans	\$ (114)	\$ —	\$ (223)	\$ —
Benefit obligation of unfunded plans	(408)	(141)	(479)	(188)
Total net plan liabilities	\$ (522)	\$ (141)	\$ (702)	\$ (188)
As included in our consolidated balance sheets within Total assets / (Total liabilities)				
Other long-term assets	\$ 29	\$ —	\$ 11	\$ —
Accrued expenses and other current liabilities	(16)	(7)	(17)	(8)
Accrued postretirement benefits	(535)	(134)	(696)	(180)
Total net plan liabilities	\$ (522)	\$ (141)	\$ (702)	\$ (188)

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The postretirement amounts recognized in accumulated other comprehensive loss, before tax effects, are presented in the table below and include the impact related to our equity method investments. Amounts are amortized to net periodic benefit cost over the group's average future service life of the employees or the group's average life expectancy.

<i>in millions</i>	March 31,			
	2022		2021	
	Pension Benefit Plans	Other Benefit Plans	Pension Benefit Plans	Other Benefit Plans
Net actuarial (losses) gains	\$ (83)	\$ 23	\$ (223)	\$ 5
Prior service credit	12	42	9	5
Total postretirement amounts recognized in accumulated other comprehensive loss	<u>\$ (71)</u>	<u>\$ 65</u>	<u>\$ (214)</u>	<u>\$ 10</u>

The postretirement changes recognized in accumulated other comprehensive loss, before tax effects, are presented in the table below and include the impact related to our equity method investments.

<i>in millions</i>	March 31,			
	2022		2021	
	Pension Benefit Plans	Other Benefit Plans	Pension Benefit Plans	Other Benefit Plans
Beginning balance in accumulated other comprehensive loss	\$ (214)	\$ 10	\$ (446)	\$ (4)
Curtailments, settlements, and special termination benefits	(7)	—	1	—
Plan amendment	—	39	—	—
Net actuarial gains	118	18	200	13
Prior service cost	4	—	(1)	—
Amortization of:				
Prior service credit	(1)	(2)	(1)	1
Actuarial losses	22	—	49	—
Effect of currency exchange	7	—	(16)	—
Total postretirement amounts recognized in accumulated other comprehensive loss	<u>\$ (71)</u>	<u>\$ 65</u>	<u>\$ (214)</u>	<u>\$ 10</u>

Pension Plan Obligations

The projected benefit obligation, accumulated benefit obligation, and fair value of plan assets are presented in the table below.

<i>in millions</i>	March 31,	
	2022	2021
The projected benefit obligation and accumulated benefit obligation for all defined benefit pension plans:		
Projected benefit obligation	\$ 2,048	\$ 2,298
Accumulated benefit obligation	1,966	2,191
Pension plans with projected benefit obligations in excess of plan assets:		
Projected benefit obligation	\$ 1,603	\$ 2,142
Fair value of plan assets	1,053	1,428
Pension plans with accumulated benefit obligations in excess of plan assets:		
Accumulated benefit obligation	\$ 1,524	\$ 2,048
Fair value of plan assets	1,042	1,427
Pension plans with projected benefit obligations less than plan assets:		
Projected benefit obligation	\$ 444	\$ 156
Fair value of plan assets	473	167

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Future Benefit Payments

Expected benefit payments to be made during the next 10 fiscal years are listed in the table below (in millions).

Fiscal Year Ending March 31,	Pension Benefit Plans	Other Benefit Plans
2023	\$ 96	\$ 8
2024	104	9
2025	103	8
2026	105	9
2027	112	9
2028 through 2032	597	52
Total	\$ 1,117	\$ 95

Components of Net Periodic Benefit Cost

The components of net periodic benefit cost for the respective periods are listed in the table below.

<i>in millions</i>	Pension Benefit Plans			Other Benefit Plans		
	Fiscal 2022	Fiscal 2021	Fiscal 2020	Fiscal 2022	Fiscal 2021	Fiscal 2020
Service cost	\$ 31	\$ 42	\$ 39	\$ 9	\$ 10	\$ 10
Interest cost	56	55	59	7	7	7
Expected return on assets	(77)	(73)	(71)	—	—	—
Amortization — losses, net	19	44	36	—	—	1
Amortization — prior service credit	(1)	(1)	(1)	(2)	—	—
Settlement/curtailment (gain) loss	(7)	1	3	—	—	—
Net periodic benefit cost⁽¹⁾	21	68	65	14	17	18
Proportionate share of non-consolidated affiliates' pension costs	10	12	10	—	—	—
Total net periodic benefit cost recognized	\$ 31	\$ 80	\$ 75	\$ 14	\$ 17	\$ 18

(1) Service cost is included within cost of goods sold (exclusive of depreciation and amortization) and selling, general and administrative expenses while all other cost components are recorded within other (income) expenses, net.

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Actuarial Assumptions and Sensitivity Analysis

The weighted average assumptions used to determine benefit obligations and net periodic benefit cost for the respective periods are listed in the table below.

	Pension Benefit Plans			Other Benefit Plans		
	Fiscal 2022	Fiscal 2021	Fiscal 2020	Fiscal 2022	Fiscal 2021	Fiscal 2020
Weighted average assumptions used to determine benefit obligations						
Discount rate	3.1 %	2.5 %	2.6 %	4.0 %	3.4 %	3.4 %
Average compensation growth	3.1	3.1	3.1	3.0	3.0	3.3
Weighted average assumptions used to determine net periodic benefit cost						
Discount rate	2.5 %	2.6 %	3.0 %	3.4 %	3.4 %	4.0 %
Average compensation growth	3.1	3.1	3.2	3.0	3.3	3.3
Expected return on plan assets	4.9	5.1	5.5	—	—	—
Cash balance interest crediting rate	0.8	0.5	0.6	—	—	—

In selecting the appropriate discount rate for each plan, for pension and other postretirement plans in Canada, the U.S., the U.K., and other eurozone countries, we used spot rate yield curves and individual bond matching models. For other countries, we used published long-term high quality corporate bond indices with adjustments made to the index rates based on the duration of the plans' obligation.

In estimating the expected return on assets of a pension plan, consideration is given primarily to its target allocation, the current yield on long-term bonds in the country where the plan is established, and the historical risk premium of equity or real estate over long-term bond yields in each relevant country. The approach is consistent with the principle that assets with higher risk provide a greater return over the long term. The expected long-term rate of return on plan assets is 4.8% in fiscal 2023.

We provide unfunded health care and life insurance benefits to our retired employees in Canada, the U.S., the U.K., and Brazil, for which we paid \$6 million, \$7 million, and \$7 million in fiscal 2022, 2021, and 2020, respectively. The assumed health care cost trend used for measurement purposes is 6.5% for fiscal 2023, decreasing gradually to 5.0% in 2029 and remaining at that level thereafter.

In addition, we provide post-employment benefits, including disability, early retirement, and continuation of benefits (medical, dental, and life insurance) to our former or inactive employees, which are accounted for on the accrual basis in accordance with ASC 712. As of March 31, 2022, other long-term liabilities and accrued expenses and other current liabilities on our consolidated balance sheets include \$10 million and \$5 million, respectively, for these benefits. Comparatively, as of March 31, 2021, other long-term liabilities and accrued expenses and other current liabilities on our consolidated balance sheets include \$16 million and \$5 million, respectively, for these benefits.

Investment Policy and Asset Allocation

The Company's overall investment strategy is to achieve a mix of approximately 50% of investments for long-term growth (equities, real estate) and 50% for near-term benefit payments (debt securities, other) with a wide diversification of asset categories, investment styles, fund strategies, and fund managers. Since most of the defined benefit plans are closed to new entrants, we expect this strategy to gradually shift more investments toward near-term benefit payments.

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Each of our funded pension plans is governed by an Investment Fiduciary, who establishes an investment policy appropriate for the pension plan. The Investment Fiduciary is responsible for selecting the asset allocation for each plan, monitoring investment managers, monitoring returns versus benchmarks, and monitoring compliance with the investment policy. The targeted allocation ranges by asset class and the actual allocation percentages for each class are listed in the table below.

Asset Category	Target Allocation Ranges	Allocation in Aggregate as of March 31,	
		2022	2021
Equity	10-67%	32 %	37 %
Fixed income	18-89%	49 %	46 %
Real estate	3-25%	3 %	1 %
Other	1-100%	16 %	16 %

Fair Value of Plan Assets

The following pension plan assets are measured and recognized at fair value on a recurring basis. See [Note 19 – Fair Value Measurements](#) for a description of the fair value hierarchy. The U.S. and Canadian pension plan assets are invested exclusively in commingled funds and measured at net asset value, and the U.K., Switzerland, and South Korea pension plan assets are invested in both direct investments (Levels 1 and 2) and commingled funds (Level 2).

Pension Plan Assets

in millions	March 31, 2022				March 31, 2021			
	Level 1	Level 2	Level 3	Total	Level 1	Level 2	Level 3	Total
Fixed income	\$ 112	\$ 57	\$ —	\$ 169	\$ 137	\$ 52	\$ —	\$ 189
Cash and cash equivalents	8	—	—	8	10	—	—	10
Other	5	4	—	9	—	4	—	4
Investments measured at net asset value ⁽¹⁾	—	—	—	1,340	—	—	—	1,393
Total	\$ 125	\$ 61	\$ —	\$ 1,526	\$ 147	\$ 56	\$ —	\$ 1,596

(1) Certain investments that are measured at fair value using the net asset value per share (or its equivalent) practical expedient have not been categorized in the fair value hierarchy. The fair value amounts presented in this table are intended to permit reconciliation of the fair value hierarchy to the amounts presented in the consolidated balance sheets.

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16. CURRENCY LOSSES (GAINS)

The following currency losses are included in other (income) expenses, net in the accompanying consolidated statements of operations.

<i>in millions</i>	Fiscal 2022	Fiscal 2021	Fiscal 2020
Losses (gains) on remeasurement of monetary assets and liabilities, net	\$ 5	\$ 6	\$ (23)
(Gains) losses recognized on balance sheet remeasurement currency exchange contracts, net	(4)	(3)	26
Currency losses, net	<u>\$ 1</u>	<u>\$ 3</u>	<u>\$ 3</u>

The following currency losses are included in accumulated other comprehensive loss and noncontrolling interests in the accompanying consolidated balance sheets.

<i>in millions</i>	Fiscal 2022	Fiscal 2021	Fiscal 2020
Cumulative currency translation adjustment — beginning of period	\$ (95)	\$ (309)	\$ (236)
Effect of changes in exchange rates	(71)	244	(73)
Amounts reclassified from accumulated other comprehensive loss, net ⁽¹⁾	—	(30)	—
Cumulative currency translation adjustment — end of period	<u>\$ (166)</u>	<u>\$ (95)</u>	<u>\$ (309)</u>

(1) Amounts reclassified from accumulated other comprehensive loss during fiscal 2021 are due to the sale of Duffel.

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17. FINANCIAL INSTRUMENTS AND COMMODITY CONTRACTS

The following tables summarize the gross fair values of our financial instruments and commodity contracts as of March 31, 2022 and 2021.

<i>in millions</i>	March 31, 2022				
	Assets		Liabilities		Net Fair Value
	Current	Noncurrent ⁽¹⁾	Current	Noncurrent ⁽¹⁾	Assets/(Liabilities)
Derivatives designated as hedging instruments:					
<i>Cash flow hedges</i>					
Metal contracts	\$ 10	\$ —	\$ (535)	\$ (7)	\$ (532)
Currency exchange contracts	30	8	(28)	(1)	9
Energy contracts	22	6	—	—	28
Total derivatives designated as hedging instruments	\$ 62	\$ 14	\$ (563)	\$ (8)	\$ (495)
Derivatives not designated as hedging instruments:					
Metal contracts	\$ 290	\$ 3	\$ (372)	\$ (2)	\$ (81)
Currency exchange contracts	22	—	(24)	—	(2)
Energy contracts	3	—	—	—	3
Total derivatives not designated as hedging instruments	\$ 315	\$ 3	\$ (396)	\$ (2)	\$ (80)
Total derivative fair value	\$ 377	\$ 17	\$ (959)	\$ (10)	\$ (575)

<i>in millions</i>	March 31, 2021				
	Assets		Liabilities		Net Fair Value
	Current	Noncurrent ⁽¹⁾	Current	Noncurrent ⁽¹⁾	Assets/(Liabilities)
Derivatives designated as hedging instruments:					
<i>Cash flow hedges</i>					
Metal contracts	\$ 4	\$ —	\$ (105)	\$ —	\$ (101)
Currency exchange contracts	6	—	(20)	(4)	(18)
Energy contracts	1	1	(3)	—	(1)
Total derivatives designated as hedging instruments	\$ 11	\$ 1	\$ (128)	\$ (4)	\$ (120)
Derivatives not designated as hedging instruments:					
Metal contracts	\$ 104	\$ 3	\$ (124)	\$ (1)	\$ (18)
Currency exchange contracts	22	—	(28)	—	(6)
Total derivatives not designated as hedging instruments	\$ 126	\$ 3	\$ (152)	\$ (1)	\$ (24)
Total derivative fair value	\$ 137	\$ 4	\$ (280)	\$ (5)	\$ (144)

(1) The noncurrent portions of derivative assets and liabilities are included in other long-term assets and in other long-term liabilities, respectively, in the accompanying consolidated balance sheets.

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Metal

We use derivative instruments to preserve our conversion margins and manage the timing differences associated with metal price lag. We use over-the-counter derivatives indexed to the LME (referred to as our "aluminum derivative forward contracts") to reduce our exposure to fluctuating metal prices associated with the period of time between the pricing of our purchases of inventory and the pricing of the sale of that inventory to our customers, which is known as "metal price lag." We also purchase forward LME aluminum contracts simultaneously with our sales contracts with customers that contain fixed metal prices. These LME aluminum forward contracts directly hedge the economic risk of future metal price fluctuations to better match the selling price of the metal with the purchase price of the metal. The volatility in local market premiums also results in metal price lag.

Price risk arises due to fluctuating aluminum prices between the time the sales order is committed and the time the order is shipped. We identify and designate certain LME aluminum forward purchase contracts as cash flow hedges of the metal price risk associated with our future metal purchases that vary based on changes in the price of aluminum. Generally, such exposures do not extend beyond two years in length. The average duration of undesignated contracts is less than one year.

Price risk exposure arises due to the timing lag between the LME based pricing of raw material aluminum purchases and the LME based pricing of finished product sales. We identify and designate certain LME aluminum forward sales contracts as cash flow hedges of the metal price risk associated with our future metal sales that vary based on changes in the price of aluminum. Generally, such exposures do not extend beyond two years in length. The average duration of undesignated contracts is less than one year.

In addition to aluminum, we entered into LME copper and zinc forward contracts, as well as local market premiums forward contracts. As of March 31, 2022 and March 31, 2021, the fair value of these contracts were an asset of \$4 million and \$7 million, respectively. These contracts are undesignated with an average duration of three years.

The following table summarizes our notional amount.

<i>in kt</i>	March 31,	
	2022	2021
Hedge type		
<i>Purchase (sale)</i>		
Cash flow purchases	6	10
Cash flow sales	(910)	(594)
Not designated	(16)	(44)
Total, net	(920)	(628)

Foreign Currency

We use foreign exchange forward contracts and cross-currency swaps to manage our exposure to changes in exchange rates. These exposures arise from recorded assets and liabilities, firm commitments, and forecasted cash flows denominated in currencies other than the functional currency of certain operations.

We use foreign currency contracts to hedge expected future foreign currency transactions, which include capital expenditures. These contracts cover the same periods as known or expected exposures. We had total notional amounts of \$1.3 billion and \$936 million in outstanding foreign currency forwards designated as cash flow hedges as of March 31, 2022 and 2021, respectively.

As of March 31, 2022 and 2021, we had outstanding foreign currency exchange contracts with a total notional amount of \$1.7 billion and \$1.3 billion, respectively, to primarily hedge balance sheet remeasurement risk, which were not designated as hedges. Contracts representing the majority of this notional amount will mature by the fourth quarter of fiscal 2023 and offset the remeasurement impact.

Energy

During fiscal 2022 we owned an interest in an electricity swap contract to hedge our exposure to fluctuating electricity prices, which matured during the third quarter of fiscal 2022. As of March 31, 2021, less than 1 million of notional megawatt hours were outstanding and the fair value of this swap was a liability of \$2 million. The electricity swap was designated as a cash flow hedge.

We use natural gas forward purchase contracts to manage our exposure to fluctuating energy prices in North America. We had a notional of 10 million MMBtu designated as cash flow hedges as of March 31, 2022, and the fair value was an asset of \$25 million. There was a notional of 13 million MMBtu of natural gas forward purchase contracts designated as cash flow hedges as of March 31, 2021, and the fair value was an asset of less than \$1 million. As of March 31, 2022 and 2021, we had notional of 1 million MMBtu of forward contracts that were not designated as hedges. The fair value of forward contracts not designated as hedges as of March 31, 2022 and 2021 were both an asset of \$2 million and less than \$1 million, respectively. The average duration of undesignated contracts is less than two years in length.

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We use diesel fuel forward purchase contracts to manage our exposure to fluctuating fuel prices in North America and Europe. We had a notional of 4 million gallons designated as cash flow hedges as of March 31, 2022, and the fair value was an asset of \$3 million. There was a notional of 5 million gallons designated as cash flow hedges as of March 31, 2021, and the fair value was an asset of \$1 million. As of March 31, 2022, we had notional of less than 1 million gallons of forward contracts that were not designated as hedges. The fair value of forward contracts not designated as hedges as of March 31, 2022 was an asset of \$1 million, and the average duration of those undesignated contracts is less than one year in length.

Gain (Loss) Recognition

The following table summarizes the gains (losses) associated with the change in fair value of derivative instruments not designated as hedges and the excluded portion of designated derivatives recognized in other (income) expenses, net. Gains (losses) recognized in other line items in the consolidated statement of operations are separately disclosed within this footnote.

