

INTEGRITY
QUALITY
Accountability
PEOPLE



2022 ANNUAL REPORT



Dear Fellow Stockholders:

Over the past year, RYAM made tremendous progress in building out its Biofuture by creating and investing in sustainable solutions, capturing value for our bio-based products, reducing costs through improved operational reliability, and decreasing its leverage. Altogether, these achievements resulted in a 68 percent total shareholder return in 2022.

RYAM is well-positioned to be part of a sustainable future. Our unique and innovative products are among the highest performing and most sustainable in our industry. The growing demand for sustainable solutions has enabled us to capture the increased value for our products through pricing that reflects that value. We negotiated price increases for our cellulose specialties' grades coming into 2022, and after the first quarter, we quickly mitigated the impact of rapidly escalating cost inflation by further implementing a cost surcharge. We drove price increases for our paperboard products, and realized higher prices for our fluff, viscose, and high-yield pulp products. We continued to capture additional value for our cellulose specialties products as we not only successfully negotiated higher pricing for 2023 versus 2022 (inclusive of the cost surcharge), but we also negotiated greater flexibility into our cellulose specialty customer contracts, enabling us to efficiently adapt to market dynamics and cost inflation in the future.

RYAM operates four highly specialized bio-products facilities. To improve our competitive advantages at these facilities, we invested in each of them through extended planned maintenance outages in the first half of 2022 to reduce production costs and improve operating reliability. We also controlled our discretionary spend, reduced our material usage of key inputs, and improved our logistics management. As a result, our bio-products facilities are more capable to meet the future demand for our products.

For over 95 years, RYAM has created truly innovative products from trees harvested from working forests. Building on this long history of accumulated technical acumen, we're pioneering new technologies that will transform this renewable resource into additional remarkable products that will shape a new and sustainable future. We are developing these new products in our two innovative research centers in the U.S. and France, which have received world-class certifications that demonstrate our commitment to sustainability. In December 2022, we began construction of a second-generation bioethanol facility at our Tartas, France location. This new facility, which is expected to be operational in 2024, is expected to produce non-food-based bioethanol to supplement gasoline to power vehicles, generating incremental stockholder value while reducing carbon emissions.

RYAM is deeply committed to operating in a sustainable manner. In 2021, we announced an ambitious plan to reduce our company's greenhouse gas emissions by 40% by 2030. Last year, we achieved an 8% overall reduction in greenhouse gas emissions in the first year of that plan, putting us well ahead of our schedule. We also realized significant improvements in the safety performance at our facilities in 2022, thus, continuing the positive trend that we've experienced over the past 3 years.

Finally, RYAM has taken steps to strengthen its balance sheet. By year end 2022, we had reduced our net debt to Adjusted EBITDA leverage to 4.0 times from 5.4 times at the end of 2021. Revenues grew 22 percent to \$1.7 billion and Adjusted EBITDA grew 39 percent compared to the prior year. In 2023, we expect to generate free cash flow, which we plan to allocate to develop new sustainable products and further reduce our net debt leverage. These measures will help us weather future economic challenges and provide us with greater flexibility to pursue growth opportunities utilizing our existing asset base.

We'd like to welcome Charles (Chas) R. Eggert to our Board of Directors. Chas' experience and success in new product development and innovation will help RYAM optimize the many attractive opportunities currently available. We believe that with Chas our Board has an optimal mix of relevant and diverse experience, and qualifications to advise and oversee RYAM's management in executing our Biofuture strategy.

We are confident in RYAM's future, its strong position in the market, and our team's ability to continue delivering value to stockholders. We appreciate your support and look forward to continuing to work together to build a strong and sustainable future.

Sincerely,



Lisa M. Palumbo
Independent Chair of the Board of Directors

A handwritten signature in black ink, appearing to read "L. Palumbo".



De Lyle W. Bloomquist
President and Chief Executive Officer

A handwritten signature in black ink, appearing to read "De Lyle W. Bloomquist".

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 December 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 001-36285



RAYONIER ADVANCED MATERIALS INC.

State of Incorporation: **Delaware**

I.R.S. Employer Identification No.: **46-4559529**

Principal Executive Office:

1301 Riverplace Boulevard, Suite 2300

Jacksonville, FL 32207

Telephone Number: **(904) 357-4600**

Securities registered pursuant to Section 12(b) of the Act:

Title of each class	Trading Symbol	Name of exchange on which registered
Common stock, par value \$0.01 per share	RYAM	New York Stock Exchange

Securities to be 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

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	<input type="checkbox"/>	Accelerated filer	<input checked="" type="checkbox"/>
Non-accelerated filer	<input type="checkbox"/>	Smaller reporting company	<input type="checkbox"/>
		Emerging growth company	<input type="checkbox"/>

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 Exchange Act). Yes No

Aggregate market value of the common stock of the registrant held by non-affiliates as of June 25, 2022: \$165,013,979.

Number of shares of the common stock of the registrant outstanding as of February 27, 2023: 64,199,076.

Portions of the registrant's definitive proxy statement for the 2023 annual meeting of the stockholders, which is expected to be filed with the Securities and Exchange Commission within 120 days after December 31, 2022, are incorporated by reference into Part III of this 2022 Form 10-K.

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Glossary

The following terms and abbreviations appearing in the text of this 2022 Form 10-K have the meanings indicated below.

2021 Plan	RYAM 2021 Incentive Stock Plan
2022 Form 10-K	RYAM Annual Report on Form 10-K for the year ended December 31, 2022
2G	Second generation
ABL Credit Facility	5-year senior secured asset-based revolving credit facility due 2025
AICPA	American Institute of Certified Public Accountants
Anomera	Anomera, Inc.
AOCI	Accumulated other comprehensive income (loss)
ASC	Accounting Standards Codification
ATI	Adjusted taxable income
BNP	BNP-Paribas Factor
bp	Basis point
CAD	Canadian dollar
CARES Act	Act passed by the U.S. Congress on March 27, 2020, to provide taxpayer protection against the economic impacts of COVID-19
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act of 1980
CEWS	Canada Emergency Wage Subsidy
CNC	Carboxylated cellulose nanocrystals
COVID-19	Coronavirus pandemic
DIAG	Diversity and Inclusion Advisory Group
DLOM	Discount for lack of marketability
DTA	Deferred tax asset
EBIT	Earnings before interest and taxes
EBITDA	Earnings before interest, taxes, depreciation and amortization
ECD	Early Career Development
Ecology	Washington State Department of Ecology
EPD	Georgia Environmental Protection Division of the Natural Resources
Euribor	Euro Interbank Offered Rate
Exchange Act	Securities Exchange Act of 1934, as amended
Financial Statements	Consolidated financial statements included in Part IV Item 15 of this 2022 Form 10-K
GAAP	United States generally accepted accounting principles
GHG	Greenhouse gas
GILTI	Global intangible low-taxed income
GreenFirst	GreenFirst Forest Products, Inc.
IESO	Independent Electricity System Operator
LIBOR	London interbank offered rate
LTF	LignoTech Florida LLC
MACD	Market Assessment and Compliance Division
MOS	Minutes of Settlement
MT	Metric ton
MTCA	Washington Model Toxics Control Act
NOL	Net operating loss
NOx	Nitrogen oxides
Prior Plans	Rayonier Advanced Materials Inc. Incentive Stock Plan and the Rayonier Advanced Materials Inc. 2017 Incentive Stock Plan
Proxy Statement	RYAM Proxy Statement to be filed with the SEC in connection with the solicitation of proxies for the Company's 2023 Annual Meeting of Stockholders

Purchase Right	Board-declared dividend of one preferred share purchase right for each outstanding share of RYAM common stock
R&D	Research and development
RCRA	Resource Conservation and Recovery Act
Rights Agreement	Stockholder rights plan adopted in March 2022
ROU	Right-of-use, as related to the lease model under Accounting Standards Codification Topic 842 Leases
RYAM, the Company, our, we, us	Rayonier Advanced Materials Inc. and its consolidated subsidiaries
S&P	Standard & Poor
SEC	United States Securities and Exchange Commission
Securities Act	United States Securities Act of 1933, as amended
Senior Notes	\$550 million aggregate principal amount of 5.50 percent senior notes due 2024, issued May 2014
Senior Secured Notes	\$500 million aggregate principal amount of 7.625 percent senior secured notes due 2026, issued December 2020
SG&A	Selling, general and administrative expense
SOFR	Secured Overnight Financing Rate
SOx	Sulfur oxides
SR&ED	Scientific research and experimentation deductions
Tembec Acquisition	November 2017 acquisition of Tembec Inc., a manufacturer of cellulose specialties, lumber, paperboard, newsprint and high-yield pulp
TQA	Technical Questions and Answers
TSA	Transition Services Agreement
TSR	Total shareholder return
U.S.	United States of America
USD	United States of America dollar
USDOC	United States Department of Commerce

Forward-Looking Statements

Certain statements in this 2022 Form 10-K regarding anticipated financial, business, legal or other outcomes including business and market conditions, outlook and other similar statements relating to RYAM's future events, developments, or financial or operational performance or results, are "forward-looking statements" made pursuant to the safe harbor provisions of the Private Securities Litigation Reform Act of 1995 and other federal securities laws. These forward-looking statements are identified by the use of words such as "may," "will," "should," "could," "expect," "estimate," "believe," "intend," "plan," "forecast," "anticipate," "project," "guidance" and other similar language. However, the absence of these or similar words or expressions does not mean that a statement is not forward-looking. While we believe these forward-looking statements are reasonable when made, forward-looking statements are not guarantees of future performance or events and undue reliance should not be placed on these statements. Although we believe the expectations reflected in any forward-looking statements are based on reasonable assumptions, we can give no assurance that these expectations will be attained, and it is possible that actual results may differ materially from those indicated by these forward-looking statements due to a variety of risks and uncertainties. The risk factors contained in Item 1A — *Risk Factors* of this 2022 Form 10-K, among others, could cause actual results or events to differ materially from RYAM's historical experience and those expressed in forward-looking statements made in this 2022 Form 10-K.

Forward-looking statements are only as of the date of the filing of this 2022 Form 10-K and RYAM undertakes no duty to update its forward-looking statements except as required by law. You are advised to review any further disclosures we have made or may make in our filings and other submissions to the SEC, including those on Forms 10-K, 10-Q, 8-K and other reports.