<i>in millions</i>	<u>Fiscal 2022</u>	<u>Fiscal 2021</u>	<u>Fiscal 2020</u>
Derivative instruments not designated as hedges			
Metal contracts	\$ 36	\$ 34	\$ 12
Currency exchange contracts	(19)	(3)	25
Energy contracts ⁽¹⁾	(8)	(7)	(5)
Loss recognized in other (income) expenses, net	<u>\$ 9</u>	<u>\$ 24</u>	<u>\$ 32</u>
Derivative instruments designated as hedges			
Gain recognized in other (income) expenses, net ⁽²⁾	<u>\$ —</u>	<u>\$ —</u>	<u>\$ (3)</u>
Total loss recognized in other (income) expenses, net	<u>\$ 9</u>	<u>\$ 24</u>	<u>\$ 29</u>
(Gains) losses recognized on balance sheet remeasurement currency exchange contracts, net	\$ (4)	\$ (3)	\$ 26
Realized (gains) losses, net	(15)	16	7
Unrealized losses (gains) on other derivative instruments, net	28	11	(4)
Total loss recognized in other (income) expenses, net	<u>\$ 9</u>	<u>\$ 24</u>	<u>\$ 29</u>

(1) Includes amounts related to diesel and natural gas swaps not designated as hedges and electricity swap settlements.

(2) Amount includes forward market premium/discount excluded from hedging relationship and releases to income from accumulated other comprehensive loss on balance sheet remeasurement contracts.

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The following table summarizes the impact on accumulated other comprehensive loss and earnings of derivative instruments designated as cash flow and net investment hedges. Within the next twelve months, we expect to reclassify \$558 million of losses from accumulated other comprehensive loss to earnings, before taxes.

<i>in millions</i>	Amount of Gain (Loss) Recognized in Other comprehensive (loss) income (Effective Portion)			Amount of Gain (Loss) Recognized in Other (income) expenses, net (Ineffective and Excluded Portion)		
	Fiscal 2022	Fiscal 2021	Fiscal 2020	Fiscal 2022	Fiscal 2021	Fiscal 2020
	Cash flow hedging derivatives					
Metal contracts	\$ (1,159)	\$ (274)	\$ 163	\$ —	\$ —	\$ —
Currency exchange contracts	6	(4)	(105)	1	—	3
Energy contracts	47	5	(18)	—	—	—
Total	<u>\$ (1,106)</u>	<u>\$ (273)</u>	<u>\$ 40</u>	<u>\$ 1</u>	<u>\$ —</u>	<u>\$ 3</u>

Gain (Loss) Reclassification

<i>in millions</i>	Amount of Gain (Loss) Reclassified from Accumulated other comprehensive loss into Income/(Expense) (Effective Portion)			Location of Gain (Loss) Reclassified from Accumulated other comprehensive loss into Earnings
	Fiscal 2022	Fiscal 2021	Fiscal 2020	
	Cash flow hedging derivatives			
Energy contracts ⁽¹⁾	\$ 11	\$ (11)	\$ (5)	Cost of goods sold (exclusive of depreciation and amortization)
Metal contracts	9	(13)	(4)	Cost of goods sold (exclusive of depreciation and amortization)
Metal contracts	(711)	(57)	83	Net sales
Currency exchange contracts	8	(45)	(8)	Cost of goods sold (exclusive of depreciation and amortization)
Currency exchange contracts	1	(4)	(1)	Selling, general and administrative expenses
Currency exchange contracts	(12)	3	(14)	Net sales
Currency exchange contracts	(3)	(2)	(1)	Depreciation and amortization
Total	(697)	(129)	50	Income from continuing operations before income tax provision
	181	36	(12)	Income tax provision
	<u>\$ (516)</u>	<u>\$ (93)</u>	<u>\$ 38</u>	Net income from continuing operations

(1) Includes amounts related to electricity, natural gas, and diesel swaps.

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The following tables summarize the location and amount of gain (loss) that was reclassified from accumulated other comprehensive loss into earnings and the amount excluded from the assessment of effectiveness for the three and twelve months ended March 31, 2022 and March 31, 2021.

<i>in millions</i>	Three Months Ended March 31, 2022					Fiscal 2022				
	Net sales	Cost of goods sold (exclusive of depreciation and amortization)	Selling, general and administrative expenses	Depreciation and amortization	Other (income) expenses, net	Net sales	Cost of goods sold (exclusive of depreciation and amortization)	Selling, general and administrative expenses	Depreciation and amortization	Other (income) expenses, net
Gain (loss) on cash flow hedging relationships:										
Metal commodity contracts:										
Amount of loss reclassified from accumulated other comprehensive loss into income	\$ (262)	\$ —	\$ —	\$ —	\$ —	\$ (711)	\$ 9	\$ —	\$ —	\$ —
Energy commodity contracts:										
Amount of gain reclassified from accumulated other comprehensive loss into income	\$ —	\$ 5	\$ —	\$ —	\$ —	\$ —	\$ 11	\$ —	\$ —	\$ —
Foreign exchange contracts:										
Amount of gain (loss) reclassified from accumulated other comprehensive loss into income	\$ (6)	\$ 4	\$ 1	\$ (1)	\$ —	\$ (12)	\$ 8	\$ 1	\$ (3)	\$ —

<i>in millions</i>	Three Months Ended March 31, 2021					Fiscal 2021				
	Net sales	Cost of goods sold (exclusive of depreciation and amortization)	Selling, general and administrative expenses	Depreciation and amortization	Other (income) expenses, net	Net sales	Cost of goods sold (exclusive of depreciation and amortization)	Selling, general and administrative expenses	Depreciation and amortization	Other (income) expenses, net
Gain (loss) on cash flow hedging relationships:										
Metal commodity contracts:										
Amount of (loss) gain reclassified from accumulated other comprehensive loss into income	\$ (58)	\$ 1	\$ —	\$ —	\$ —	\$ (57)	\$ (13)	\$ —	\$ —	\$ —
Energy commodity contracts:										
Amount of loss reclassified from accumulated other comprehensive loss into income	\$ —	\$ (2)	\$ —	\$ —	\$ —	\$ —	\$ (11)	\$ —	\$ —	\$ —
Foreign exchange contracts:										
Amount of gain (loss) reclassified from accumulated other comprehensive loss into income	\$ 3	\$ (11)	\$ (1)	\$ (1)	\$ —	\$ 3	\$ (45)	\$ (4)	\$ (2)	\$ —

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18. ACCUMULATED OTHER COMPREHENSIVE LOSS

The following table summarizes the change in the components of accumulated other comprehensive loss, excluding noncontrolling interests, for the periods presented.

<i>in millions</i>	Currency Translation	Cash Flow Hedges ⁽¹⁾	Postretirement Benefit Plans ⁽²⁾	Total
Balance as of March 31, 2019	\$ (236)	\$ (22)	\$ (248)	\$ (506)
Other comprehensive (loss) income before reclassifications	(73)	34	(66)	(105)
Amounts reclassified from accumulated other comprehensive loss, net	—	(38)	29	(9)
Net current-period other comprehensive loss	(73)	(4)	(37)	(114)
Balance as of March 31, 2020	\$ (309)	\$ (26)	\$ (285)	\$ (620)
Other comprehensive income (loss) before reclassifications	244	(200)	114	158
Amounts reclassified from accumulated other comprehensive loss, net ⁽³⁾	(30)	93	33	96
Net current-period other comprehensive income (loss)	214	(107)	147	254
Balance as of March 31, 2021	\$ (95)	\$ (133)	\$ (138)	\$ (366)
Other comprehensive (loss) income before reclassifications	(71)	(818)	111	(778)
Amounts reclassified from accumulated other comprehensive loss, net	—	516	8	524
Net current-period other comprehensive (loss) income	(71)	(302)	119	(254)
Balance as of March 31, 2022	\$ (166)	\$ (435)	\$ (19)	\$ (620)

(1) For additional information on our cash flow hedges, see [Note 17 – Financial Instruments and Commodity Contracts](#).

(2) For additional information on our postretirement benefit plans, see [Note 15 – Postretirement Benefit Plans](#).

(3) Amounts reclassified from accumulated other comprehensive loss related to currency translation are due to the sale of Duffel.

19. FAIR VALUE MEASUREMENTS

We record certain assets and liabilities, primarily derivative instruments, on our consolidated balance sheets at fair value. We also disclose the fair values of certain financial instruments, including debt and loans receivable, which are not recorded at fair value. Our objective in measuring fair value is to estimate an exit price in an orderly transaction between market participants on the measurement date. We consider factors such as liquidity, bid/offer spreads, and nonperformance risk, including our own nonperformance risk, in measuring fair value. We use observable market inputs wherever possible. To the extent observable market inputs are not available, our fair value measurements will reflect the assumptions used. We grade the level of the inputs and assumptions used according to a three-tier hierarchy:

Level 1 — Unadjusted quoted prices in active markets for identical, unrestricted assets or liabilities we have the ability to access at the measurement date.

Level 2 — Inputs other than quoted prices included within Level 1 that are observable for the asset or liability, either directly or indirectly.

Level 3 — Unobservable inputs for which there is little or no market data, which require us to develop our own assumptions based on the best information available as what market participants would use in pricing the asset or liability.

The following describes the valuation methodologies we used to measure our various financial instruments at fair value, including an indication of the level in the fair value hierarchy in which each instrument is generally classified.

Derivative Contracts

For certain derivative contracts with fair values based upon trades in liquid markets, such as aluminum, zinc, copper, foreign exchange, natural gas, and diesel fuel forward contracts and options, valuation model inputs can generally be verified and valuation techniques do not involve significant judgment. The fair values of such financial instruments are generally classified within Level 2 of the fair value hierarchy.

The majority of our derivative contracts are valued using industry-standard models with observable market inputs as their basis, such as time value, forward interest rates, volatility factors, and current (spot) and forward market prices. We generally classify these instruments within Level 2 of the valuation hierarchy. Such derivatives include interest rate swaps, cross-currency swaps, foreign currency contracts, aluminum, copper, and zinc forward contracts, and natural gas and diesel fuel forward contracts.

We classify derivative contracts that are valued based on models with significant unobservable market inputs as Level 3 of the valuation hierarchy. Our electricity swap, which was our only Level 3 derivative contract, represented an agreement to buy electricity at a fixed price at our Oswego, New York, facility. Forward prices are not observable for this market, so we made certain assumptions based on available information we believe to be relevant to market participants. We used observable forward prices for a geographically nearby market and adjust for historical spreads between the cash prices of the two markets and historical spreads between retail and wholesale prices. As of March 31, 2022, this electricity swap has matured.

For Level 2 and 3 of the fair value hierarchy, where appropriate, valuations are adjusted for various factors such as liquidity, bid/offer spreads, and credit considerations (nonperformance risk). We regularly monitor these factors along with significant market inputs and assumptions used in our fair value measurements and evaluate the level of the valuation input according to the fair value hierarchy. This may result in a transfer between levels in the hierarchy from period to period. As of March 31, 2022 and March 31, 2021, we did not have any Level 1 derivative contracts. No amounts were transferred between levels in the fair value hierarchy.

All of the Company's derivative instruments are carried at fair value in the statements of financial position prior to considering master netting agreements.

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The following table presents our derivative assets and liabilities which were measured and recognized at fair value on a recurring basis classified under the appropriate level of the fair value hierarchy as of March 31, 2022 and March 31, 2021. The table below also discloses the net fair value of the derivative instruments after considering the impact of master netting agreements.

<i>in millions</i>	March 31,			
	2022		2021	
	Assets	Liabilities	Assets	Liabilities
Level 2 instruments				
Metal contracts	\$ 303	\$ (916)	\$ 111	\$ (230)
Currency exchange contracts	60	(53)	28	(52)
Energy contracts	31	—	2	(1)
Total level 2 instruments	\$ 394	\$ (969)	\$ 141	\$ (283)
Level 3 instruments				
Energy contracts	\$ —	\$ —	\$ —	\$ (2)
Total level 3 instruments	—	—	—	(2)
Total gross	394	(969)	141	(285)
Netting adjustment⁽¹⁾	(236)	236	(81)	81
Total net	\$ 158	\$ (733)	\$ 60	\$ (204)

(1) Amounts represent the impact of legally enforceable master netting agreements that allow the Company to settle positive and negative positions with the same counterparties.

There were no unrealized gains (losses) recognized in other (income) expenses, net during fiscal 2022 related to Level 3 financial instruments.

The following table presents a reconciliation of fair value activity for Level 3 derivative contracts.

<i>in millions</i>	Level 3 – Derivative Instruments⁽¹⁾
Balance as of March 31, 2020	\$ (6)
Unrealized/realized gain included in earnings ⁽²⁾	6
Settlements ⁽²⁾	(2)
Balance as of March 31, 2021	\$ (2)
Unrealized/realized gain included in earnings ⁽²⁾	6
Unrealized/realized gain included in accumulated other comprehensive loss ⁽³⁾	2
Settlements ⁽²⁾	(6)
Balance as of March 31, 2022	\$ —

(1) Represents net derivative liabilities.

(2) Included in other (income) expenses, net in our consolidated statements of operations.

(3) Included in net change in fair value of effective portion of cash flow hedges in our consolidated statements of comprehensive income (loss).

In addition to our derivative assets and liabilities held at fair value, we have a Level 3 receivable related to the contingent consideration for the sale of Duffel to ALVANCE. Upon closing on September 30, 2020, we recorded a receivable at a fair value of €93 million (\$109 million) measured based on the anticipated outcome, timeline of arbitration of greater than one year, and a discount rate of 5%. As of March 31, 2021, the fair value had been adjusted for the accretion of imputed interest to €95 million (\$112 million).

During fiscal 2022, Novelis marked all outstanding receivables related to the sale of Duffel to an estimated fair value of €45 million (\$53 million), which resulted in a loss of €51 million (\$61 million) recorded in loss from discontinued operations, net of tax. See [Note 3 – Discontinued Operations](#) for more information. There has been no change to this fair value, and this receivable remains outstanding and is included in other long-term assets in our consolidated balance sheet as of March 31, 2022.

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Financial Instruments Not Recorded at Fair Value

The table below presents the estimated fair value of certain financial instruments not recorded at fair value on a recurring basis. The table excludes finance leases and short-term financial assets and liabilities for which we believe carrying value approximates fair value. We value long-term receivables and long-term debt using Level 2 inputs. Valuations are based on either market and/or broker ask prices when available or on a standard credit adjusted discounted cash flow model using market observable inputs.

<i>in millions</i>	March 31,			
	2022		2021	
	Carrying Value	Fair Value	Carrying Value	Fair Value
Long-term receivables from related parties	\$ 1	\$ 1	\$ 1	\$ 1
Total debt — third parties (excluding finance leases and short-term borrowings)	4,963	4,912	5,702	5,967

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20. OTHER (INCOME) EXPENSES, NET

Other (income) expenses, net consists of the following.

<i>in millions</i>	Fiscal 2022	Fiscal 2021	Fiscal 2020
Currency losses, net ⁽¹⁾	\$ 1	\$ 3	\$ 3
Unrealized losses (gains) on change in fair value of derivative instruments, net ⁽²⁾	28	11	(4)
Realized (gains) losses on change in fair value of derivative instruments, net ⁽²⁾	(15)	16	7
Gain on sale of business ⁽³⁾	(15)	—	—
Loss on sale of assets, net	8	1	1
Gain on Brazilian tax litigation, net ⁽⁴⁾	(85)	(1)	(7)
Interest income	(9)	(9)	(14)
Non-operating net periodic benefit cost ⁽⁵⁾	(5)	33	34
Charitable contribution ⁽⁶⁾	—	50	—
Other, net ⁽⁷⁾	31	(1)	(2)
Other (income) expenses, net	<u>\$ (61)</u>	<u>\$ 103</u>	<u>\$ 18</u>

(1) Includes (gains) losses recognized on balance sheet remeasurement currency exchange contracts, net. See [Note 16 – Currency Losses \(Gains\)](#) and [Note 17 – Financial Instruments and Commodity Contracts](#) for further details.

(2) See [Note 17 – Financial Instruments and Commodity Contracts](#) for further details.

(3) During the third quarter of fiscal 2022, Novelis sold 90% of its equity ownership in Saras Micro Devices, Inc., an early stage business founded by Novelis related to the development, design, manufacturing, and sale of aluminum-integrated passive devices for use in semiconductor and electronic systems. The sale resulted in a \$15 million gain on sale of business. As part of this transaction, we received \$9 million in cash upon close and approximately \$6 million in deferred cash receipts.

(4) See [Note 22 – Commitments and Contingencies](#) for further details.

(5) Represents net periodic benefit cost, exclusive of service cost, for the Company's pension and other post-retirement benefit plans. For further details, refer to [Note 15 – Postretirement Benefit Plans](#).

(6) Represents a charitable contribution for COVID-19 relief.

(7) Other, net for fiscal 2022, includes \$18 million from the release of certain outstanding receivables.

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21. INCOME TAXES

We are subject to Canadian and U.S. federal, state, and local income taxes as well as other foreign income taxes. The domestic (Canada) and foreign components of our income from continuing operations before income tax provision (and after removing our equity in net (income) loss of non-consolidated affiliates) are as follows.

<i>in millions</i>	Fiscal 2022	Fiscal 2021	Fiscal 2020
Domestic (Canada)	\$ 106	\$ (15)	\$ (58)
Foreign (all other countries)	1,185	710	658
Pre-tax income before equity in net (income) loss of non-consolidated affiliates	<u>\$ 1,291</u>	<u>\$ 695</u>	<u>\$ 600</u>

The components of our income tax provision are as follows.

<i>in millions</i>	Fiscal 2022	Fiscal 2021	Fiscal 2020
Current provision:			
Domestic (Canada)	\$ 9	\$ 6	\$ 7
Foreign (all other countries)	245	183	171
Total current	<u>\$ 254</u>	<u>\$ 189</u>	<u>\$ 178</u>
Deferred provision:			
Domestic (Canada)	\$ (54)	\$ —	\$ —
Foreign (all other countries)	81	49	—
Total deferred	<u>\$ 27</u>	<u>\$ 49</u>	<u>\$ —</u>
Income tax provision	<u>\$ 281</u>	<u>\$ 238</u>	<u>\$ 178</u>

The reconciliation of the Canadian statutory tax rates to our effective tax rates are shown below.