Part I

Item 1. Business

We are a global leader of specialty cellulose materials with a broad offering of high purity cellulose specialties, a natural polymer used in the production of a variety of specialty chemical products, including liquid crystal displays, filters, textiles and performance additives for pharmaceutical, food and other industrial applications. Building upon more than 95 years of experience in cellulose chemistry, we provide some of the highest quality high-purity cellulose pulp products that make up the essential building blocks for our customers' products while providing exceptional service and value. We also produce a unique, lightweight multi-ply paperboard product and a bulky, high-yield pulp product. Our paperboard is used for production in the commercial printing, lottery ticket and high-end packaging sectors. Our high-yield pulp is used by paperboard producers, as well as in traditional printing, writing and specialty paper manufacturing.

We focus our strategic investments in projects that optimize and align our assets to meet the ever-growing demand for renewable products. These projects include renewable energy projects at our Temiscaming facility in Quebec, Canada and our Tartas, France facility; Anomera, a manufacturer of CNC, a patented, biodegradable product used as an ingredient in cosmetics and various industrial materials; and our most recent investment at our Tartas facility to produce 2G bioethanol, intended to help meet the demand for Europe's fast-growing biofuels market and further improve the sustainability of our operating model. With production anticipated to begin in 2024, we expect to be among the first in France to produce wood-based 2G bioethanol fuel, a product that should help petrochemical companies improve the climate profile of their energy offerings in the European market. We are also developing a prebiotic for enhanced gut health in poultry and swine, which is expected to support sustainable poultry and swine farming and provide a healthy alternative nutrient to enhance gut health. Our strategic investment approach unlocks the capabilities of our facilities and capitalizes on the sustainably harvested trees that we use as our primary feedstock.

Our Sustainability Profile

We have four production facilities, located in the U.S., Canada and France. Our facilities are energy intensive; however, over 75 percent of the energy consumed by them is derived from renewable sources, primarily biomass. We do not harvest living trees directly for energy production, but rather use production process biomass residuals or waste to generate energy in our facilities. The remaining energy consumed is primarily sourced from natural gas.

We previously announced a goal of at least 40% reduction in overall Scope 1 and Scope 2 (aggregated) GHG emissions, on both an absolute and intensity basis, by 2030, using 2020 as a baseline. We are on track to achieve this objective and routinely monitor other opportunities. External verification of our 2021 results confirmed an 8% reduction in absolute and a 5% reduction in intensity emissions. Our 2022 results have not yet been confirmed.

Water is utilized during various stages of our production cycle, including wood chip digestion, pulp washing and screening and fiber handling and transportation. Water is also necessary for steam and on-site power generation, air emissions control, process cooling and equipment cleaning. Each gallon of water gets used and reused multiple times in our process and 98 out every 100 gallons we use are treated and returned to natural water sources in keeping with stringent government-issued permit limitations. The remaining 2 gallons are either captured in the final product or evaporated during manufacturing.

Our facilities are designed to minimize waste. We recycle our pulping chemicals, produce environmentally friendly co-products from the material extracted from the trees and generate energy from biomass residuals. We take special care to limit our generation of hazardous or dangerous wastes through source reduction, reuse and recycling. We seek to comply with all waste management expectations in each country where we operate. Each facility has ongoing relationships with local recyclers and we strive to reuse or recycle as much as possible. Certified waste handlers dispose of any hazardous waste.

Business Operations

Prior to June 27, 2014, we consisted of Rayonier Inc.'s wholly-owned performance fibers business, which was engaged primarily in the production of cellulose specialties. On that date, we separated from Rayonier Inc. and started our business as an independent, publicly-traded company. In November 2017, we completed the acquisition of Tembec Inc., a manufacturer of cellulose specialties, lumber, paperboard, newsprint and high-yield pulp.

In August 2021, we sold the lumber and newsprint assets acquired in the Tembec Acquisition. As a result of this sale, the operating results of the lumber and newsprint operations are presented as discontinued operations in our Financial Statements. See Note 3 — *Discontinued Operations* to our Financial Statements for further information.

We currently operate the following business segments, to which all prior period disclosures have been conformed:

- High Purity Cellulose
- Paperboard
- High-Yield Pulp

See Note 20 — *Segment and Geographical Information* to our Financial Statements for further information.

High Purity Cellulose

The High Purity Cellulose segment, and in particular, cellulose specialties products, is the primary driver of our profitability. Cellulose specialties are natural polymers, used as raw materials to manufacture a broad range of consumer-oriented products such as liquid crystal displays, impact-resistant plastics, thickeners for food products, pharmaceuticals, cosmetics, cigarette filters, high-tenacity rayon yarn for tires and industrial hoses, food casings, paints and lacquers. We manufacture products tailored to the precise and demanding chemical and physical specifications of our customers, achieving industry-leading purity and product functionality. Our ability to consistently manufacture high-quality cellulose specialties products is the result of our proprietary production processes, intellectual property and over 95 years of technical expertise and knowledge of cellulosic chemistry. We believe end-use market diversity reduces our exposure to a potential global recession.

In addition to cellulose specialties, a significant portion of our production capacity is dedicated to manufacturing high-purity commodity products for absorbent materials and viscose applications. Absorbent materials, typically referred to as fluff fibers, are used as an absorbent medium in products such as disposable baby diapers, feminine hygiene products, incontinence pads, convalescent bed pads, industrial towels and wipes and non-woven fabrics. Commodity viscose pulp is a raw material required for the manufacture of viscose staple fibers which are used in woven applications, such as rayon textiles for clothing and other fabrics, and in non-woven applications, such as baby wipes, cosmetic and personal wipes, industrial wipes and mattress ticking. Cellulose specialties typically contain over 95 percent cellulose, while commodity products typically contain less than 95 percent cellulose.

Our specialized assets, capable of creating the world's leading high purity cellulose products, are also suited for generating biofuels, bioelectricity and other biomaterials such as lignin and tall oils. Our 2G bioethanol project, for example, will capture residual sugars from our existing pulp process, which we will then use in the production of wood-based 2G bioethanol fuel. Commercial sales of this 2G bioethanol are targeted to begin in 2024 under a long-term offtake agreement with a large international petrochemicals company.

Our four production facilities have a combined annual production capacity of 1,045,000 MTs of cellulose specialties and commodity products. Of our total annual capacity, we dedicate 270,000 MTs of annual production to commodity products, primarily absorbent materials.

Wood fiber, chemicals and energy represent approximately 50 percent of our per MT cost of sales. Labor, manufacturing and maintenance supplies, depreciation, manufacturing overhead and transportation costs comprise the rest of our cost of sales.

Products

Cellulose Specialties

Cellulose specialties are a natural polymer primarily derived from either wood or cotton and are used as a principal raw material to manufacture a broad range of products. Cellulose specialties generally command a price premium and earn higher margins relative to other commodity wood pulp products. Cellulose specialties are a dissolving wood pulp product which target a combination of high purity and high viscosity. Unlike other wood pulps used for their physical properties, cellulose specialties are sought after for the unique chemical properties and reactivity they impart to downstream products.

Derived from wood, our cellulose specialties require high levels of purity, consistency and process knowledge. Our products play a significant role in our customers' manufacturing processes, which require cellulose specialties of high purity and uniformity for efficient production. As such, our customers demand products of the highest quality. To meet this demand, our products are custom-engineered and manufactured to each customer's unique specifications and undergo a stringent qualification process, resulting in the quality and consistency that allow our customers to operate more efficiently and cost-effectively.

One of our key competitive advantages is our unique ability to leverage our global manufacturing asset base to provide our customers greater supply chain security for cellulose specialties fibers. With four facilities and five manufacturing lines capable of producing cellulose specialties, we are the only cellulose specialties producer in the world with the flexibility to use both hardwood and softwood fibers, kraft and sulfite cooking processes and a variety of proprietary chemical treatments to provide customized product functionality. Additionally, we possess significant knowledge of wood fiber properties and their modification under a sequence of chemical processes, which we have accumulated and developed over 95 years of practical application to satisfy a variety of customer needs. This process knowledge, combined with our manufacturing scale and flexibility and knowledge of customer applications and specifications, makes us the industry's most adaptable modifier of cellulose fibers.

Commodity Products

We have the ability to shift our High Purity Cellulose segment manufacturing assets from cellulose specialties production to commodity absorbent materials and viscose pulp production. Our operating lines fluctuate production of cellulose specialties and commodity products based on market conditions and to generate the most attractive margins.

Absorbent materials, or fluff fibers, are typically used in consumer products such as baby diapers. These fibers provide a medium for fluid acquisition, distribution and retention in the products in which they are incorporated.

Commodity viscose pulp is primarily sold to producers of viscose staple fibers, which in turn are used to manufacture rayon fibers, which are widely used in the clothing and textile industries. Shifts in fashion styles and textile fiber blending have increased demand for viscose staple fibers. Additionally, variability in cotton linter supply and increasing environmental concerns about cotton production have resulted in viscose staple producers shifting volume away from cotton linter pulp to wood-based dissolving pulp, absent other pricing factors.

Biomaterials

We are uniquely positioned to meet the rapidly growing demand for renewable materials and sustainable products. Fully unlocking the capabilities of our biorefineries and the sustainably harvested trees we use as our primary feedstock is a core priority. Generally, a tree's mass is comprised of 50 percent water and 50 percent "dry solids." Dry solids are comprised of roughly 40 percent cellulose and 60 percent other chemical compounds, including hemicellulose, lignin, sugars and other extractives. These chemical compounds can be utilized to produce sustainable biomaterials. For example, we currently generate and sell lignosulfonates and tall oil soap using these compounds. Lignosulfonates are used to produce a variety of products, including construction materials, dispersants, plant nutrients, leather tanning and fungicides, and tall oil soap is used as feedstock for producing crude tall oil. We also produce bio-generated electricity utilizing renewable biomass.

Finally, we are also making good progress on our Tartas bioethanol facility. When complete, this facility will produce second-generation bioethanol, a non-food-based ethanol to be utilized as an environmentally friendly fuel blend supporting transport decarbonization.

Competition

Cellulose Specialties

Significant intellectual property, capital investment and technical expertise are needed to design and manufacture customized cellulose specialties fibers to exacting customer specifications. The product must be formulated to achieve the desired characteristics, including parameters for purity, viscosity, brightness, reactivity and other physical properties. Product qualification time can be lengthy, extending six to 24 months. Customer relationships are typically long-term and are based on an understanding of the customer's production processes and on our technical expertise, which we utilize to help solve our customers' production challenges and support new product development. Establishing a production line and obtaining the necessary production technologies requires substantial capital and ongoing maintenance expenditures.

Product performance and customization, technical service and price are principal methods of competition in cellulose specialties. Product performance is primarily determined by the chemical attributes of the pulp, including purity, viscosity and uniformity of the cellulose specialties. Our processes, which are a key element of our intellectual property, are capable of generating cellulose specialties purity levels in excess of 98 percent, as well as the highest levels of viscosity derived from wood pulp. Typically, product pricing is set annually in the fourth quarter for the following year based on discussions with customers and the terms of contractual arrangements.