<i>in millions, except percentages</i>	Fiscal 2022	Fiscal 2021	Fiscal 2020
Pre-tax income before equity in net (income) loss of non-consolidated affiliates	\$ 1,291	\$ 695	\$ 600
Canadian statutory tax rate	25 %	25 %	25 %
Provision at the Canadian statutory rate	\$ 323	\$ 174	\$ 150
Increase (decrease) for taxes on income (loss) resulting from:			
Exchange translation items	14	19	9
Exchange remeasurement of deferred income taxes	10	(5)	(17)
Change in valuation allowances	(66)	23	13
Tax credits	(46)	(23)	(17)
(Income) expense items not subject to tax	(15)	(1)	4
State tax expense, net	(2)	(5)	1
Enacted tax rate changes	(6)	(2)	(6)
Tax rate differences on foreign earnings	65	48	32
Uncertain tax positions	5	6	4
Prior year adjustments	(6)	(1)	(1)
Income tax settlements	—	4	—
Non-deductible expenses and other, net	5	1	6
Income tax provision	<u>\$ 281</u>	<u>\$ 238</u>	<u>\$ 178</u>
Effective tax rate	<u>22 %</u>	<u>34 %</u>	<u>30 %</u>

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Our effective tax rate differs from the Canadian statutory rate for fiscal 2022 primarily due to the following factors: the results of operations taxed at foreign statutory tax rates that differ from the 25% Canadian tax rate, including withholding taxes; changes to the Brazilian real foreign exchange rate; changes in valuation allowances; the availability of tax credits; and the enacted rate change in the U.K. The corporate tax rate in the U.K. is scheduled to increase from 19% to 25%, effective for fiscal 2023. This impact of this change resulted in a tax benefit of approximately \$8 million.

We earn tax credits in a number of the jurisdictions in which we operate. These are primarily composed of foreign tax credits in Canada of \$22 million, empire zone credits in New York of \$2 million, R&D credits in the U.S. of \$6 million related to fiscal 2022 and \$11 million related to prior years. The impact on our income tax provision of credits during fiscal 2022 was a benefit of \$46 million. However, legislation enacted in New York state on March 31, 2014 established a zero percent statutory income tax rate for manufacturers. As a result, the current year empire zone credits in New York are offset with a corresponding valuation allowance of \$2 million.

Deferred Income Taxes

Deferred income taxes recognize the net tax effects of temporary differences between the carrying amounts of assets and liabilities for financial reporting purposes and the carrying amounts used for income tax purposes as well as the impact of available net operating loss and tax credit carryforwards. These items are stated at the enacted tax rates that are expected to be in effect when taxes are actually paid or recovered.

Our deferred income tax assets and deferred income tax liabilities are as follows.

<i>in millions</i>	March 31,	
	2022	2021
Deferred income tax assets:		
Provisions not currently deductible for tax purposes	\$ 536	\$ 458
Tax losses/benefit carryforwards, net	998	934
Depreciation and amortization	88	79
Other assets	31	50
Total deferred income tax assets	1,653	1,521
Less: valuation allowance	(763)	(821)
Net deferred income tax assets	<u>\$ 890</u>	<u>\$ 700</u>
Deferred income tax liabilities:		
Depreciation and amortization	\$ 558	\$ 550
Inventory valuation reserves	206	57
Monetary exchange gains, net	28	24
Other liabilities	98	101
Total deferred income tax liabilities	<u>\$ 890</u>	<u>\$ 732</u>
Net deferred income tax liabilities	<u>\$ —</u>	<u>\$ 32</u>

ASC 740 requires that we reduce our deferred income tax assets by a valuation allowance if, based on the weight of the available evidence, it is more likely than not that all or a portion of a deferred tax asset will not be realized. After consideration of all evidence, both positive and negative, management concluded that it is more likely than not that we will be unable to realize a portion of our deferred tax assets and that valuation allowances of \$763 million and \$821 million were necessary as of March 31, 2022 and 2021, respectively.

We continue to maintain valuation allowances in Canada and certain foreign jurisdictions primarily related to tax losses where we believe it is more likely than not that we will be unable to utilize those losses. The following table summarizes changes in the valuation allowances.

<i>in millions</i>	Balance at Beginning of Period	Deductions	Acquisition ⁽¹⁾	Additions	Balance at End of Period
Fiscal 2022	\$ 821	(74)	—	\$ 16	\$ 763
Fiscal 2021	755	(12)	64	14	821
Fiscal 2020	742	(1)	—	14	755

(1) Related to the acquisition of Aleris.

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During fiscal 2022, after considering all available evidence, we released a portion of the Canadian valuation allowance, resulting in an income tax benefit of \$73 million. Positive evidence included a recent history of three-year cumulative earnings as of March 31, 2022 and forecasted taxable earnings, as a result of a decrease in external interest expense, an increase in interest income from intercompany indebtedness, and patent fees through 2031. Negative evidence included the overall size and history of recurring losses. After weighing the available evidence, management determined that a portion of the Canadian net operating losses are more likely than not to be realized.

It is reasonably possible that our estimates of future taxable income may change within the next 12 months, resulting in a change to the valuation allowance in one or more jurisdictions.

As of March 31, 2022, we had net operating loss carryforwards of approximately \$846 million (tax effected) and tax credit carryforwards of \$152 million, which will be available to offset future taxable income and tax liabilities. The carryforwards will begin expiring in fiscal 2023. As of March 31, 2022, valuation allowances of \$538 million, \$123 million and \$102 million had been recorded against net operating loss carryforwards, tax credit carryforwards, and other deferred tax assets, respectively, where it appeared more likely than not that such benefits will not be realized. The net operating loss carryforwards are predominantly in Canada, the U.S., Germany, China, and Italy.

As of March 31, 2021, we had net operating loss carryforwards of approximately \$790 million (tax effected) and tax credit carryforwards of \$144 million, which will be available to offset future taxable income and tax liabilities. The carryforwards began expiring in fiscal 2021, with some amounts being carried forward indefinitely. As of March 31, 2021, valuation allowances of \$584 million, \$131 million, and \$107 million had been recorded against net operating loss carryforwards, tax credit carryforwards, and other deferred tax assets, respectively, where it appeared more likely than not that such benefits will not be realized. The net operating loss carryforwards are predominantly in Canada, the U.S., Germany, Switzerland, China, the U.K., and Italy.

Although realization is not assured, management believes it is more likely than not that all the remaining net deferred tax assets will be realized. In the near term, the amount of deferred tax assets considered realizable could be reduced if we do not generate sufficient taxable income in certain jurisdictions.

As of March 31, 2022, we had cumulative earnings of approximately \$4.1 billion for which we had not provided Canadian income tax or withholding taxes because we consider them to be indefinitely reinvested. We acknowledge that we would need to accrue and pay taxes should we decide to repatriate cash and short-term investments generated from earnings of our foreign subsidiaries that are considered indefinitely reinvested. Except for those jurisdictions where we have already distributed and paid taxes on the earnings, we have reinvested and expect to continue to reinvest undistributed earnings of foreign subsidiaries indefinitely. Cash and cash equivalents held by foreign subsidiaries that are indefinitely reinvested are used to cover expansion and short-term cash flow needs of such subsidiaries. The amounts considered indefinitely reinvested would be subject to possible Canadian taxation only if remitted as dividends. However, due to our full valuation allowance position of \$524 million in Canada, in excess of \$449 million of net operating loss carryforwards, exempt surpluses for Canadian tax purposes, \$47 million of tax credits, and other deferred tax assets of \$83 million, a portion of the cumulative earnings would not be taxed if distributed. Due to the complex structure of our international holdings and the various methods available for repatriation, quantification of the deferred tax liability, if any, associated with these undistributed earnings is not practicable.

Tax Uncertainties

As of March 31, 2022 and 2021, the total amount of unrecognized benefits that, if recognized, would affect the effective income tax rate in future periods based on anticipated settlement dates is \$71 million and \$69 million, respectively.

Tax authorities continue to examine certain other of our tax filings for the fiscal year ended March 31, 2005 and the fiscal years ended March 31, 2013 through March 31, 2019. Our reserves for unrecognized tax benefits, as well as reserves for interest and penalties, are not expected to decrease in the next 12 months as a result of further settlement of audits, judicial decisions, the filing of amended tax returns, or the expiration of statutes of limitations. With few exceptions, tax returns for all jurisdictions for all tax years before 2005 are no longer subject to examination by taxing authorities.

Our policy is to record interest and penalties related to unrecognized tax benefits in income tax provision on our consolidated statements of operations. As of March 31, 2022, 2021, and 2020, we accrued for interest and penalties of \$10 million, \$11 million, and \$4 million, respectively. During fiscal 2022, fiscal 2021, and fiscal 2020, we recognized tax benefit of \$2 million, tax expense of \$2 million, and tax expense of \$1 million related to changes in accrued interest and penalties, respectively. The main driver of the benefit realized in fiscal 2022 was the reduction in interest rate for uncertain tax positions in Germany as provided under proposed legislation.

Novelis Inc.
NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS

The following table summarizes the changes in unrecognized tax benefits.

<i>in millions</i>	Fiscal 2022	Fiscal 2021	Fiscal 2020
Beginning balance of unrecognized tax benefits	\$ 69	\$ 27	\$ 24
Additions based on tax positions related to the current period	5	4	3
Additions based on tax positions of prior years ⁽¹⁾	2	39	1
Reductions based on tax positions of prior years	(1)	(1)	(1)
Settlements	—	(1)	—
Foreign exchange	(4)	1	—
Ending Balance of unrecognized tax benefits	<u>\$ 71</u>	<u>\$ 69</u>	<u>\$ 27</u>

(1) Additions based on tax positions of prior years in fiscal 2021 includes \$37 million from the acquisition of Aleris.

Income Taxes Payable

Our accompanying consolidated balance sheets include income taxes payable, net of \$101 million and \$102 million as of March 31, 2022 and 2021, respectively. Of these amounts, \$67 million and \$70 million are reflected in accrued expenses and other current liabilities as of March 31, 2022 and 2021, respectively.

22. COMMITMENTS AND CONTINGENCIES

We are party to, and may in the future be involved in, or subject to, disputes, claims, and proceedings arising in the ordinary course of our business, including some we assert against others, such as environmental, health and safety, product liability, employee, tax, personal injury, and other matters. For certain matters in which the Company is involved for which a loss is reasonably possible, we are unable to estimate a loss. For certain other matters for which a loss is reasonably possible and the loss is estimable, we have estimated the aggregated range of loss as \$0 to \$64 million. This estimated aggregate range of reasonably possible losses is based upon currently available information. The Company's estimates involve significant judgment, and therefore, the estimate will change from time to time and actual losses may differ from the current estimate. We review the status of, and estimated liability related to, pending claims and civil actions on a quarterly basis. The evaluation model includes all asserted and unasserted claims that can be reasonably identified, including claims relating to our responsibility for compliance with environmental, health and safety laws and regulations in the jurisdictions in which we operate or formerly operated. The estimated costs in respect of such reported liabilities are not offset by amounts related to insurance or indemnification arrangements unless otherwise noted.

Environmental Matters

We own and operate numerous manufacturing and other facilities in various countries around the world. Our operations are subject to environmental laws and regulations from various jurisdictions, which govern, among other things, air emissions; wastewater discharges; the handling, storage and disposal of hazardous substances and wastes; the remediation of contaminated sites and restoration of natural resources; carbon and other greenhouse gas emissions; and employee health and safety. Future environmental, health and safety regulations may impose stricter compliance requirements on the industries in which we operate. Additional equipment or process changes at some of our facilities, and related capital expenditures, which may be material, may be needed to meet existing or future requirements. The cost of meeting these requirements may be significant. Failure to comply with such laws and regulations could subject us to administrative, civil, or criminal penalties; obligations to pay damages or other costs; and injunctions and other orders, including orders to cease operations.

We are involved in proceedings under the U.S. Comprehensive Environmental Response, Compensation, and Liability Act, also known as CERCLA or Superfund, or analogous state provisions regarding our liability arising from the usage, storage, treatment, or disposal of hazardous substances and wastes at a number of sites in the U.S., as well as similar proceedings under the laws and regulations of the other jurisdictions in which we have operations, including Brazil, certain countries in the European Union, and South Korea. Many of these jurisdictions have laws that impose joint and several liability, without regard to fault or the legality of the original conduct, for the costs of environmental, health and safety remediation, natural resource damages, third-party claims, and other expenses. In addition, we are, from time to time, subject to environmental, health and safety reviews and investigations by relevant governmental authorities.

We have established liabilities based on our estimates for currently anticipated costs associated with environmental matters. We estimate that the costs related to our environmental liabilities as of March 31, 2022 were \$35 million, of which \$16 million was related to undiscounted clean-up costs, \$15 million was associated with an increase in environmental reserves, and \$4 million was associated with restructuring actions. As of March 31, 2022, \$19 million is included in accrued expenses and other current liabilities and the remainder is within other long-term liabilities in our accompanying consolidated balance sheets. As of March 31, 2021, we reported \$23 million of total environmental liabilities in our consolidated balance sheet.

Brazil Tax Litigation

Under a federal tax dispute settlement program established by the Brazilian government, we have settled several disputes with Brazil's tax authorities regarding various forms of manufacturing taxes and social security contributions. In most cases, we are paying the settlement amounts over a period of 180 months, although in some cases we are paying the settlement amounts over a shorter period. Total settlement liabilities were \$18 million and \$20 million as of March 31, 2022 and March 31, 2021, respectively. As of March 31, 2022, \$7 million is included in accrued expenses and other current liabilities and the remainder is within other long-term liabilities in our accompanying consolidated balance sheets.

In addition to the disputes we have settled under the federal tax dispute settlement program, we are involved in several other unresolved tax and other legal claims in Brazil. Total liabilities for other disputes and claims were \$38 million and \$24 million as of March 31, 2022 and March 31, 2021, respectively. As of March 31, 2022, \$2 million is included in accrued expenses and other current liabilities and the remainder is within other long-term liabilities in our accompanying consolidated balance sheets. Additionally, we have included in the range of reasonably possible losses disclosed above any unresolved tax disputes or other contingencies for which a loss is reasonably possible and estimable. The interest cost recorded on these settlement liabilities offset by interest earned on the cash deposits is reported in other (income) expenses, net on the consolidated statements of operations.

Novelis Inc.
NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS

During fiscal 2021, fiscal 2020, and fiscal 2019, we received multiple favorable rulings from the Brazilian court that recognized the right to exclude certain taxes from the tax base used to calculate contributions to the social integration program and social security contributions on gross revenues, also known as PIS and COFINS. As a result of these cases, we have the right to apply for tax credits for the amounts overpaid during specified tax years. These credits and corresponding interest can be used to offset various Brazilian federal taxes in future years.

The Brazilian Office of the Attorney General of the National Treasury sought clarification from the Brazilian Supreme Court of certain matters, including the calculation methodology (i.e. gross or net credit amount) and timing of these credits. Since the Brazilian Supreme Court had not yet confirmed the appropriate methodology when these favorable rulings were received, Novelis recorded this benefit in the corresponding periods based on the net credit amount.

However, during the first quarter of fiscal 2022, the Brazilian Supreme Court ruled that the credit should be calculated using the gross methodology for lawsuits filed prior to March 2017. As such, Novelis recorded additional income of \$76 million in other (income) expenses, net, \$48 million of which is principal and \$29 million is interest, related to PIS and COFINS for the years 2009 to 2017, net of \$1 million in litigation expense.

During the third quarter of fiscal 2022, Novelis recorded \$5 million of additional income in other (income) expenses, net, \$2 million of which is principal and \$3 million of which is interest, related to PIS and COFINS for certain periods.

This income is subject to income taxes and therefore, resulted in the recognition of income of \$64 million within net income.

The credit amounts, interest calculation, and supporting documentation are subject to further validation and scrutiny by tax authorities for five years after the credits are utilized. Thus, credits recognized may differ from these amounts.

In order to qualify for these credits, the Company is required to compile and present verifiable support validating the credits. During fiscal 2022, Novelis applied for and received official authorization from The Special Department of Federal Revenue of Brazil ("Receita Federal") to use the PIS and COFINS credits related to certain periods. Novelis was able to utilize a majority of these credits to offset taxes to be paid in fiscal 2022 and anticipates utilizing the remaining credits in the first quarter of fiscal 2023.

Additionally, during fiscal 2022, Novelis received a final favorable decision to allow the treatment of sales to the Manaus Free Trade Zone ("Manaus") as equivalent to exports that qualify for the tax benefit known as the Special Regime for Reinstatement of Tax Amounts to Exporting Companies ("Reintegra"), which confirmed Novelis' right to calculate the benefit for these sales to Manaus since August 2011. As a result, during fiscal 2022, Novelis recorded a \$12 million benefit, \$8 million of which is principal recorded in net sales and \$4 million is interest recorded in other (income) expenses, net. These credits and corresponding interest can be used to offset various Brazilian federal taxes in future years. The credit amounts, interest calculation, and supporting documentation are subject to further validation and scrutiny by tax authorities for five years after the credits are utilized. Thus, credits recognized may differ from these amounts.

23. SEGMENT, GEOGRAPHICAL AREA, MAJOR CUSTOMER AND MAJOR SUPPLIER INFORMATION

Segment Information

Due in part to the regional nature of supply and demand of aluminum rolled products and to best serve our customers, we manage our activities based on geographical areas and are organized under four operating segments: North America, Europe, Asia, and South America. All of our segments manufacture aluminum sheet and light gauge products. We also manufacture aluminum plate products in Europe and Asia.

The following is a description of our operating segments.