We compete with both domestic and foreign producers in cellulose specialties. Our major competitors include GP Cellulose, Borregaard, Bracell, Sappi, Nippon, Cosmo Specialty Fibers, AustroCel and Aditya Birla Group. Some of our competitors use both wood and cotton linter fibers as a source of cellulose fibers. Our multiple manufacturing lines, processes and intellectual property allow us to compete in more segments of the cellulose specialties market than any of our competitors.

Commodity Products

The principal method of competition in commodity products is price, as purity and uniformity are less critical differentiators. Pricing for commodity products is typically referenced to published indices or based on publicly available spot market prices. We compete with both domestic and foreign producers of commodity products.

For commodity viscose pulp, many competitors derive their commodity viscose pulp from either wood or cotton. However, in recent years, commodity viscose pulp from wood has supplanted cotton as the preferred raw material input for viscose staple fiber production. Although cellulose specialties can generally be sold to meet commodity viscose demand, the reverse is not typically true. Our major competitors for commodity viscose pulp include Sappi, AustroCel and Bracell.

For absorbent materials, our major competitors include GP Cellulose, Domtar, International Paper, Klabin and Suzano.

Biomaterials

Competition in this space is limited, driven by capital investment, technical expertise and sustainable feedstock that are needed to produce these materials. The primary global market driver for bioethanol is the regulatory agenda towards production of bioethanol with an active participation of GHG emission reduction and the positive impact on climate change. Key growth drivers for lignosulfonates include increasing usage of lignosulfonates in all the market segments where fossil petrochemicals can be replaced by sustainable bioproducts.

Pricing for biomaterials that we currently produce is based on the market dynamics of supply and demand. We supply Renewable Energy Directive II bioethanol, which is produced with nonhuman food chain inputs and trades at a premium in Europe.

Significant biomaterials competitors in the lignosulfonates market include Borregaard and Domsjö Aditya Birla.

Paperboard

We manufacture paperboard in the Temiscaming plant in Quebec, Canada. Our production facility has an annual production capacity of 180,000 MTs of paperboard.

Wood pulp, chemicals and energy represent approximately 80 percent of our per MT cost of sales. Labor, manufacturing and maintenance supplies, depreciation, manufacturing overhead and transportation costs represent our remaining cost of sales.

Products

Products in the Paperboard business include packaging, printing documents, brochures, promotional materials, paperback book and catalog covers, file folders, tags and lottery tickets. We are the only multi-ply paperboard producer in North America, with our competition producing single ply solid bleached sulfite paperboard.

Competition

The principal method of competition in our Paperboard segment is price and product performance. Pricing for paperboard is typically referenced to published indices and marketed through our internal sales team and is impacted by the balance between supply and demand, as affected by global economic conditions, changes in consumption and capacity, the level of customer and producer inventories and fluctuations in currency exchange rates. Product performance is determined based on the physical attributes of the products in a customer's manufacturing processes. To a lesser extent, quality and service are also competitive determinants.

Significant paperboard competitors include WestRock, Graphic Packaging, Metsa Group, Clearwater Paper and Sappi.

High-Yield Pulp

We manufacture and market high-yield pulp produced in our Temiscaming plant in Quebec, Canada. Our Temiscaming plant has an annual production capacity of 290,000 MTs of high-yield pulp, approximately 65,000 MTs of which are used internally to produce paperboard.

Wood fiber, chemicals and energy represent approximately 40 percent of our per MT cost of sales. Labor, manufacturing and maintenance supplies, depreciation, manufacturing overhead and transportation costs represent our remaining cost of sales.

Products

We produce our high-yield pulp primarily from hardwood aspen, maple and birch species. This unique fiber supply produces a highly sought-after bulky high-yield pulp product. High-yield pulp is used by paper manufacturers to produce paperboard, packaging, printing and writing papers and a variety of other paper products.

Competition

The principal method of competition in the High-Yield Pulp segment is price, however a better quality (i.e., higher bulk) can sometimes command a premium price. Pricing for high-yield pulp is typically referenced to published indices marketed through our internal sales team and is impacted by the balance between supply and demand, as affected by global economic conditions, changes in consumption and capacity, the level of customer and producer inventories and fluctuations in currency exchange rates.

Significant high-yield pulp competitors include Millar Western, West Fraser, Paper Excellence, Estonia Cell, Sappi and Winstone Pulp.

Raw Materials and Input Costs

All of our manufacturing operations require significant amounts of wood fiber, in the form of logs or wood chips, as a raw material and energy to produce our products. Additionally, our High Purity Cellulose and High-Yield Pulp segments' manufacturing processes require significant amounts of chemicals. These raw materials and input costs are subject to significant changes in prices as a result of weather conditions, supply and demand. To control cost, we continually pursue reductions in usage and costs of key supplies, services and raw materials.

Wood

We procure wood chips for our high purity cellulose and high-yield pulp plants through the purchase of chips from lumber producers or the production for chips from roundwood at our own wood chipping facilities. Prices for wood are impacted by various factors, including supply and demand, weather events, transportation costs for delivery and overall economic conditions.

Chemicals

Chemicals, which include caustic soda (sodium hydroxide), sulfuric acid, ammonia, sodium chlorate and various specialty chemicals, are purchased under negotiated supply agreements with third parties. The prices for these chemicals are impacted by various factors including supply and demand, environmental regulation, energy prices and overall economic conditions.

Energy

Our energy is primarily produced through the burning of lignin and other residual biomass in recovery and power boilers located at our plants. In addition, our manufacturing facilities utilize significant amounts of fuel oil, natural gas and purchased electricity to supplement their energy requirements. Our energy costs are also impacted by emission allowances purchased or sold at market prices during any given period. In addition, energy prices impact our transportation costs for delivery of raw materials to our manufacturing facilities and delivery of our finished products to customers.

Intellectual Property

Substantially all of our intellectual property relates to our High Purity Cellulose segment. We own patents, trademarks and trade secrets, and have developed significant expertise, particularly in the production of high purity cellulose, but also in the production of paperboard, which we deem vital to our operations. We intend to protect our intellectual property, including, when appropriate, through the filing of patent applications for inventions that we deem important to our business and operations. Our U.S. patents generally have a duration of 20 years from the date of filing. We also require key employees to enter into non-compete agreements and intellectual property assignment agreements as appropriate.

Seasonality

Our operating results may be materially affected by seasonal changes and the related impact on energy prices.

Customers

No single customer accounted for 10 percent or more of total sales for the years ended December 31, 2022 and 2021. One customer in the High Purity Cellulose segment represented 10 percent of total sales for the year ended December 31, 2020.

Research and Development

Our R&D capabilities and activities are primarily focused on our High Purity Cellulose segment. The quality and consistency of our cellulose specialties, together with our R&D capabilities, are important factors in achieving an optimal value for our cellulose specialties products and create a material competitive advantage. Our R&D efforts are directed at further developing products and technologies, improving the quality of cellulose fiber grades, improving manufacturing efficiency and environmental controls and reducing fossil fuel consumption. We continue to focus our R&D activities to develop and market additional new products and applications. We spent \$7 million on R&D during each of the years ended December 31, 2022, 2021 and 2020.

Environmental Matters

Our manufacturing operations are subject to stringent federal, state, provincial and local environmental laws and regulations concerning air emissions, wastewater discharges, waste handling and disposal, and assessment and remediation of environmental contamination, which impact our current ongoing operations and approximately 20 former operating facilities or third party-owned sites classified as disposed operations. These laws and regulations include the Clean Air Act, the Clean Water Act, the RCRA, the CERCLA and similar state laws and regulations impacting U.S. facilities, as well as requirements relating to ancillary matters such as financial assurance of our legal obligations for facility closure and post-closure care. Similar laws and legal requirements also impact current and former operating sites in Canada and France, respectively. In addition to ongoing compliance with laws and regulations, our facilities operate in accordance with various permits, which are issued by state and federal environmental agencies. Many of these permits impose operating conditions which require significant expenditures to ensure compliance. Upon renewal and renegotiation of these permits, the issuing agencies often seek to impose new or additional conditions in response to new environmental laws and regulations or more stringent interpretations of existing laws and regulations. In addition, under many federal environmental laws, private citizens and organizations, such as environmental advocacy groups, have the right to legally challenge permitting and other decisions made by regulatory agencies.

Our operations are subject to constantly changing environmental requirements, and interpretations of existing requirements, which are often impacted by new policy initiatives, new and amended legislation and regulation, negotiations involving state and federal governmental agencies and various other stakeholders, as well as, at times, litigation. Our future spending requirements in the area of environmental compliance could change significantly based on the passage of new environmental laws and regulations. Management closely monitors our environmental responsibilities and believes we are in material compliance with current requirements.

See Item 1A — *Risk Factors* for a discussion of the potential impact of environmental risks on our business, as well as Note 10 — *Environmental Liabilities* and Note 21 — *Commitments and Contingencies* to our Financial Statements for further discussion of our estimated environmental liabilities and any environmental-related litigation.

Human Capital

Employees

We have production facilities in the U.S., Canada, and France and sales offices in the U.S., Canada, France, United Kingdom, Japan and China. Of our approximately 2,500 employees, 71 percent belong to labor unions, as all of our manufacturing sites are represented by various local and national unions. We believe our relationships with the union employee representatives are strong.

Safety

The safety of our employees is our highest priority. We are committed to our vision of every employee returning home every day injury-free and we continue to make progress each year. While no injury is acceptable, our company-wide injury rate decreased eight percent from 2020 to 2021, and decreased an additional five percent in 2022. We drive towards our vision of injury-free operations by focusing on five leading safety metrics: housekeeping, leadership engagement, corrective action closure, gas emissions and life safety programs. We continuously track and measure our progress against these metrics and have safety subcommittees, composed of leaders from across our company, that are accountable for each respective metric and report to an overall safety steering team chaired by our CEO.

Employee Engagement

Attracting, retaining and developing employees is vital to our success. We partner with colleges and universities to develop a robust pipeline of prospective employees and provide scholarships and internships to students whose academic pursuits align with career opportunities in chemical, electrical, mechanical and process control engineering. We strive to ensure that all of our employees have the mentorship, training and support they need to develop lasting and rewarding careers, as we believe that engaged employees are happier, safer and more productive. Our ECD program provides recent graduates and new hires with structured onboarding, on-the-job training and leadership experiences to support the ongoing development of the technical and leadership skills required to support and sustain our operations. The ECD program covers engineering, supply chain, accounting, information technology and human resources. In addition, we provide our employees with training and education opportunities such as financial services and retirement planning workshops.