North America. Headquartered in Atlanta, Georgia, this segment operates 17 plants, including seven with recycling operations, in two countries.

Europe. Headquartered in Künsnacht, Switzerland, this segment operates 10 plants, including five with recycling operations, in four countries.

Asia. Headquartered in Seoul, South Korea, this segment operates four plants, including two with recycling operations, in two countries.

South America. Headquartered in Sao Paulo, Brazil, this segment operates two plants in Brazil, including one with recycling operations.

Net sales and expenses are measured in accordance with the policies and procedures described in [Note 1 – Business and Summary of Significant Accounting Policies](#).

We measure the profitability and financial performance of our operating segments based on segment income. Segment income provides a measure of our underlying segment results that is in line with our approach to risk management. We define segment income as earnings before (a) depreciation and amortization; (b) interest expense and amortization of debt issuance costs; (c) interest income; (d) unrealized gains (losses) on change in fair value of derivative instruments, net, except for foreign currency remeasurement hedging activities, which are included in segment income; (e) impairment of goodwill; (f) (gain) loss on extinguishment of debt, net; (g) noncontrolling interests' share; (h) adjustments to reconcile our proportional share of segment income from non-consolidated affiliates to income as determined on the equity method of accounting; (i) restructuring and impairment, net; (j) gains or losses on disposals of property, plant and equipment and businesses, net; (k) other costs, net; (l) litigation settlement, net of insurance recoveries; (m) sale transaction fees; (n) income tax provision (benefit); (o) cumulative effect of accounting change, net of tax; (p) metal price lag; (q) business acquisition and other related costs; (r) purchase price accounting adjustments; (s) income (loss) from discontinued operations, net of tax; and (t) loss on sale of discontinued operations, net of tax.

The tables that follow show selected segment financial information. "Eliminations and Other" includes eliminations and functions that are managed directly from our corporate office that have not been allocated to our operating segments as well as the adjustments for proportional consolidation and eliminations of intersegment net sales. The financial information for our segments includes the results of our affiliates on a proportionately consolidated basis, which is consistent with the way we manage our business segments. In order to reconcile the financial information for the segments shown in the tables below to the relevant U.S. GAAP based measures, we must adjust proportional consolidation of each line item. The "Eliminations and Other" in net sales – third party includes the net sales attributable to our joint venture party, Tri-Arrows, for our Logan affiliate because we consolidate 100% of the Logan joint venture for U.S. GAAP reporting purposes, but we manage our Logan affiliate on a proportionately consolidated basis. See [Note 9 – Consolidation](#) and [Note 10 – Investment in and Advances to Non-Consolidated Affiliates and Related Party Transactions](#) for further information about these affiliates. Additionally, we eliminate intersegment sales and intersegment income for reporting on a consolidated basis.

Novelis Inc.
NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS

Selected Segment Financial Information

in millions

Selected Operating Results Fiscal 2022	North America	Europe	Asia	South America	Eliminations and Other ⁽¹⁾	Total
Net sales – third party	\$ 6,735	\$ 4,545	\$ 2,916	\$ 2,576	\$ 377	\$ 17,149
Net sales – intersegment	—	175	120	62	(357)	—
Net sales	<u>\$ 6,735</u>	<u>\$ 4,720</u>	<u>\$ 3,036</u>	<u>\$ 2,638</u>	<u>\$ 20</u>	<u>\$ 17,149</u>
Depreciation and amortization	\$ 230	\$ 173	\$ 90	\$ 80	\$ (23)	\$ 550
Income tax provision (benefit)	48	38	61	174	(40)	281
Capital expenditures	172	104	88	88	(6)	446
March 31, 2022						
Investment in and advances to non-consolidated affiliates	\$ —	\$ 508	\$ 324	\$ —	\$ —	\$ 832
Total assets	5,084	4,535	2,627	2,115	735	15,096

in millions

Selected Operating Results Fiscal 2021	North America	Europe	Asia	South America	Eliminations and Other ⁽¹⁾	Total
Net sales – third party	\$ 4,551	\$ 3,420	\$ 2,167	\$ 1,783	\$ 355	\$ 12,276
Net sales – intersegment	7	132	15	15	(169)	—
Net sales	<u>\$ 4,558</u>	<u>\$ 3,552</u>	<u>\$ 2,182</u>	<u>\$ 1,798</u>	<u>\$ 186</u>	<u>\$ 12,276</u>
Depreciation and amortization	\$ 235	\$ 173	\$ 88	\$ 71	\$ (24)	\$ 543
Income tax (benefit) provision	(27)	22	62	123	58	238
Capital expenditures	184	99	113	94	(5)	485
March 31, 2021						
Investment in and advances to non-consolidated affiliates	\$ —	\$ 510	\$ 328	\$ —	\$ —	\$ 838
Total assets	4,084	3,974	2,423	1,797	607	12,885

in millions

Selected Operating Results Fiscal 2020	North America	Europe	Asia	South America	Eliminations and Other	Total
Net sales – third party	\$ 4,118	\$ 2,977	\$ 1,952	\$ 1,861	\$ 309	\$ 11,217
Net sales – intersegment	—	118	17	43	(178)	—
Net sales	<u>\$ 4,118</u>	<u>\$ 3,095</u>	<u>\$ 1,969</u>	<u>\$ 1,904</u>	<u>\$ 131</u>	<u>\$ 11,217</u>
Depreciation and amortization	\$ 153	\$ 117	\$ 62	\$ 67	\$ (38)	\$ 361
Income tax provision	19	11	29	108	11	178
Capital expenditures	303	85	132	94	(4)	610

(1) Total assets includes assets of discontinued operations.

Novelis Inc.
NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS

The following table displays the reconciliation from net income attributable to our common shareholder to segment income.

<i>in millions</i>	Fiscal 2022	Fiscal 2021	Fiscal 2020
Net income attributable to our common shareholder	\$ 954	\$ 236	\$ 420
Net income attributable to noncontrolling interests	1	1	—
Income tax provision	281	238	178
Loss from discontinued operations, net of tax	63	51	—
Loss on sale of discontinued operations, net of tax	—	170	—
Income from continuing operations before income tax provision	1,299	696	598
Depreciation and amortization	550	543	361
Interest expense and amortization of debt issuance costs	227	267	248
Adjustment to reconcile proportional consolidation ⁽¹⁾	56	56	57
Unrealized losses (gains) on change in fair value of derivative instruments, net	28	11	(4)
Realized (gains) losses on derivative instruments not included in segment income ⁽²⁾	(2)	1	—
Gain on sale of a business ⁽³⁾	(15)	—	—
Loss on extinguishment of debt, net	64	14	71
Restructuring and impairment, net	1	29	43
Loss on sale of fixed assets	8	1	1
Purchase price accounting adjustments ⁽⁴⁾	—	29	—
Metal price lag	(166)	6	38
Business acquisition and other related costs ⁽⁵⁾	—	11	63
Other, net ⁽⁶⁾	(5)	50	(4)
Segment income	\$ 2,045	\$ 1,714	\$ 1,472

(1) Adjustment to reconcile proportional consolidation relates to depreciation, amortization, and income taxes of our equity method investments. Income taxes related to our equity method investments are reflected in the carrying value of the investment and not in our consolidated income tax provision.

(2) Realized (gains) losses on derivative instruments not included in segment income represents foreign currency derivatives not related to operations.

(3) Gain on sale of a business, net relates to Novelis' sale of 90% of its equity ownership in Saras Micro Devices, Inc. See [Note 20 – Other \(Income\) Expenses, net](#) for further details.

(4) Purchase price accounting adjustments for fiscal 2021 primarily relates to the relief of the inventory step-up related to the acquired Aleris business.

(5) Business acquisition and other related costs are primarily legal and professional fees associated with our acquisition of Aleris.

(6) For fiscal 2022, other, net includes \$36 million of interest income recognized as a result of Brazilian tax litigation settlements and interest income, partially offset by \$18 million from the release of certain outstanding receivables. For fiscal 2021, other, net primarily relates to a charitable contribution for COVID-19 relief as well as interest income.

The following table displays segment income by reportable segment.

<i>in millions</i>	Fiscal 2022	Fiscal 2021	Fiscal 2020
North America	\$ 685	\$ 663	\$ 590
Europe	324	285	246
Asia	352	305	210
South America	681	449	421
Eliminations and other	3	12	5
Segment income	\$ 2,045	\$ 1,714	\$ 1,472

Novelis Inc.
NOTES TO THE CONSOLIDATED FINANCIAL STATEMENTS

Geographical Area Information

As of March 31, 2022, we had 33 operating facilities in nine countries. Net sales are attributed to geographical areas based on the origin of the sale. Long-lived assets and other intangible assets are attributed to geographical areas based on asset location and exclude investments in and advances to our non-consolidated affiliates and goodwill.

Net sales by geographical area follows.

<i>in millions</i>	Fiscal 2022	Fiscal 2021	Fiscal 2020
United States	\$ 6,982	\$ 4,782	\$ 4,273
Asia and Other Pacific	2,916	2,167	1,952
Brazil	2,576	1,783	1,861
Canada	130	124	154
Germany	4,003	3,015	2,506
Other Europe	542	405	471
Net sales	<u>\$ 17,149</u>	<u>\$ 12,276</u>	<u>\$ 11,217</u>

Long-lived assets and other intangible assets by geographical area follows.

<i>in millions</i>	March 31,	
	2022	2021
United States	\$ 2,231	\$ 2,267
Asia and Other Pacific	927	912
Brazil	829	842
Canada	54	55
Germany	548	605
Other Europe	658	702
Long-lived assets and other intangible assets	<u>\$ 5,247</u>	<u>\$ 5,383</u>

Information about Product Sales, Major Customers, and Primary Supplier

Product Sales

The following table displays our net sales by product end market.

<i>in millions</i>	Fiscal 2022	Fiscal 2021	Fiscal 2020
Can	\$ 8,689	\$ 6,191	\$ 6,240
Specialty	4,616	3,207	2,176
Automotive	3,324	2,512	2,801
Aerospace and industrial plate	520	366	—
Net sales	<u>\$ 17,149</u>	<u>\$ 12,276</u>	<u>\$ 11,217</u>

Major Customers

The following table displays customers representing 10% or more of our net sales for any of the periods presented and their respective percentage of net sales.

	Fiscal 2022	Fiscal 2021	Fiscal 2020
Ball	17 %	15 %	21 %
Ford	6	7	10

Primary Supplier

Rio Tinto is our primary supplier of metal inputs, including prime and sheet ingot. The table below shows our purchases from Rio Tinto as a percentage of our total combined metal purchases.

	Fiscal 2022	Fiscal 2021	Fiscal 2020
Purchases from Rio Tinto as a percentage of total combined metal purchases	8 %	8 %	11 %

24. SUBSEQUENT EVENTS

In April 2022, Novelis amended our ABL Revolver facility to increase the limit on committed letters of credit under the facility to \$275 million.

Item 9. Changes in and Disagreements With Accountants on Accounting and Financial Disclosure.

None.

Item 9A. Controls and Procedures.

Evaluation of Disclosure Controls and Procedures

We maintain disclosure controls and procedures designed to ensure that information required to be disclosed in the reports that we file or submit under the Exchange Act is recorded, processed, summarized, and reported within the time periods specified in the SEC's rules and forms. Disclosure controls and procedures, as defined in Rules 13a-15(e) and 15d-15(e) under the Exchange Act, include controls and procedures designed to ensure that information required to be disclosed in the reports we file or submit under the Exchange Act is accumulated and communicated to our management, including the Principal Executive Officer and the Principal Financial Officer, as appropriate, to allow timely decisions regarding required disclosure. Any system of controls, however well designed and operated, can provide only reasonable, and not absolute, assurance that the objectives of the system are met.

As required by the SEC rules, we have evaluated the effectiveness of the design and operation of our disclosure controls and procedures as of the end of the period covered by this Form 10-K. This evaluation was carried out under the supervision and with the participation of our management, including our Principal Executive Officer and Principal Financial Officer. Based on this evaluation, our management, including our Principal Executive Officer and Principal Financial Officer, has concluded that our disclosure controls and procedures were effective as of March 31, 2022.

Management's Report on Internal Control over Financial Reporting

The report of management on our internal control over financial reporting as of March 31, 2022 is set forth in [Part II, Item 8. Financial Statements and Supplementary Data](#) in this report.

Changes in Internal Control Over Financial Reporting

There have been no changes in our internal control over financial reporting (as defined in Rule 13a-15(f) under the Exchange Act) during the most recently completed fiscal quarter that have materially affected, or are reasonably likely to materially affect, our internal control over financial reporting.

Item 9B. Other Information.

Not applicable.

Item 9C. Disclosure Regarding Foreign Jurisdictions that Prevent Inspections.

Not applicable.

PART III

Item 10. Directors, Executive Officers and Corporate Governance.

Our Directors

Our Board of Directors is currently comprised of eight directors. All of our directors were appointed by our sole shareholder, Hindalco. Our directors' terms will expire at each annual shareholder meeting, provided that if an election of directors is not held at an annual shareholder meeting, the directors then in office shall continue in office or until their successors shall be elected. Biographical details for each of our directors set forth below are as of April 30, 2022.

Name	Director Since	Age	Position
Kumar Mangalam Birla	May 15, 2007	54	Chairman of the Board
Askaran Agarwala ⁽¹⁾	May 15, 2007	88	Director
Clarence J. Chandran ⁽¹⁾⁽²⁾	January 6, 2005	73	Director
Gary Comerford	February 7, 2020	72	Director
Dr. Thomas M. Connelly, Jr.	February 7, 2020	70	Director
Satish Pai ⁽¹⁾	August 6, 2013	60	Director
Vikas Sehgal	February 7, 2020	47	Director
Donald A. Stewart ⁽²⁾	May 15, 2007	75	Director

(1) Member of our Compensation Committee

(2) Member of our Audit Committee

Mr. Kumar Mangalam Birla was elected as the Chairman of the Board of Directors of Novelis on May 15, 2007. Mr. Birla is the Chairman of Hindalco Industries Limited which is an industry leader in aluminum and copper. He is also the Chairman of Aditya Birla Group's leading blue-chip companies including Grasim, UltraTech Cement, Aditya Birla Capital Limited and Aditya Birla Chemicals (Thailand) Limited. Mr. Birla also serves as director on the board of Aditya Birla Management Corporation Private Limited (as Executive Chairman) and the Group's international companies spanning Thailand, Indonesia, and Egypt. Additionally, Mr. Birla is the Chancellor and member of the Board of Governors of the Birla Institute of Technology & Science, Pilani and Chairman of the Board of Governors Indian Institute of Management, Ahmedabad and Indian Institute of Technology, Delhi. He is a member of the London Business School's Asia Pacific Advisory Board and a member of the National Council of the Confederation of Indian Industry. Mr. Birla's past affiliations include service on the boards of Maruti Udyog Limited and Tata Iron and Steel Co. Limited. He was a Director on the Central Board of Directors of the Reserve Bank of India and part-time member on the Board of Securities and Exchange Board of India, and part time non official director of Air India. He was Chairman of the Advisory Committee constituted by the Ministry of Company Affairs and served on the Prime Minister of India's Advisory Council on Trade and Industry. A Commerce graduate of Bombay University, Mr. Birla is a Chartered Accountant, a member of the Institute of Chartered Accountants of India. He earned an MBA from the London Business School. Mr. Birla brings to the board significant global leadership experience acquired through his service as a director of numerous corporate, professional and regulatory entities in various regions of the world.

Mr. Askaran Agarwala has served as a Director of Hindalco since September 1998. He was Chairman of the Business Review Council of the Aditya Birla Group from October 2003 to March 2010. From 1982 to October 2003, he was President of Hindalco. Mr. Agarwala serves on the Compensation Committee of the Novelis Board of Directors. Mr. Agarwala also serves as a director of several other companies, including Hindalco, Udyog Services Ltd., Aditya Birla Insurance Brokers Limited, Swiss Singapore Overseas Enterprises, Aditya Birla Power Company Limited and Aditya Birla Health Services Limited. He is a trustee of Sarla Basant Birla Param Bhakti Trust, Aditya Vikram Birla Memorial Trust and the Aditya Birla Foundation and the Hellen Keller Institute of the Deaf and Blind, among many other organizations. Mr. Agarwala's past and current service as a director of several companies and industry associations in the metals and manufacturing industries adds valuable perspective to the board. Having served as president of our parent company, Hindalco, Mr. Agarwala also brings a depth of understanding of our business and operations.

Clarence J. Chandran has been a director of the Company since 2005. Mr. Chandran serves on the Compensation and Audit Committees of the Novelis Board of Directors, and acts as the Chairman of the Compensation Committee. Mr. Chandran is senior advisor of 4Front Capital Partners Inc. He is a past director of Alcan Inc. and MDS Inc. He retired as Chief Operating Officer of Nortel Networks Corporation (communications) in 2001. Mr. Chandran is a past member of the Board of Visitors of the Pratt School of Engineering at Duke University. He has acquired years of significant experience through his leadership and management of companies with international business operations. Mr. Chandran brings to the board his deep knowledge in the areas of technology, sales and global operations.

Gary Comerford serves as President and CEO of CMC Global, a consulting company specializing in international expansion. He also serves as Vice Chair of the Canada India Business Council and past Chair of the Board of Trustees of Brock University. From 2009 to 2014, Mr. Comerford was employed with the Reinsurance Group of America as Executive Vice President and Chief Marketing Officer. Prior to that, he was with Sun Life of Canada, where he held positions of increasing responsibility before retiring as Senior Vice President, International in 2009. Before joining Sun Life, Mr. Comerford held various roles at Canada Permanent Trust Company, including Vice President of Marketing. Mr. Comerford is Vice Chair of the Canada India Business Council, where he previously served as President and CEO. Mr. Comerford brings extensive financial management and operating experience to the board.