Commitment to Human Rights

To reinforce and strengthen our commitment to socially responsible business practices, we have a Human Rights Policy that specifically addresses the following fundamental human rights principles:

- Safe and healthy workplaces
- Environmentally responsible operations
- No forced or child labor
- Anti-corruption and bribery compliance
- Freedom of association and the right to collective bargaining if legally elected
- Fair compensation and working hours
- Diversity and inclusion
- Harassment and discrimination free workplace
- Community and stakeholder engagement

Code of Conduct

Within the framework of our core values of Integrity, Accountability, Quality and People, the Rayonier Advanced Materials Standard of Ethics and Code of Corporate Conduct is our guide to the lawful and ethical performance of our duties. Adherence to the Code is intended to ensure that we:

- Fulfill our obligation to observe the law both in letter and spirit in all countries in which we do business; and
- Deal fairly with our stockholders, employees, customers, suppliers, regulators and communities.

We publish and communicate these expectations and values for all new hires and for all other employees several times throughout each year, including through various trainings.

Diversity and Inclusion

Fostering a diverse and inclusive culture is integral to our success as a company and also an important component of our commitment to people as outlined in our Standard of Ethics and Code of Corporate Conduct, Company Values and Human Rights Policy. We have taken several important steps to strengthen our approach to diversity and inclusion. Our DIAG, led by our Vice President of Talent Management and Diversity, has the mandate to help foster meaningful, lasting progress and to position us as a leader in diversity and inclusion. The DIAG reports regularly to senior leadership and our Board of Directors on our progress in various focus areas, including recruiting, retention, mentoring and community engagement.

Availability of Reports and Other Information

Our annual reports on Form 10-K, quarterly reports on Form 10-Q, current reports on Form 8-K, proxy statements and amendments to those reports filed or furnished pursuant to Sections 13(a) or 14 of the Exchange Act are made available to the public free of charge in the Investor Relations section of our website www.ryam.com shortly after we electronically file such material with, or furnish them to, the SEC. All reports we file with or furnish to the SEC are also available free of charge on the SEC's website <https://www.sec.gov>. Our corporate governance guidelines, including the Standard of Ethics and Code of Corporate Conduct, and charters of all committees of our Board of Directors are also available on our website. Our website and the information posted thereon are not incorporated into this 2022 Form 10-K or any current or other periodic report that we file with or furnish to the SEC.

Item 1A. Risk Factors

Our business, financial condition, results of operations and cash flows are subject to a number of risks including, but not limited to, those listed below. When considering an investment in our securities, you should carefully read and consider these risks, together with all other information in this 2022 Form 10-K and our other filings and submissions to the SEC. If any of the events described in the following risk factors actually occur, our business, financial condition, operating results and cash flows, as well as the market price of our securities, could be materially adversely affected.

Macroeconomic and Industry Risks

Our business, financial condition and results of operations could be adversely affected by disruptions in the global economy caused by the ongoing conflict between Russia and Ukraine or other geopolitical conflicts.

The military conflict between Russia and Ukraine, along with economic sanctions placed by Western countries on certain industry sectors and parties in Russia, have negatively impacted the global economy. While we have no direct operations in Russia or Ukraine, we have significant operations in Europe, which have experienced shortages in key input materials and increased costs for transportation, energy and raw materials as a result of this conflict. Further escalation of geopolitical tensions could result in, among other things, natural gas shortages in Europe and disruptions of operations for us, our customers and our suppliers, an increase in cyberattacks, lower consumer demand and changes to foreign currency exchange rates and financial markets, any of which would adversely affect our business. These impacts could also directly affect North America and adversely impact our operations in this region. In addition, the effects of the ongoing conflict could heighten many of the other known risks described in this Item 1A — *Risk Factors*.

We are subject to risks associated with epidemics and pandemics, including the COVID-19 pandemic, which has had, and may continue to have, a material adverse impact on our business, financial condition, results of operations and cash flows.

Our global operations expose us to risks associated with public health crises, including epidemics and pandemics, such as the COVID-19 pandemic, which has generated, and may continue to generate, significant volatility, uncertainty and economic disruption in many markets in which we or our customers do business. Over the past three years, COVID-19 has adversely impacted our business and financial condition in various ways, including increased operating costs due to social distancing and other strict health and safety protocols implemented at our facilities to protect employees and contractors, reductions and unpredictable fluctuations in demand and reduced supply chain reliability due to international shipping congestion associated with global demand fluctuations and empty container imbalances. In particular, we remain at risk of adverse effects on our suppliers, vendors and other global supply chain partners which have impaired, and could continue to impair, our ability to timely and efficiently move our products through the various steps in the global supply chain process to our end customers. The full extent of the COVID-19 pandemic's impact on our business cannot be predicted at this time, we continue to closely monitor the pandemic's impacts on our liquidity, access to capital markets, reliability, customers and suppliers.

The businesses we operate are highly competitive and many of them are cyclical, which may result in fluctuations in pricing and volume that can materially adversely affect our business, financial condition, results of operations and cash flows.