Dr. Thomas M. Connelly, Jr. has served as the Chief Executive Officer of the American Chemical Society since 2015. Previously, Dr. Connelly was employed by DuPont de Nemours, Inc., from 1977 to 2014, where he was responsible for the Applied BioSciences, Nutrition & Health, Performance Polymers, and Packaging & Industrial Polymers businesses. In addition, Dr. Connelly also had responsibility for Science & Technology, Integrated Operations, and geographic regions outside the United States. Dr. Connelly retired in 2014 as Executive Vice President and Chief Innovation Officer of DuPont, where he was a member of the company's Office of the Chief Executive. Dr. Connelly serves on the Board of Grasim Industries Limited and brings to the board his deep knowledge in the areas of science and global operations.

Mr. Satish Pai has served as the Managing Director of Hindalco Industries Limited since August 2016. Mr. Pai previously served as Deputy Managing Director of Hindalco Industries Limited from February 2014 to May 2016, and as Chief Executive Officer - Aluminum Business of Hindalco Industries Limited from August 2013 to January 2014. Prior to that, Mr. Pai served as Executive Vice President, Worldwide Operations of Schlumberger Ltd. Mr. Pai joined Schlumberger Ltd. in 1985 as a field engineer and held various positions of increased responsibility over the course of his 28 year tenure with the company. He serves on the Compensation Committee of the Novelis Board of Directors and is a director of Hindalco Industries and also serves as a Director on the Board of ABB Limited, Switzerland and Aditya Birla Management Corporation Private Limited. He has also been appointed as Vice President in The Indian Institute of Metals. Mr. Pai brings extensive industry and global operating experience to the board.

Mr. Vikas Sehgal is Executive Vice Chairman of Rothschild & Co. for the South & Southeast Asian region and also serves as Global Partner and Head of the Automotive sector. Prior to joining Rothschild & Co. in 2011, Mr. Sehgal was a partner at Booz & Company, where he worked from 1999 to 2010. Previously, he was employed as an engineer at the Ford Motor Company and Daewoo Motors. Mr. Sehgal has served the World Economic Forum as Chairman of the Global Agenda Council for Automotive and as a member of the Global Future Council for Mobility. He also served on the board of Houghton International and Infotech Engineering. Mr. Sehgal currently serves as a director of Cyient Limited. Mr. Sehgal also brings a depth of understanding of our business, operations and the global automotive industry which we serve.

Donald A. Stewart serves as Chairman of the Audit Committee of the Novelis Board of Directors. He retired as Chief Executive Officer and Director of Sun Life Financial Inc. and Sun Life Assurance Company of Canada. Mr. Stewart continues to serve as a director of Sun Life Everbright Life Insurance Company Limited. He is the Chairman of the federal-provincial Nominating Committee for the Canada Pension Plan Investment Board. Mr. Stewart brings extensive financial management and operating experience to the board.

Our Executive Officers

The following table sets forth information for persons serving as executive officers of our Company. Biographical details for each of our executive officers set forth below are as of April 30, 2022.

Name	Age	Position
Steven Fisher	51	President and Chief Executive Officer
Devinder Ahuja	56	Executive Vice President and Chief Financial Officer
Tom Boney	56	Executive Vice President and President, Novelis North America
Emilio Braghi	54	Executive Vice President and President, Novelis Europe
Christopher Courts	44	Senior Vice President and General Counsel, Corporate Secretary and Compliance Officer
Philippe Meyer	64	Senior Vice President and Chief Technology Officer
Randal Miller	59	Vice President, Treasurer
Roxana Molina	61	Executive Vice President and Chief Procurement Officer
Antonio Tadeu Coelho Nardocci	64	Executive Vice President and Chief Manufacturing Officer
Francisco Pires	53	Senior Vice President and President, Novelis South America
Stephanie Rauls	53	Senior Vice President, Deputy Chief Financial Officer and Chief Accounting Officer
Sachin Satpute	56	Executive Vice President and President, Novelis Asia
H.R. Shashikant	59	Executive Vice President and Chief Human Resources Officer

Steven Fisher has served as our President and Chief Executive Officer since 2015. Mr. Fisher joined the Company in 2006 as Vice President, Strategic Planning and Corporate Development and served as our Chief Financial Officer from 2007 to 2015. Prior to joining Novelis, Mr. Fisher served as Vice President and Controller for TXU Energy, the non-regulated subsidiary of TXU Corp., at its headquarters in Dallas, Texas. Mr. Fisher is a member of the Business Roundtable, an association of leading U.S. companies working to promote sound public policy. In addition, he is a member of the Board of Directors for the Metro Atlanta Chamber of Commerce. Mr. Fisher received a Bachelor's Degree in Finance and Accounting from the University of Iowa.

Devinder Ahuja is our Executive Vice President and Chief Financial Officer, and has served in this role since August 2016. Before joining Novelis, Mr. Ahuja spent 15 years at Novartis Group, where he served most recently as Chief Financial Officer of the Alcon Division's North America business. Prior to that, Mr. Ahuja held positions of increasing responsibility at Novartis covering the areas of finance, strategic planning, supply chain and purchasing. During his career, Mr. Ahuja has held various finance leadership roles including posts in Switzerland, South Korea, Japan and India. Mr. Ahuja holds a Bachelor of Commerce degree from the RA Podar College of Commerce and Economics in Mumbai, India and is a Chartered Accountant.

Tom Boney has served as our Executive Vice President and President, Novelis North America since April 2020. Mr. Boney joined Novelis in 2006 as plant manager at our Oswego, New York, facility. Since then, he has served in various roles of increasing responsibility, including President, Novelis Europe Rolling and Recycling; Vice President, Manufacturing Excellence; and Managing Director of Aluminum Company of Malaysia. Mr. Boney most recently served as Chief Operating Officer of Novelis North America. Prior to joining Novelis, Mr. Boney spent 19 years with Alcoa Corporation. He holds a bachelor's degree in finance from St. Bonaventure University and a Master's Degree in Management from Penn State University.

Emilio Braghi has served as our Executive Vice President and President, Novelis Europe since September 2016. Previously, he served as Vice President, Operations, Novelis North America, since February 2015. Mr. Braghi joined Novelis in 1999 as Sales Manager, Europe. During his tenure, he has taken on many leadership roles of increasing responsibility and moved into his first general management role in 2006, when he was named head of Novelis' business in Italy. Mr. Braghi went on to hold multiple general management leadership positions with Novelis' Litho and Painted Products value streams in Europe, directing both commercial and operational activities and he joined the Asia leadership team in March 2012 as Vice President of Operations. In addition, Mr. Braghi serves as Chairman of the European Aluminum industry association. Mr. Braghi holds a degree in Engineering and Industrial Production Technologies from Politecnico di Milano in Milan, Italy.

Christopher Courts has served as our Senior Vice President, General Counsel, Compliance Officer and Corporate Secretary since January 2021, and he is a member of the Company's Executive Committee. He previously served as interim Vice President, General Counsel, Secretary and Compliance Officer from March 2020 to December 2021. Prior to that, Mr. Courts served as the Company's Vice President, Deputy General Counsel from January 2016 to March 2020 and, in this role, he led the Company's intellectual property function, corporate governance activities, and global contracts management program. In addition, he supported the Company's strategy team on mergers, acquisitions and divestitures. Mr. Courts joined Novelis in January 2005 and over the years has had oversight for various aspects of the legal function. Prior to joining Novelis, Mr. Courts served as Senior Corporate Counsel for Aquila, Inc., and he began his career as a corporate associate at the Husch Blackwell law firm. Mr. Courts holds a B.B.A in finance and a J.D., both from the University of Iowa.

Philippe Meyer joined Novelis as Senior Vice President and Chief Technology Officer upon our acquisition of Aleris in April 2020. Prior to the acquisition, Mr. Meyer had served as Aleris' Senior Vice President and Chief Technology Officer since 2015 and prior to that as Vice President and Chief Technology Officer from 2012 to 2015. Before joining Aleris, Mr. Meyer spent 22 years at Montupet, an aluminum automotive foundry company, in various roles of increasing responsibility, including R&D and Technical Director. Mr. Meyer holds a Master's degree from Ecole Nationale Supérieure des Mines de Paris, France.

Randal P. Miller is our Vice President, Treasurer. Prior to joining Novelis in July 2008, Mr. Miller served as Vice President and Treasurer of Transocean Offshore Deepwater Drilling from May 2006 to November 2007 where he was responsible for all treasury, banking, and capital markets activities for Transocean and its subsidiaries. From 2001 to 2006, Mr. Miller served as Vice President Finance, Treasurer of Aquila, Inc. Mr. Miller earned his Bachelor of Science from Iowa State University and Masters of Business Administration from the University of Missouri - Kansas City.

Roxana Molina joined Novelis in March 2020 as Executive Vice President and Chief Procurement Officer. Prior to joining Novelis, Ms. Molina was employed by Ford Motor Company in Dearborn, Michigan, since 1995. At Ford, Ms. Molina held various leadership roles in the United States, Europe and Brazil, most recently serving as Global Purchasing Director, Engine and Powertrain Installations. She holds a Bachelor's Degree in Industrial Engineering from Universidad de Lima, a Master's Degree in Business Administration from the University of Texas at Austin, and an Associate of Science, Research on truck body design from Tokyo University of Agriculture and Technology.

Antonio Tadeu Coelho Nardocci has served as our Executive Vice President and Chief Manufacturing Officer since June 2019. Prior to that, Mr. Nardocci served as our Senior Vice President and President, Novelis South America since May 2013. Mr. Nardocci has also served as our Senior Vice President and President, Novelis Europe and as our Vice President of Strategy, Innovation and Technology. Before our spin-off from Alcan, Mr. Nardocci held a number of leadership positions with Alcan, including as President of Rolled Products South America from March 2002 until January 2005. Mr. Nardocci graduated from the University of São Paulo in Brazil with a degree in metallurgy.

Francisco Pires has served as our Senior Vice President and President, Novelis South America since June 2019. Mr. Pires joined Novelis South America in 2012 as Director of Procurement. In 2013, he assumed the position of Director, Procurement and Supply Chain. In 2014, he was appointed Vice President, Commercial, followed by his appointment as Chief Operating Officer in 2018. Prior to joining Novelis, Mr. Pires held positions of increasing responsibility with Fibria, Votorantim Cellulose & Paper, Maxlog and Bureau Veritas. He is a graduate in naval engineering from Universidade Federal do Rio de Janeiro and has a Master of Science in Business Administration from COPPEAD.

Stephanie Rauls has served as our Senior Vice President, Deputy Chief Financial Officer and Chief Accounting Officer since February 2016. Ms. Rauls previously served as our Vice President of Global Tax since December 2013. Prior to joining Novelis, Ms. Rauls was Vice President, Tax at Wal-Mart Stores, Inc. from 2011 to 2013, and prior to that, she was employed by GE Healthcare as a tax director from 2002 to 2011. Before joining GE Healthcare, Ms. Rauls was employed by KPMG LLP from 1994 to 2002. She earned a Bachelor of Business Administration in Accounting from the University of Wisconsin-Madison and a Juris Doctor from Valparaiso University School of Law. Ms. Rauls is a Certified Public Accountant.

Sachin Satpute is Executive Vice President and President, Novelis Asia and has served in this role since June 2016. He previously served as Chief Marketing Officer for Hindalco Industries since 2012, and was Managing Director of Aluminum Company of Malaysia (ALCOM) from April 2011 until June 2012. Prior to his most recent role with Hindalco, Mr. Satpute spent five years with Novelis in various roles of increasing responsibility. Mr. Satpute began his career at a Hindalco aluminum plant in 1987 as a development engineer. In addition to a degree in mechanical engineering from Pune University, Mr. Satpute also holds an MBA in marketing from Mumbai University, India.

H.R. Shashikant has served as our Executive Vice President and Chief Human Resources Officer since August 2015. In this role, Mr. Shashikant is responsible for the formulation and implementation of the Company's worldwide human resources objectives, policies and practices. As the head of the global Human Resources function, he has responsibility for Talent Acquisition and Development, Compensation, Benefits, HRIS and Global Security. Before joining Novelis, Mr. Shashikant was Group Executive President, Group Human Resources, for the Aditya Birla Group, the Mumbai-based conglomerate of which Novelis is a part. He joined the Aditya Birla Group as a Vice President in 1999 and was instrumental in setting up HR systems, processes, and Centers of Excellence across the Group. An Economics graduate from Karnataka University in Dharwad, India, Mr. Shashikant holds a post graduate degree in Personnel Management from the Tata Institute of Social Sciences, Mumbai.

Board of Directors and Corporate Governance Matters

We are committed to our corporate governance practices, which we believe are essential to our success and to the enhancement of shareholder value. We are subject to a variety of corporate governance and disclosure requirements. Our corporate governance practices meet applicable regulatory requirements to ensure transparency and effective governance of the Company.

Our Board of Directors reviews corporate governance practices in light of developing requirements in this field. As new provisions come into effect, our Board of Directors will reassess our corporate governance practices and implement changes as and when appropriate. The following is an overview of our corporate governance practices.

Novelis Board of Directors

Our Board of Directors currently has eight members, all of whom are appointed by our sole shareholder. Our Board of Directors has the responsibility for stewardship of Novelis Inc., including the responsibility to ensure that we are managed in the interest of our sole shareholder, while taking into account the interests of other stakeholders. Our Board of Directors supervises the management of our business and affairs and discharges its duties and obligations in accordance with the provisions of: (1) our articles of incorporation and bylaws, (2) the charters of its committees, and (3) other applicable laws and company policies.

Our corporate governance practices require that, in addition to certain statutory duties, the following matters be subject to our Board of Directors' approval: (1) capital expenditure budgets and significant investments and divestments, (2) our strategic plans, (3) the number of directors within the limits provided by our by-laws, and (4) any matter which may have the potential for substantial impact on Novelis. Our Board of Directors reviews its composition and size once a year. Senior management makes regular presentations to our Board of Directors on the main areas of our business.

Corporate Governance

Interested parties may communicate with the Board of Directors, a committee, or an individual director by writing to Novelis Inc., Two Alliance Center, 3560 Lenox Road N.E., Suite 2000, Atlanta, GA 30326, Attention: Corporate Secretary - Board Communication. All such communications will be compiled by the Corporate Secretary and submitted to the appropriate director or board committee. The Corporate Secretary will reply or take other actions in accordance with instructions from the applicable board contact.

Committees of Our Board of Directors

Our Board of Directors has established two standing committees: the Audit Committee and the Compensation Committee. Each committee is governed by its own charter. According to their authority as set out in their charters, the committees may engage outside advisors at the expense of Novelis.

Audit Committee and Financial Experts

Messrs. Stewart and Chandran are the members of the Audit Committee. Mr. Stewart, an independent director, has been identified as an "audit committee financial expert" as that term is defined in the rules and regulations of the SEC.

Our Audit Committee's main objective is to assist our Board of Directors in fulfilling its oversight responsibilities for the integrity of our financial statements, our compliance with legal and regulatory requirements, the qualifications and independence of our independent registered public accounting firm and the performance of both our internal audit function and our independent registered public accounting firm. Under the Audit Committee charter, the Audit Committee is responsible for, among other matters:

- evaluating and compensating our independent registered public accounting firm;
- making recommendations to the Board of Directors and shareholder relating to the appointment, retention and termination of our independent registered public accounting firm;
- discussing with our independent registered public accounting firm its qualifications and independence from management;
- reviewing with our independent registered public accounting firm the scope and results of its audit;
- pre-approving all audit and permissible non-audit services to be performed by our independent registered public accounting firm;
- reviewing areas of potential significant financial risk and the steps taken to monitor and manage such exposures;
- overseeing the financial reporting process and discussing with management and our independent registered public accounting firm the interim and annual financial statements that we file with the SEC; and
- reviewing and monitoring our accounting principles, accounting policies and disclosure, internal control over financial reporting and disclosure controls and procedures.

Compensation Committee

Our Compensation Committee establishes our general compensation philosophy and oversees the development and implementation of compensation policies and programs. It also reviews and approves the level of and/or changes in the compensation of individual executive officers taking into consideration individual performance and competitive compensation practices. The committee's specific roles and responsibilities are set out in its charter. Our Compensation Committee periodically reviews the effectiveness of our overall management organization structure and succession planning for senior management, reviews recommendations for the appointment of executive officers, and reviews annually the development process for high potential employees.

Code of Conduct and Guidelines for Ethical Behavior

Novelis has adopted a Code of Conduct and maintains a Code of Ethics for Senior Financial Officers that applies to our senior financial officers including our principal executive officer, principal financial officer, principal accounting officer, or persons performing similar functions. Copies of the Code of Conduct and the Code of Ethics for Senior Financial Officers are available on our website at www.novelis.com. We will promptly disclose any future amendments to these codes on our website as well as any waivers from these codes for executive officers and directors. Copies of these codes are also available in print from our Corporate Secretary upon request.

Item 11. Executive Compensation.

The information required by this item will be included in an amendment to this Form 10-K.

Item 12. Security Ownership of Certain Beneficial Owners and Management and Related Shareholder Matters.

On May 15, 2007, the Company was acquired by Hindalco through its indirect wholly owned subsidiary AV Metals Inc. pursuant to a plan of arrangement entered into on February 10, 2007. Since the acquisition was completed, all of our common shares have been indirectly held by Hindalco.

Item 13. Certain Relationships and Related Transactions, and Director Independence.

We maintain various policies and procedures that govern related party transactions. Pursuant to our Code of Conduct and our Code of Ethics for Senior Financial Officers, senior managers and directors of the Company must avoid any action that creates or appears to create a conflict of interest between their own interest and the interest of the Company, cannot usurp corporate opportunities, and must deal fairly with third parties. This policy is available on our website at www.novelis.com. In addition, we have enacted procedures to monitor related party transactions by identifying possible related parties through questions in our director and officer questionnaires, determining whether we receive payments from or make payments to any of the identified related parties, and if we determine payments are made or received, researching the nature of the interactions between the Company and the related parties and ensuring that the related person does not have an interest in the transaction with the Company. The Audit Committee is responsible for reviewing material related party transactions that involve the Company, one of our directors or executive officers, or any of their immediate family members.

See [Note 10 – Investment in and Advances to Non-Consolidated Affiliates and Related Party Transactions](#) for more details related to various transactions with Hindalco and our affiliates. These transactions are not material to Novelis individually or in the aggregate. Because of the relationship three of our directors have with Hindalco, we consider these transactions to be related party transactions.

Item 14. Principal Accountant Fees and Services.

The following table shows fees and expenses billed to the Company by PricewaterhouseCoopers LLP for services rendered for fiscal 2022 and fiscal 2021.

<i>in millions</i>	Fiscal 2022	Fiscal 2021
Audit fees ⁽¹⁾	\$ 8.2	\$ 10.9
Tax Fees ⁽²⁾	—	0.2
All Other Fees ⁽³⁾	0.1	0.1
Total	<u>\$ 8.3</u>	<u>\$ 11.2</u>

(1) Represent fees for professional services rendered and expenses incurred for the audit of the Company's annual financial statements, review of financial statements included in the Company's Form 10-Qs, and services that are normally provided by PricewaterhouseCoopers LLP in connection with statutory and regulatory filings or engagements for those fiscal periods.

(2) In fiscal 2021, this fee included procedures performed related to transfer pricing studies and tax consulting services.

(3) In fiscal 2022 and fiscal 2021, these fees include attest services performed over the Company's application for energy credits, as well as for services not included in the Audit, Audit Related, and Tax categories.

Pre-Approval of Audit and Permissible Non-Audit Services

The charter of the Audit Committee provides that the Committee is responsible for the pre-approval of all audit and permissible non-audit services to be performed by the independent auditors. The Audit Committee has adopted a policy for the pre-approval of services provided by the independent auditors. The policy gives detailed guidance to management as to the specific services that are eligible for general pre-approval and provides specific cost limits for certain services on an annual basis. Pursuant to the policy and the Audit Committee charter, the Audit Committee has granted to its chairman the authority to address any requests for pre-approval of individual services.

PART IV

Item 15. Exhibits and Financial Statement Schedules.

1. Financial Statements

The following financial statements are set forth in Item 8 hereof:

- [Report of Independent Registered Public Accounting Firm](#) (PCAOB ID 238)
- [Consolidated Statements of Operations](#) for fiscal 2022, fiscal 2021, and fiscal 2020
- [Consolidated Statements of Comprehensive Income \(Loss\)](#) for fiscal 2022, fiscal 2021, and fiscal 2020
- [Consolidated Balance Sheets](#) as of March 31, 2022 and March 31, 2021
- [Consolidated Statements of Cash Flows](#) for fiscal 2022, fiscal 2021, and fiscal 2020
- [Consolidated Statements of Shareholder's \(Deficit\) Equity](#) for fiscal 2022, fiscal 2021, and fiscal 2020
- [Notes to the Consolidated Financial Statements](#)

2. Financial Statement Schedules

None.

All schedules are omitted as the required information is inapplicable or the information is presented in our consolidated financial statements or related notes.

3. Exhibits

Exhibit No.	Description
2.1	Arrangement Agreement by and among Hindalco Industries Limited, AV Aluminum Inc. and Novelis Inc., dated as of February 10, 2007 (incorporated by reference to Exhibit 2.1 to our Current Report on Form 8-K filed on February 13, 2007 (File No. 001-32312))
2.2	Agreement and Plan of Merger, dated as of July 26, 2018, among Novelis Inc., Novelis Acquisitions LLC, Aleris Corporation and OCM Opportunities ALS Holdings L.P. (incorporated by reference to Exhibit 2.1 to our Current Report on Form 8-K filed on July 26, 2018 (File No. 001-32312))
3.1	Restated Certificate and Articles of Incorporation of Novelis Inc. (incorporated by reference to Exhibit 3.1 to our Current Report on Form 8-K filed on January 7, 2005 (File No. 001-32312))
3.2	Certificate and Articles of Amalgamation of Novelis Inc., dated March 31, 2016 (incorporated by reference to Exhibit 3.2 to our Annual Report on Form 10-K filed May 10, 2016 (File No. 001-32312))
3.3	Novelis Inc. Amended and Restated Bylaws, adopted as of July 24, 2008 (incorporated by reference to Exhibit 3.2 to our Current Report on Form 8-K filed on July 25, 2008 (File No. 001-32312))
4.1	Specimen Certificate of Novelis Inc. Common Shares (incorporated by reference to Exhibit 4.2 to our Registration Statement on Form 10-12B filed on December 27, 2004 (File No. 001-32312))
4.2	Indenture relating to the 4.750% Senior Notes due 2030, dated January 16, 2020, between Novelis Corporation, as issuer, Novelis Inc., as guarantor, the subsidiary guarantors named on the signature page thereto and Regions Bank as trustee (incorporated by reference to Exhibit 4.1 to our Current Report on Form 8-K filed on January 16, 2020 (File No. 001-32312))
4.3	Indenture relating to the 3.375% Senior Notes due 2029, dated March 31, 2021, between Novelis Sheet Ingot GmbH, as issuer, Novelis Inc., as guarantor, the subsidiary guarantors named on the signature pages thereto and Deutsche Trustee Company Limited, as trustee (incorporated by reference to Exhibit 4.1 to our Current Report on Form 8-K filed on March 31, 2021 (File No. 001-32312))
4.4	Indenture relating to the 3.250% Senior Notes due 2026, dated August 11, 2021, between Novelis Corporation, as issuer, Novelis Inc., as guarantor, the subsidiary guarantors named on the signature pages thereto and Regions Bank, as trustee (incorporated by reference to Exhibit 4.1 to our Current Report on Form 8-K filed on August 11, 2021 (File No. 001-32312))
4.5	Indenture relating to the 3.875% Senior Notes due 2031, dated August 11, 2021, between Novelis Corporation, as issuer, Novelis Inc., as guarantor, the subsidiary guarantors named on the signature pages thereto and Regions Bank as trustee (incorporated by reference to Exhibit 4.3 to our Current Report on Form 8-K filed on August 11, 2021 (File No. 001-32312))
10.1	Increase Joinder Amendment to Credit Agreement, dated as of February 21, 2020, among Novelis Acquisitions, LLC, as borrower of the Aleris Incremental Term Loans, Novelis Inc., as Borrower, AV Metals Inc., as Holdings, the other Loan Parties party thereto, the Third Party Security Provider, Standard Chartered Bank, as Administrative Agent for the Lenders, and the Lenders Party thereto (incorporated by reference to Exhibit 10.2 to our Annual Report on Form 10-K filed on May 7, 2020 (File No. 001-32312))

- 10.2 [Amendment No. 4 to Credit Agreement, dated as of August 25, 2020, between Novelis Inc., AV Metals Inc., the other loan parties thereto, the Third Party Security Provider, the Lenders party thereto, and Standard Chartered Bank, as Administrative Agent and Collateral Agent \(incorporated by reference to Exhibit 10.3 to our Quarterly Report on Form 10-Q filed on November 9, 2020 \(File No. 001-32312\)\).](#)
- 10.3 [Amendment No. 5 to Credit Agreement, dated as of December 11, 2020, between Novelis Inc., AV Metals Inc., the other loan parties thereto, the Third Party Security Provider, the Lenders party thereto, and Standard Chartered Bank, as Administrative Agent and Collateral Agent \(incorporated by reference to Exhibit 10.3 to our Quarterly Report on Form 10-Q filed on February 3, 2021 \(File No. 001-32312\)\).](#)
- 10.4 [Refinancing Amendment to Credit Agreement, dated as of March 26, 2021, among Novelis Inc., as Borrower of the Tranche A-1 Term Loans, Aleris Corporation, as the survivor of the merger with Novelis Acquisitions LLC, as co-borrower of the Aleris Incremental Term Loans and as guarantor, AV Metals Inc., the other Loan Parties party thereto, Novelis Italia S.P.A., as third party security provider, the Lenders party thereto and Standard Chartered Bank, as administrative agent and as collateral agent \(incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed on March 31, 2021 \(File No. 001-32312\)\).](#)
- 10.5 [Amendment No. 4 to Second Amended and Restated Credit Agreement, dated February 21, 2020, among Novelis Inc., as Canadian Borrower, Novelis Corporation, as a U.S. Borrower, the other U.S. Subsidiaries of Canadian Borrower party thereto as U.S. Borrowers, Novelis UK Ltd, as a U.K. Borrower, Novelis AG, as a Swiss Borrower, Novelis Deutschland GMBH, as a German Borrower, AV Metals Inc., the other Guarantors party thereto, the Third Party Security Provider, the Lenders party thereto, Wells Fargo Bank, National Association, as Administrative Agent, Collateral Agent, and U.S. Swingline Lender, Wells Fargo Bank, N.A. \(London Branch\), as European Swingline Lender and the Issuing Banks party thereto \(incorporated by reference to Exhibit 10.3 to our Annual Report on Form 10-K filed on May 7, 2020 \(File No. 001-32312\)\).](#)
- 10.6 [Amendment No. 5 to Second Amended and Restated Credit Agreement, dated as of August 25, 2020, among Novelis Inc., Novelis Corporation, the other U.S. Subsidiaries of Canadian Borrower party thereto, Novelis UK Ltd, Novelis AG, Novelis Deutschland GMBH, the other Guarantors party thereto, the Third Party Security Provider, the Lenders party thereto, Wells Fargo Bank, National Association, as Administrative Agent, and as Collateral Agent \(incorporated by reference to Exhibit 10.2 to our Quarterly Report on Form 10-Q filed on November 9, 2020 \(File No. 001-32312\)\).](#)
- 10.7 [Amendment No. 6 to Second Amended and Restated Credit Agreement, dated as of December 11, 2020, among Novelis Inc., Novelis Corporation, the other U.S. Subsidiaries of Canadian Borrower party thereto, Novelis UK Ltd, Novelis AG, Novelis Deutschland GMBH, the other Guarantors party thereto, the Third Party Security Provider, the Lenders party thereto, Wells Fargo Bank, National Association, as Administrative Agent, and as Collateral Agent \(incorporated by reference to Exhibit 10.2 to our Quarterly Report on Form 10-Q filed on February 3, 2021 \(File No. 001-32312\)\).](#)
- 10.8 [Amendment No. 7 to Second Amended and Restated Credit Agreement, dated as of March 5, 2021, among Novelis Inc., Novelis Corporation, the other U.S. Subsidiaries of Canadian Borrower party thereto, Novelis UK Ltd, Novelis AG, Novelis Deutschland GMBH, the other Guarantors party thereto, the Third Party Security Provider, the Lenders party thereto, Wells Fargo Bank, National Association, as Administrative Agent, and as Collateral Agent \(incorporated by reference to Exhibit 10.8 to our Annual Report on Form 10-K filed on May 12, 2021 \(File No. 001-32312\)\).](#)
- 10.9 [Amendment No. 8 to Second Amended and Restated Credit Agreement, dated as of October 7, 2021, among Novelis Inc., Novelis Corporation, the other U.S. Subsidiaries of Canadian Borrower party thereto, Novelis UK Ltd, Novelis AG, Novelis Deutschland GMBH, the other Guarantors party thereto, the Third Party Security Provider, the Lenders party thereto, Wells Fargo Bank, National Association, as Administrative Agent, and as Collateral Agent \(incorporated by reference to Exhibit 10.1 to our Quarterly Report on Form 10-Q filed on November 3, 2021 \(File No. 001-32312\)\).](#)
- 10.10 [Amendment No. 9 to Second Amended and Restated Credit Agreement, dated as of April 1, 2022, among Novelis Inc., Novelis Corporation, the other U.S. Subsidiaries of Canadian Borrower party thereto, Novelis UK Ltd, Novelis AG, Novelis Deutschland GMBH, the other Guarantors party thereto, the Third Party Security Provider, the Lenders party thereto, Wells Fargo Bank, National Association, as Administrative Agent, and as Collateral Agent](#)
- 10.11 [Short Term Credit Agreement, dated as of January 18, 2022, among Novelis Inc., as the Borrower, the guarantors party thereto and Axis Bank Limited, IFSC Banking Unit, Gift City, as lender and administrative agent \(incorporated by reference to Exhibit 10.1 to our Quarterly Report on Form 10-Q filed on February 7, 2022 \(File No. 001-32312\)\).](#)
- 10.12* [Novelis Inc. Change in Control Severance Plan \(incorporated by reference to Exhibit 10.5 to our Annual Report on Form 10-K filed on May 8, 2019 \(File No. 001-32312\)\).](#)
- 10.13* [Form of Indemnity Agreement between Novelis Inc. and Members of the Board of Directors of Novelis Inc. \(incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K filed on May 21, 2007 \(File No. 001-32312\)\).](#)
- 10.14* [Form of Severance Agreement \(incorporated by reference to Exhibit 10.4 to our Current Report on Form 8-K filed on July 1, 2009 \(File No. 001-32312\)\).](#)

10.15*	Novelis Supplementary Pension Plan dated January 1, 2012 ((incorporated by reference to Exhibit 10.31 to our Annual Report on Form 10-K filed on May 24, 2012 (File No. 001-32312))
10.16*	Employment Agreement between Novelis Inc. and Steven Fisher dated August 10, 2015 (incorporated by reference to Exhibit 10.1 to our Quarterly Report on Form 10-Q filed on November 9, 2015 (File No. 001-32312))
10.17*	Employment Agreement between Novelis Inc. and Antonio Tadeu Coelho Nardocci dated September 4, 2009 (incorporated by reference to Exhibit 10.1 to our Current Report on Form 8-K/A filed on September 9, 2009 (File No. 001-32312))
10.18*	Employment Agreement between Novelis Inc. and Devinder Ahuja, dated as of June 6, 2016 (incorporated by reference to Exhibit 10.1 to our Quarterly Report on Form 10-Q filed on August 5, 2016 (File No. 001-32312))
10.19*	Employment Agreement between Novelis Inc. and Marco Antonio Palmieri dated June 16, 2017 (incorporated by reference to Exhibit 10.19 to our Annual Report on Form 10-K filed on May 8, 2018 (File No. 001-32312))
10.20*	Employment Agreement between Novelis Inc. and Sachin Satpute dated as of April 28, 2016 (incorporated by reference to Exhibit 10.2 to our Quarterly Report on Form 10-Q filed on August 5, 2016 (File No. 001-32312))
10.21*	Employment Agreement between Novelis Inc. and Emilio Braghi, dated as of July 22, 2016 (incorporated by reference to Exhibit 10.3 to our Quarterly Report on Form 10-Q filed on August 5, 2016 (File No. 001-32312))
21.1	List of Subsidiaries of Novelis Inc.
31.1	Section 302 Certification of Principal Executive Officer
31.2	Section 302 Certification of Principal Financial Officer
32.1	Section 906 Certification of Principal Executive Officer
32.2	Section 906 Certification of Principal Financial Officer
101.INS	XBRL Instance Document
101.SCH	XBRL Taxonomy Extension Schema Document
101.CAL	XBRL Taxonomy Extension Calculation Linkbase
101.DEF	XBRL Taxonomy Extension Definition Linkbase
101.LAB	XBRL Taxonomy Extension Label Linkbase
101.PRE	XBRL Taxonomy Extension Presentation Linkbase
104	Cover Page Interactive Data File (formatted as Inline XBRL and contained in Exhibit 101)

* Indicates a management contract or compensatory plan or arrangement.

Item 16. Form 10-K Summary.

None.

SIGNATURES

Pursuant to the requirements of Section 13 or 15(d) of the Securities Exchange Act of 1934, the registrant has duly caused this report to be signed on its behalf by the undersigned, thereunto duly authorized.

NOVELIS INC.

By: /s/ Steven Fisher
Name: Steven Fisher
Title: President and Chief Executive Officer
Date: May 11, 2022

Pursuant to the requirements of the Securities Exchange Act of 1934, this report has been signed below by the following persons on behalf of the registrant and in the capacities and on the dates indicated.

<u>/s/ Steven Fisher</u> Steven Fisher	(Principal Executive Officer)	Date: May 11, 2022
<u>/s/ Devinder Ahuja</u> Devinder Ahuja	(Principal Financial Officer)	Date: May 11, 2022
<u>/s/ Stephanie Rauls</u> Stephanie Rauls	(Principal Accounting Officer)	Date: May 11, 2022
<u>/s/ Kumar Mangalam Birla</u> Kumar Mangalam Birla	(Chairman of the Board of Directors)	Date: May 11, 2022
<u>/s/ Askaran Agarwala</u> Askaran Agarwala	(Director)	Date: May 11, 2022
<u>/s/ Clarence J. Chandran</u> Clarence J. Chandran	(Director)	Date: May 11, 2022
<u>/s/ Gary Comerford</u> Gary Comerford	(Director)	Date: May 11, 2022
<u>/s/ Dr. Thomas M. Connelly, Jr.</u> Dr. Thomas M. Connelly, Jr.	(Director)	Date: May 11, 2022
<u>/s/ Satish Pai</u> Satish Pai	(Director)	Date: May 11, 2022
<u>/s/ Vikas Sehgal</u> Vikas Sehgal	(Director)	Date: May 11, 2022
<u>/s/ Donald A. Stewart</u> Donald A. Stewart	(Director)	Date: May 11, 2022

**AMENDMENT NO. 9 TO
SECOND AMENDED AND RESTATED CREDIT AGREEMENT
dated as of April 1, 2022
among
NOVELIS INC.,
as Canadian Borrower,
NOVELIS CORPORATION
as a U.S. Borrower,
THE OTHER U.S. SUBSIDIARIES OF CANADIAN BORROWER
PARTY HERETO AS U.S. BORROWERS,
NOVELIS UK LTD,
as a U.K. Borrower,
NOVELIS AG,
as a Swiss Borrower,
NOVELIS DEUTSCHLAND GMBH,
as a German Borrower,
THE OTHER BORROWERS PARTY HERETO,
AV METALS INC.,
THE OTHER GUARANTORS PARTY HERETO,
THE THIRD PARTY SECURITY PROVIDER,
THE LENDERS PARTY HERETO,
THE ISSUING BANKS,
WELLS FARGO BANK, NATIONAL ASSOCIATION,
as Administrative Agent.**

This **AMENDMENT NO. 9 TO SECOND AMENDED AND RESTATED CREDIT AGREEMENT** (this “**Amendment**”), dated as of April 1, 2022, is entered into among NOVELIS INC., a corporation amalgamated under the Canada Business Corporations Act and having its corporate office at Two Alliance Center, 3560 Lenox Road, Suite 2000, Atlanta, GA 30326, USA (the “**Canadian Borrower**”), NOVELIS CORPORATION, as a U.S. borrower, the other U.S. borrowers party thereto (collectively, the “**U.S. Borrowers**”), NOVELIS UK LTD, as a U.K. borrower (“**Novelis UK**”), NOVELIS AG, as a Swiss borrower (“**Novelis AG**”), NOVELIS DEUTSCHLAND GMBH, as a German borrower (“**Novelis Deutschland**”), AV METALS INC., a corporation formed under the Canada Business Corporations Act (“**Holdings**”), the other LOAN PARTIES (as defined in the Amended Credit Agreement referred to below), NOVELIS ITALIA S.P.A. (the “**Third Party Security Provider**”), the LENDERS party hereto, the ISSUING BANKS, and WELLS FARGO BANK, NATIONAL ASSOCIATION, as administrative agent (in such capacity, and together with its successors in such capacity, “**Administrative Agent**”).

RECITALS

WHEREAS, the Borrowers, Holdings, the other Loan Parties, the Administrative Agent, the Collateral Agent, the lenders party thereto, and the other parties from time to time party thereto, entered into that certain Second Amended and Restated Credit Agreement, dated as of October 6, 2014 (as amended by Amendment No. 1 to Second Amended and Restated Credit Agreement, dated as of September 14, 2017, as further amended by Amendment No. 2 to Second Amended and Restated Credit Agreement and Amendment to U.S. Security Agreement, dated as of April 15, 2019, as further amended by Amendment No. 3 to Second Amended and Restated Credit Agreement, dated as of December 20, 2019, as further amended by Amendment No. 4 to Second Amended and Restated Credit Agreement and Amendment No. 2 to U.S. Security Agreement, dated as of February 21, 2020, as further amended by Amendment No. 5 to Second Amended and Restated Credit Agreement, dated as of August 25, 2020, as further amended by Amendment No. 6 to Second Amended and Restated Credit Agreement, dated as of December 11, 2020, as further amended by Amendment No. 7 to Second Amended and Restated Credit Agreement, dated as of March 5, 2021, as further amended by Amendment No. 8 to Second Amended and Restated Credit Agreement, dated as of October 7, 2021 and as further as amended, supplemented, restated or otherwise modified prior to the date hereof, the “**Credit Agreement**”, and the Credit Agreement, and as amended by this Amendment, the “**Amended Credit Agreement**”);

WHEREAS, the Third Party Security Provider has pledged certain assets to secure the Secured Obligations;

WHEREAS, the Borrowers have requested amendments to the Credit Agreement as herein set forth;

WHEREAS, the U.S. Borrowers and the other Guarantors party to the U.S. Security Agreement (collectively, the “**Reaffirming Parties**”, and each, a “**Reaffirming Party**”) have entered into or joined the U.S. Security Agreement in order to induce the Lenders to make Loans, and each Reaffirming Party desires to reaffirm the security interest granted pursuant to the U.S. Security Agreement;

WHEREAS, the Reaffirming Parties expect to realize, or have realized, substantial direct and indirect benefits as a result of this Amendment becoming effective and the consummation of the transactions contemplated hereby; and

WHEREAS, the Borrowers, Holdings, the other Loan Parties, the Administrative Agent, the Collateral Agent, and each lender party hereto, have agreed to amend the Credit Agreement on the terms and subject to the conditions herein provided.

NOW, THEREFORE, in consideration of the foregoing, the mutual covenants and obligations herein set forth and other good and valuable consideration, the adequacy and receipt of which is hereby acknowledged, and in reliance upon the representations, warranties and covenants herein contained, the parties hereto, intending to be legally bound, hereby agree as follows:

Section 1. Definitions. Capitalized terms used herein and not otherwise defined herein shall have the meanings ascribed to such terms in the Amended Credit Agreement.

Section 2. Amendments. Subject to the terms and conditions set forth herein, effective as of the Amendment Effective Date (as defined below), the Credit Agreement is hereby amended as follows:

(a) The definition of “LC Commitment” in Section 1.01 of the Credit Agreement is hereby amended and restated in its entirety as follows:

“**LC Commitment**” shall mean the commitment of the Issuing Banks to issue U.S. Letters of Credit and European Letters of Credit pursuant to Section 2.18. The total amount of the LC Commitment as of the Amendment No. 9 Effective Date shall be \$275,000,000; provided, further, that in no event shall the LC Commitment exceed the Adjusted Total Revolving Commitment. The LC Commitment of any Issuing Bank at any time shall, subject to Section 2.18, be an amount mutually agreed by the Designated Company and such Issuing Bank from time to time, and in any case shall not exceed \$275,000,000.

(b) Section 1.01 of the Credit Agreement is hereby amended by inserting the following definitions in the appropriate alphabetical order:

(i) “**Amendment No. 9**” means that certain Amendment No. 9 to Second Amended and Restated Credit Agreement, dated as of April 1, 2022, among Holdings, the Borrowers party thereto, the other Loan Parties party thereto, Novelis Italia, S.p.A., as third party security provider, the Administrative Agent, the Issuing Banks and each Lender party thereto.

(ii) “**Amendment No. 9 Effective Date**” means the “Amendment Effective Date” as defined in Amendment No. 9.

(c) Section 2.18(e) of the Credit Agreement is hereby amended by deleting the phrase “at no time shall there be more than four Issuing Banks” and replacing such phrase with “at no time shall there be more than five Issuing Banks”.

Section 3. Conditions Precedent to Effectiveness of this Amendment. This Amendment shall become effective as of the first date (the “**Amendment Effective Date**”) on which each of the following conditions precedent shall have been satisfied, or duly waived by the Lenders party hereto, the Issuing Banks and the Administrative Agent:

(a) Executed Amendment. The Administrative Agent shall have received this Amendment, duly executed by each of the Loan Parties, the Third Party Security Provider, the Required Lenders, the Issuing Banks and the Administrative Agent.

(b) Payment of Fees and Expenses. The Administrative Agent shall have received expenses (including the reasonable fees and expenses of legal counsels) in connection with this Amendment for which invoices have been presented, at least one Business Day prior to the Amendment Effective Date, in connection with this Amendment.

(c) Representations and Warranties. Each of the representations and warranties contained in Section 4 below and in any other Loan document shall be true and correct in all material respects (or, in the case of any representation or warranty that is qualified as to materiality, "Material Adverse Effect" or similar language, in all respects) on and as of the date hereof.

(d) No Default or Event of Default. Before and after giving effect to this Amendment, no Default or Event of Default shall have occurred and be continuing or would result from the effectiveness of this Amendment.

Section 4. Representations and Warranties. Each Loan Party represents and warrants to the Administrative Agent and each Lender as follows:

(a) After giving effect to this Amendment, each of the representations and warranties in the Amended Credit Agreement or in any other Loan Document are true and correct in all material respects (or, in the case of any representation or warranty that is qualified as to materiality, "Material Adverse Effect" or similar language, in all respects) on and as of the date hereof as though made on and as of such date, except to the extent that any such representation or warranty expressly relates to an earlier date, in which case such representations and warranties are true and correct in all material respects (or, in the case of any representation or warranty that is qualified as to materiality, "Material Adverse Effect" or similar language, in all respects) as of such earlier date.

(b) The execution and delivery by the Canadian Borrower, each other Loan Party and the Third Party Security Provider of this Amendment, and the performance of this Amendment and the Amended Credit Agreement by the Canadian Borrower, each other Loan Party and the Third Party Security Provider, in each case have been duly authorized by all requisite organizational action on its part and will not violate any of its Organizational Documents.

(c) This Amendment has been duly executed and delivered by the Canadian Borrower, each other Loan Party and the Third Party Security Provider, and each of this Amendment and the Amended Credit Agreement constitutes the Canadian Borrower's, such Loan Party's or such Third Party Security Provider's, as applicable, legal, valid and binding obligation, enforceable against it in accordance with their terms, except as the same may be limited by bankruptcy, insolvency, reorganization, moratorium or other similar laws affecting the rights of creditors generally and by general principles of equity.

(d) Before and after giving effect to this Amendment, no Default or Event of Default has occurred and is continuing as of the date hereof.

Section 5. Continuing Effect; Liens and Guarantees; No Novation.

(a) Each of the Loan Parties and the Third Party Security Provider hereby consents to this Amendment and the Amended Credit Agreement. Each of the Loan Parties and the Third Party Security Provider hereby acknowledges and agrees that all of its Secured Obligations, including all Liens and (in the case of the Loan Parties) Guarantees granted to the Secured Parties under the applicable Loan Documents, are ratified and reaffirmed and that such Liens and Guarantees shall continue in full force and effect on and after Amendment Effective Date to secure and support the Secured Obligations. Each of the Loan Parties hereby further ratifies and reaffirms the validity, enforceability and binding nature of the Secured Obligations.

(b) Holdings and each Subsidiary Guarantor hereby (i) acknowledges and agrees to the terms of this Amendment and the Amended Credit Agreement and (ii) confirms and agrees that, each of its Guarantee and any Foreign Guarantee is, and shall continue to be, in full force and effect, and shall apply to all Secured Obligations without defense, counterclaim or offset of any kind and each of its Guarantee

and any such Foreign Guarantee is hereby ratified and confirmed in all respects. Each Borrower hereby confirms its liability for the Secured Obligations, without defense, counterclaim or offset of any kind.

(c) Holdings, the Canadian Borrower, each other Loan Party and the Third Party Security Provider hereby ratifies and reaffirms the validity and enforceability (without defense, counterclaim or offset of any kind) of the Liens and security interests granted by it to the Collateral Agent for the benefit of the Secured Parties to secure any of the Secured Obligations by Holdings, the Canadian Borrower, any other Loan Party and the Third Party Security Provider pursuant to the Loan Documents to which any of Holdings, the Canadian Borrower, any other Loan Party or the Third Party Security Provider is a party and hereby confirms and agrees that notwithstanding the effectiveness of this Amendment, and except as expressly amended by this Amendment, each such Loan Document is, and shall continue to be, in full force and effect and each is hereby ratified and confirmed in all respects, except that, on and after the effectiveness of this Amendment, each reference in the Loan Documents to the "Credit Agreement", "thereunder", "thereof" (and each reference in the Credit Agreement to this "Agreement", "hereunder" or "hereof") or words of like import shall mean and be a reference to the Amended Credit Agreement.

(d) Without limiting the generality of this Section 5 or Section 6, (i) neither this Amendment, the Amended Credit Agreement, nor any other Loan Document entered into in connection herewith or therewith, shall extinguish the "Secured Obligations" (or any term of like import) as defined or referenced in each Security Agreement, or the "Secured Obligations" under and as defined in the Credit Agreement (collectively, the "**Loan Document Secured Obligations**"), or discharge or release the priority of any Loan Document, and any security interest previously granted pursuant to each Loan Document is hereby reaffirmed and each such security interest continues in effect and secures the Loan Document Secured Obligations, (ii) nothing contained herein, in the Amended Credit Agreement or any other Loan Document entered into in connection herewith or therewith shall be construed as a substitution or notation of all or any portion of the Loan Document Secured Obligations or instruments securing any of the foregoing, which shall remain in full force and effect and shall continue as obligations under the Amended Credit Agreement, and (iii) nothing implied in this Amendment, the Amended Credit Agreement or any other Loan Document entered into in connection herewith or therewith, or in any other document contemplated hereby or thereby shall be construed as a release or other discharge of any Loan Party or the Third Party Security Provider from any of its Loan Document Secured Obligations, it being understood that such obligations shall continue as obligations under the Amended Credit Agreement.

Section 6. U.S. Reaffirmation.

(a) The Reaffirming Parties hereby confirm their respective guarantees, assignments, pledges and grants of security interests, as applicable, under the U.S. Security Agreement, and agree that such guarantees, assignments, pledges and grants of security interests shall continue to be in full force and effect and shall accrue to the benefit of the Collateral Agent for the benefit of the Secured Parties.

(b) Each Reaffirming Party hereby confirms and agrees that the "Secured Obligations" (or any term of like import) as defined or referenced in the U.S. Security Agreement will include the "Secured Obligations" as defined in the Credit Agreement.

Section 7. Reference to and Effect on the Loan Documents.

(a) Except as expressly set forth in this Amendment, all of the terms and provisions of the Credit Agreement and the other Loan Documents (including all exhibits and schedules to each of the Credit Agreement and the other Loan Documents) are and shall remain in full force and effect and are hereby ratified and confirmed. The Amendments provided for herein and in the annexes and exhibits hereto are limited to the specific provisions of the Credit Agreement specified herein and therein and shall not constitute an amendment of, or an indication of the Administrative Agent's or any Lender's

willingness to amend or waive, any other provisions of the Credit Agreement as amended hereby or thereby, or the same sections or any provision of any other Loan Document for any other date or purpose.

(b) The execution, delivery and effectiveness of this Amendment shall not, except as expressly provided herein, operate as a waiver of any right, power or remedy of the Administrative Agent, the Collateral Agent, any Issuing Bank or any Lender under the Credit Agreement or any Loan Document, or constitute a waiver or amendment of any other provision of the Credit Agreement or any Loan Document except as and to the extent expressly set forth herein.

(c) The execution and delivery of this Amendment by any Loan Party or Third Party Security Provider shall not constitute a joinder by, or agreement to be bound by the terms of, any Loan Document to which such Loan Party or Third Party Security Provider is not a party.

(d) This Amendment shall constitute a Loan Document.

Section 8. Further Assurances; Post-Closing Requirements.

(a) The Canadian Borrower, each other Loan Party and the Third Party Security Provider hereby agrees to execute any and all further documents, agreements and instruments and take all further actions that the Administrative Agent deems reasonably necessary or advisable in connection with this Amendment, including to continue and maintain the effectiveness of the Liens and guarantees provided for under the Loan Documents, with the priority contemplated under the Loan Documents. The Administrative Agent and the Collateral Agent are hereby authorized by the Lenders to enter into all such further documents, agreements and instruments, and to file all financing statements deemed by the Administrative Agent to be reasonably necessary or advisable in connection with this Amendment.

Section 9. Counterparts.

(a) This Amendment and any notices delivered under this Amendment, may be executed by means of (a) an electronic signature that complies with the federal Electronic Signatures in Global and National Commerce Act, state enactments of the Uniform Electronic Transactions Act, or any other relevant and applicable electronic signatures law; (b) an original manual signature; or (c) a faxed, scanned, or photocopied manual signature. Each electronic signature or faxed, scanned, or photocopied manual signature shall for all purposes have the same validity, legal effect, and admissibility in evidence as an original manual signature. The Administrative Agent reserves the right, in its sole discretion, to accept, deny, or condition acceptance of any electronic signature on this Amendment or on any notice delivered to the Administrative Agent under this Amendment.

(b) This Amendment and any notices delivered under this Amendment may be executed in any number of counterparts and by different parties hereto in separate counterparts, each of which when so executed shall be deemed to be an original and all of which taken together shall constitute one and the same agreement. Receipt by the Administrative Agent of a facsimile copy or electronic image scan transmission (e.g., PDF via electronic email) of an executed signature page and any notices as set forth herein shall constitute receipt by the Administrative Agent and shall be as effective as delivery of a manually executed counterpart of the Amendment or notice.

Section 10. Governing Law. This Amendment and the rights and obligations of the parties hereto shall be governed by, and construed and interpreted in accordance with, the law of the State of New York, without regard to conflicts of law principles that would require the application of the laws of another jurisdiction.

Section 11. Headings. Section headings contained in this Amendment are included herein for convenience of reference only and shall not constitute a part of this Amendment for any other purposes.

Section 12. **WAIVER OF JURY TRIAL**. EACH PARTY HERETO HEREBY IRREVOCABLY WAIVES, TO THE FULLEST EXTENT PERMITTED BY APPLICABLE REQUIREMENTS OF LAW, ANY RIGHT IT MAY HAVE TO A TRIAL BY JURY IN ANY LEGAL PROCEEDING DIRECTLY OR INDIRECTLY ARISING OUT OF OR RELATING TO THIS AMENDMENT, ANY OTHER LOAN DOCUMENT OR THE TRANSACTIONS CONTEMPLATED HEREBY (WHETHER BASED ON CONTRACT, TORT OR ANY OTHER THEORY).

[SIGNATURE PAGES FOLLOW]

IN WITNESS WHEREOF, the parties hereto have caused this Amendment to be executed by their respective officers and members thereunto duly authorized, on the date first indicated above.

NOVELIS INC., as the Canadian Borrower, Administrative Borrower and a Canadian Guarantor

By: /s/ Gregg Murphey
Name: Gregg Murphey
Title: Authorized Signatory

AV METALS INC., as Holdings and a Canadian Guarantor

By: /s/ Gregg Murphey
Name: Gregg Murphey
Title: Authorized Signatory

NOVELIS CORPORATION, as a U.S. Borrower and a Guarantor

By: /s/ Gregg Murphey
Name: Gregg Murphey
Title: Authorized Signatory

NOVELIS GLOBAL EMPLOYMENT ORGANIZATION, INC., as a U.S. Borrower and a Guarantor

By: /s/ Gregg Murphey
Name: Gregg Murphey
Title: Assistant Treasurer

NOVELIS SOUTH AMERICA HOLDINGS LLC, as a U.S. Borrower and a Guarantor

By: /s/ Gregg Murphey
Name: Gregg Murphey
Title: Authorized Signatory

NOVELIS HOLDINGS INC.,
as a U.S. Borrower and a Guarantor

By: /s/ Gregg Murphey
Name: Gregg Murphey
Title: Authorized Signatory

[SIGNATURE PAGE TO AMENDMENT NO. 9 TO SECOND AMENDED AND RESTATED CREDIT AGREEMENT]

NOVELIS UK LTD, as U.K. Borrower and a U.K. Guarantor

By: /s/ Gregg Murphey
Name: Gregg Murphey
Title: Attorney

NOVELIS EUROPE HOLDINGS LIMITED,
as a U.K. Guarantor

By: /s/ Gregg Murphey
Name: Gregg Murphey
Title: Attorney

NOVELIS SERVICES LIMITED,
as a U.K. Guarantor

By: /s/ Gregg Murphey
Name: Gregg Murphey
Title: Attorney

[SIGNATURE PAGE TO AMENDMENT NO. 9 TO SECOND AMENDED AND RESTATED CREDIT AGREEMENT]

NOVELIS AG, as Swiss Borrower, European Administrative Borrower and a Swiss Guarantor

By: /s/ Gregg Murphey
Name: Gregg Murphey
Title: Authorized Signatory

NOVELIS SWITZERLAND SA,
as a Swiss Guarantor

By: /s/ Gregg Murphey
Name: Gregg Murphey
Title: Authorized Signatory

[SIGNATURE PAGE TO AMENDMENT NO. 9 TO SECOND AMENDED AND RESTATED CREDIT AGREEMENT]

4260848 CANADA INC., as a Canadian Guarantor

By: /s/ Gregg Murphey
Name: Gregg Murphey
Title: Authorized Signatory

4260856 CANADA INC., as a Canadian Guarantor

By: /s/ Gregg Murphey
Name: Gregg Murphey
Title: Authorized Signatory

8018227 CANADA INC., as a Canadian Guarantor

By: /s/ Gregg Murphey
Name: Gregg Murphey
Title: Authorized Signatory

[SIGNATURE PAGE TO AMENDMENT NO. 9 TO SECOND AMENDED AND RESTATED CREDIT AGREEMENT]

SIGNED AND DELIVERED AS A DEED
for and on behalf of NOVELIS ALUMINIUM HOLDING UNLIMITED COMPANY
by its lawfully appointed attorney,
as Irish Guarantor
in the presence of:

By: /s/ Gregg Murphey
Name: Gregg Murphey
Title: Attorney

witness:

By: /s/ Teresa Murphey
Name: Teresa Murphey
Title: Spouse

Address: 3347 Osborne Rd, Brookhaven, GA 30319

Occupation: HR Consultant

[SIGNATURE PAGE TO AMENDMENT NO. 9 TO SECOND AMENDED AND RESTATED CREDIT AGREEMENT]

NOVELIS DEUTSCHLAND GMBH,
as a German Borrower and German Guarantor

By: /s/ Gregg Murphey
Name: Gregg Murphey
Title: Person Authorized

NOVELIS SHEET INGOT GMBH,
as a German Guarantor

By: /s/ Gregg Murphey
Name: Gregg Murphey
Title: Person Authorized

[SIGNATURE PAGE TO AMENDMENT NO. 9 TO SECOND AMENDED AND RESTATED CREDIT AGREEMENT]

NOVELIS DO BRASIL LTDA.,
as Brazilian Guarantor

By: /s/ Gregg Murphey
Name: Gregg Murphey
Title: Attorney-in-Fact

witness:

By: /s/ Kerrie Krizner
Name: Kerrie Krizner
Title: Project Manager — Legal

witness:

By: /s/ Chirag P. Shah
Name: Chirag P. Shah
Title: Assistant General Counsel

[SIGNATURE PAGE TO AMENDMENT NO. 9 TO SECOND AMENDED AND RESTATED CREDIT AGREEMENT]

NOVELIS PAE S.A.S., as French Guarantor

By: /s/ Gregg Murphey
Name: Gregg Murphey
Title: Attorney-in-Fact

[SIGNATURE PAGE TO AMENDMENT NO. 9 TO SECOND AMENDED AND RESTATED CREDIT AGREEMENT]

NOVELIS MEA LTD, a Company Limited by Shares under the Companies Law of the Dubai
International Financial Centre,
as Dubai Guarantor

By: /s/ Gregg Murphey
Name: Gregg Murphey
Title: Authorized Signatory

[SIGNATURE PAGE TO AMENDMENT NO. 9 TO SECOND AMENDED AND RESTATED CREDIT AGREEMENT]

NOVELIS ITALIA S.P.A., as Third Party Security Provider

By: /s/ Gregg Murphey
Name: Gregg Murphey
Title: Attorney

[SIGNATURE PAGE TO AMENDMENT NO. 9 TO SECOND AMENDED AND RESTATED CREDIT AGREEMENT]

NOVELIS ALR ALUMINUM HOLDINGS CORPORATION, as a U.S. Borrower and a Guarantor

By: /s/ Gregg Murphey
Name: Gregg Murphey
Title: Authorized Signatory

NOVELIS ALR INTERNATIONAL, INC., as a U.S. Borrower and a Guarantor

By: /s/ Gregg Murphey
Name: Gregg Murphey
Title: Authorized Signatory

NOVELIS ALR ROLLED PRODUCTS, INC., as a U.S. Borrower and a Guarantor

By: /s/ Gregg Murphey
Name: Gregg Murphey
Title: Authorized Signatory

NOVELIS ALR ASSET MANAGEMENT CORPORATION, as a U.S. Borrower and a Guarantor

By: /s/ Gregg Murphey
Name: Gregg Murphey
Title: Authorized Signatory

[SIGNATURE PAGE TO AMENDMENT NO. 9 TO SECOND AMENDED AND RESTATED CREDIT AGREEMENT]

NOVELIS ALR ROLLED PRODUCTS, LLC, as a U.S. Borrower and a Guarantor

By: /s/ Gregg Murphey
Name: Gregg Murphey
Title: Authorized Signatory

NOVELIS ALR ROLLED PRODUCTS SALES CORPORATION, as a U.S. Borrower and a Guarantor

By: /s/ Gregg Murphey
Name: Gregg Murphey
Title: Authorized Signatory

NOVELIS ALR RECYCLING OF OHIO, LLC, as a U.S. Borrower and a Guarantor

By: /s/ Gregg Murphey
Name: Gregg Murphey
Title: Authorized Signatory

NOVELIS ALR ALUMINUM-ALABAMA LLC, as a U.S. Borrower and a Guarantor

By: /s/ Gregg Murphey
Name: Gregg Murphey
Title: Authorized Signatory

NOVELIS ALR ALUMINUM LLC, as a U.S. Borrower and a Guarantor

By: /s/ Gregg Murphey
Name: Gregg Murphey
Title: Authorized Signatory

NOVELIS DEUTSCHLAND HOLDING
GMBH, as a German Guarantor

By: /s/ Gregg Murphey
Name: Gregg Murphey
Title: Person Authorized

NOVELIS KOBLENZ GMBH, as a German Borrower and a Guarantor

By: /s/ Gregg Murphey
Name: Gregg Murphey
Title: Person Authorized

NOVELIS CASTHOUSE GERMANY GMBH, as a German Borrower and a German Guarantor

By: /s/ Gregg Murphey
Name: Gregg Murphey
Title: Person Authorized

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NOVELIS ALUMINUM NETHERLANDS B.V., as a Dutch Guarantor

By: /s/ Gregg Murphey

Name: Gregg Murphey

Title: Authorized Signatory

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WELLS FARGO BANK, NATIONAL ASSOCIATION, as Administrative Agent, as and as a
Lender

By: /s/ Chance Hausler
Name: Chance Hausler
Title: Director

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BANK OF AMERICA, N.A.,
as a Lender, an Issuing Bank and an Aleris Issuing Bank

By: /s/ Cheryl B. Suan
Name: Cheryl B. Suan
Title: SVP

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BANK OF MONTREAL,
as a Lender

By: /s/ Helen Alvarez-Hernandez
Name: Helen Alvarez-Hernandez
Title: Managing Director

By: /s/ Elisabeth Izzo
Name: Elisabeth Izzo
Title: Vice President

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BARCLAYS BANK PLC,
as a Lender and as an Issuing Bank

By: /s/ Koruthu Mathew
Name: Koruthu Mathew
Title: VP

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BNP PARIBAS,
as a Lender

By: /s/ Guelay Mese

Name: Guelay Mese

Title: Director

By: /s Christopher Cassidy

Name: Christopher Cassidy

Title: Vice President

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CITIBANK, N.A.,
as a Lender

By: /s/ Brendan Mackay

Name: Brendan Mackay

Title: Vice President and Director

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CREDIT SUISSE AG, CAYMAN ISLANDS BRANCH,
as a Lender

By: /s/ Doreen Barr
Name: Doreen Barr
Title: Authorized Signatory

By: /s/ Michael Diffenbacher
Name: Michael Diffenbacher
Title: Authorized Signatory

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DEUTSCHE BANK AG NEW YORK BRANCH,
as a Lender an Issuing Bank and an Aleris Issuing Bank

By: /s/ Phillip Tancorra
Name: Phillip Tancorra
Title: Vice President

By: /s/ Jessica Lutrario
Name: Jessica Lutrario
Title: Assocoate

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HSBC BANK USA, NATIONAL ASSOCIATION,
as a Lender

By: /s/ Dilip Chaini
Name: Dilip Chaini
Title: Senior Vice President

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ING CAPITAL LLC,
as a Lender

By: /s/ Jeff Chu
Name: Jeff Chu
Title: Director

By: /s/ Mike Chen
Name: Mike Chen
Title: Director

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JPMORGAN CHASE BANK, N.A.,
as a Lender

By: /s/Oswin Joseph
Name: Oswin Joseph
Title: Vice President

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MIZUHO BANK, LTD.,
as a Lender

By: /s/ Donna DeMagistris
Name: Donna DeMagistris
Title: Executive Director

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MORGAN STANLEY BANK, N.A.,
as a Lender and an Issuing Bank

By: /s/ Tim Kok
Name: Tim Kok
Title: Authorized Signatory

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PNC BANK, N.A.,
as a Lender

By: /s/ Jay Hooper
Name: Jay Hooper
Title: Vice President

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REGIONS BANK,
as a Lender

By: /s/ Scott Martin
Name: Scott Martin
Title: Managing Director

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SOCIÉTÉ GÉNÉRALE,
as a Lender

By: /s/ Michiel V.M. Van Der Voort
Name: Michiel V.M. Van Der Voort
Title: Managing Director

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STANDARD CHARTERED BANK,
as a Lender

By: /s/ Amrish Mathur
Name: Amrish Mathur
Title: Executive Director

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List of Subsidiaries of Novelis Inc.

Name of Entity	Jurisdiction
Aleris Asia Pacific International (Barbados) Ltd.	Barbados
Novelis do Brasil Ltda.	Brazil
Brecha Energetica Ltda	Brazil
4260848 Canada Inc.	Canada
4260856 Canada Inc.	Canada
8018227 Canada Inc.	Canada
Aleris Holding Canada ULC	Canada, Nova Scotia
Aleris (Shanghai) Trading Co., Ltd.	China
Novelis Aluminum (Zhenjiang) Co., Ltd.	China
Novelis (China) Aluminum Products Co., Ltd.	China
Novelis (Shanghai) Aluminum Trading Company	China
France Aluminium Recyclage SA	France
Novelis PAE S.A.S.	France
Novelis Casthouse Germany GmbH	Germany
Novelis Deutschland Holding GmbH	Germany
Novelis Koblenz GmbH	Germany
Novelis Deutschland GmbH	Germany
Aluminium Norf GmbH	Germany
Novelis Aluminium Beteiligungs GmbH	Germany
Deutsche Aluminium Verpackung Recycling GmbH	Germany
Novelis Sheet Ingot GmbH	Germany
Aleris Asia Pacific Limited	Hong Kong
Novelis Italia SpA	Italy
Novelis (India) Infotech Ltd.	India
Novelis Aluminium Holding Unlimited Company	Ireland
Aleris Aluminum Japan, Ltd.	Japan
Novelis de Mexico, S.A. de C.V.	Mexico
Novelis Netherlands B.V.	Netherlands
Novelis Korea Limited	South Korea
Ulsan Aluminum Ltd.	South Korea
Aleris Switzerland GmbH	Switzerland
Novelis AG	Switzerland
Novelis Switzerland SA	Switzerland
AluInfra Services SA	Switzerland
Novelis MEA Ltd.	UAE, Dubai
Aleris Aluminum UK Limited	United Kingdom
Novelis Europe Holdings Limited	United Kingdom
Novelis UK Ltd.	United Kingdom
Novelis Services Limited	United Kingdom
Novelis ALR Aluminum Holdings Corporation	United States, Delaware
Novelis ALR International, Inc.	United States, Delaware

Novelis ALR Rolled Products, Inc.	United States, Delaware
Novelis ALR Asset Management Corporation	United States, Delaware
Novelis ALR Rolled Products, LLC	United States, Delaware
Novelis ALR Recycling of Ohio, LLC	United States, Delaware
Novelis ALR Rolled Products Sales Corporation	United States, Delaware
Novelis ALR Aluminum, LLC	United States, Delaware
Novelis ALR Aluminum-Alabama, LLC	United States, Delaware
Novelis Global Employment Organization, Inc.	United States, Delaware
Novelis South America Holdings LLC	United States, Delaware
Novelis Holdings Inc.	United States, Delaware
Novelis Services (North America) Inc.	United States, Delaware
Novelis Services (Europe) Inc.	United States, Delaware
Logan Aluminum Inc.	United States, Delaware
Novelis Corporation	United States, Texas
Novelis Vietnam Company Limited	Vietnam

Certification

I, Steven Fisher, certify that:

1. I have reviewed this Annual Report on Form 10-K of Novelis Inc. (Novelis);
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
 - a) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
 - b) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
 - c) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
 - d) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officer(s) and I have disclosed, based on my most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):
 - a) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
 - b) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

/s/ Steven Fisher

Steven Fisher
President and Chief Executive Officer
(Principal Executive Officer)

Date: May 11, 2022

Certification

I, Devinder Ahuja, certify that:

1. I have reviewed this Annual Report on Form 10-K of Novelis Inc. (Novelis);
2. Based on my knowledge, this report does not contain any untrue statement of a material fact or omit to state a material fact necessary to make the statements made, in light of the circumstances under which such statements were made, not misleading with respect to the period covered by this report;
3. Based on my knowledge, the financial statements, and other financial information included in this report, fairly present in all material respects the financial condition, results of operations and cash flows of the registrant as of, and for, the periods presented in this report;
4. The registrant's other certifying officer(s) and I are responsible for establishing and maintaining disclosure controls and procedures (as defined in Exchange Act Rules 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rules 13a-15(f) and 15d-15(f)) for the registrant and have:
 - 1) Designed such disclosure controls and procedures, or caused such disclosure controls and procedures to be designed under our supervision, to ensure that material information relating to the registrant, including its consolidated subsidiaries, is made known to us by others within those entities, particularly during the period in which this report is being prepared;
 - 2) Designed such internal control over financial reporting, or caused such internal control over financial reporting to be designed under our supervision, to provide reasonable assurance regarding the reliability of financial reporting and the preparation of financial statements for external purposes in accordance with generally accepted accounting principles;
 - 3) Evaluated the effectiveness of the registrant's disclosure controls and procedures and presented in this report our conclusions about the effectiveness of the disclosure controls and procedures, as of the end of the period covered by this report based on such evaluation; and
 - 4) Disclosed in this report any change in the registrant's internal control over financial reporting that occurred during the registrant's most recent fiscal quarter (the registrant's fourth fiscal quarter in the case of an annual report) that has materially affected, or is reasonably likely to materially affect, the registrant's internal control over financial reporting; and
5. The registrant's other certifying officer(s) and I have disclosed, based on my most recent evaluation of internal control over financial reporting, to the registrant's auditors and the audit committee of the registrant's board of directors (or persons performing the equivalent functions):
 - 1) All significant deficiencies and material weaknesses in the design or operation of internal control over financial reporting which are reasonably likely to adversely affect the registrant's ability to record, process, summarize and report financial information; and
 - 2) Any fraud, whether or not material, that involves management or other employees who have a significant role in the registrant's internal control over financial reporting.

/s/ Devinder Ahuja

Devinder Ahuja
Chief Financial Officer
(Principal Financial Officer)

Date: May 11, 2022

**Certification Pursuant to 18 U.S.C. Section 1350 as adopted pursuant to
Section 906 of the Sarbanes-Oxley Act of 2002**

Pursuant to 18 U.S.C. Section 1350, the undersigned officer of Novelis Inc. (Novelis), hereby certifies that Novelis' Annual Report on Form 10-K for the period ended March 31, 2022 (Report) fully complies with the requirements of Section 13(a) or Section 15(d), as applicable, of the Securities Exchange Act of 1934, as amended, and that the information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of Novelis.

/s/ Steven Fisher

Steven Fisher
President and Chief Executive Officer
(Principal Executive Officer)

Date: May 11, 2022

The foregoing certification is being furnished solely pursuant to 18 U.S.C. Section 1350 and is not being filed as part of this Report.

**Certification Pursuant to 18 U.S.C. Section 1350 as adopted pursuant to
Section 906 of the Sarbanes-Oxley Act of 2002**

Pursuant to 18 U.S.C. Section 1350, the undersigned officer of Novelis Inc. (Novelis), hereby certifies that Novelis' Annual Report on Form 10-K for the period ended March 31, 2022 (Report) fully complies with the requirements of Section 13(a) or Section 15(d), as applicable, of the Securities Exchange Act of 1934, as amended, and that the information contained in the Report fairly presents, in all material respects, the financial condition and results of operations of Novelis.

/s/ Devinder Ahuja

Devinder Ahuja
Chief Financial Officer
(Principal Financial Officer)

Date: May 11, 2022

The foregoing certification is being furnished solely pursuant to 18 U.S.C. Section 1350 and is not being filed as part of this Report.