Competition, demand fluctuations and cyclicity are the most significant drivers of sales volumes and pricing for our products. We face significant competition from domestic and foreign producers in all of our businesses. For example, in the market for our cellulose specialties product line, increased cellulose specialties production capacity from our competitors, some of whom have lower raw material, wood and production costs than we do, combined with demand weakness, have collectively contributed to substantially lower cellulose specialties sales prices over the past several years. Likewise, certain cellulose specialty grade volumes have declined meaningfully in recent years due to these factors. The COVID-19 pandemic exacerbated these dynamics and may continue to do so. Our high-purity commodity products for viscose and absorbent materials applications were also at extremely low pricing levels in 2019 and 2020. While these levels began to slowly rebound during the latter part of 2020 and increased throughout 2021 and 2022, there can be no assurance as to the timing and extent of the rebound or that elevated levels will be sustained over a significant period of time.

With respect to demand for cellulose specialties, and in particular our acetate grades, the majority of these acetate grades are used to manufacture acetate tow, which is used to make the filter component of a cigarette. Significant increases in cigarette costs and potential actions taken by the U.S. and other countries to discourage smoking, such as tax increases on tobacco products, policy changes and future legislation, may have a material adverse effect on the demand for tobacco products. Additionally, increased use of e-cigarettes, electronically heated tobacco products and smokeless tobacco products may affect demand for traditional cigarettes.

In addition, some of the industries in which our end-use customers participate, such as publishing, packaging, automotive and textiles, are cyclical in nature, thus posing risks to us which are beyond our control. These industries are highly competitive and may experience overcapacity and reductions in end-use demand, each of which may affect demand for and pricing of our products. The consequences of this could include reduction, delay or cancellation of customer orders.

Our high-yield pulp business is cyclical and influenced by a variety of factors, including periods of excess product supply due to industry capacity increases, periods of decreased demand due to reduced economic activity or market conditions, inventory de-stocking by customers, reduced market prices, scarcity of economically viable fiber in Canada and fluctuations in currency exchange rates. These factors may cause significant price changes over a short period, such as fluctuations experienced over the past three years during the COVID-19 pandemic. To address these factors, we have in the past, and may in the future, elect to schedule production curtailments and shutdowns. In particular, our high-yield pulp business has been the subject of temporary curtailments at various points in recent years in reaction to market conditions.

Our paperboard business has a blend of long- and short-term contracts and generally is more stable than our high-yield pulp business due to strong ties to and steady demand of the lottery and packaging sectors.

Changes in raw material and energy availability and prices, and continued inflationary pressure, could have a material adverse effect on our business, financial condition and results of operations.

Raw material and energy costs, such as chemicals, oil, natural gas and electricity, are a significant operating expense for us. The cost of these inputs can be volatile and are susceptible to rapid and substantial increases due to factors beyond our control, such as lack of availability, changing economic and weather conditions, political, civil or other unrest or instability in energy-producing nations, and supply and demand considerations. For example, we experienced significant price volatility in various chemicals we use during 2021 and 2022 driven by weather events in the southeastern U.S. which substantially impacted supply. Caustic soda, a key manufacturing input in our high purity cellulose business, has historically had significant price volatility. Similarly, the price of oil and natural gas and their pipeline transportation has historically experienced significant fluctuations based on market demand and other factors. Additionally, industrial and other policies of the governmental agencies having jurisdiction over the suppliers of raw materials to our facilities may change due to changes in political leadership or otherwise, which also could adversely impact the cost of energy and its transportation.

Given broader inflation in the economy, we are monitoring the risk that inflation presents to active and future contracts. In contracts for certain of our products, pricing is set annually or is otherwise not subject to change for a contractually agreed upon period of time. In these cases, we may have limited ability to pass along fluctuations in input costs. Over the past year, we have seen broad-based increases in costs from inflation that are material to our business as a whole, including with respect to key product inputs such as wood, energy, chemicals and transportation. Mitigation of inflationary impacts to some extent through cost surcharges may not be sufficient and continued inflationary pressure could materially adversely affect our profits and margins under our customer contracts. The impact of raw material and energy pricing increases could materially adversely affect our business, financial condition and results of operations.

We are subject to material risks associated with doing business outside of the U.S.

We have large manufacturing operations in Canada and France, and a significant portion of our sales are to customers located outside of the U.S., including China, the European Union, Japan, South Korea, Canada and other international markets. Sales to customers outside of the U.S. made up 67 percent of our revenue in 2022. The manufacture and sale of our products in non-U.S. markets results in risks that are inherent to conducting business under international laws, regulations and customs. We expect international sales will continue to contribute significantly to our results of operations and future growth. The risks associated with our business outside the U.S. include:

- maintaining and governing international subsidiaries and managing international operations;
- complying with changes in and reinterpretations of the laws, regulations and enforcement priorities of the countries in which we manufacture and sell our products;
- complying with anti-bribery laws, such as the U.S. Foreign Corrupt Practices Act and similar anti-bribery laws in other jurisdictions;
- trade protection laws, policies and measures and other regulatory requirements affecting trade and investment, including loss or modification of exemptions for taxes and tariffs, imposition of new tariffs and duties and import and export licensing requirements, as discussed below in further detail;
- complying with data privacy laws, such as the European Union's General Data Privacy Regulation and similar data privacy laws in other jurisdictions;
- repatriating cash from foreign countries to the U.S.;
- changes in tax laws and their interpretations in the countries in which we do business, including the potential impact on the value of recorded and future deferred tax assets and liabilities;
- product damage or loss incurred during shipping;
- political instability and actual or anticipated military or political conflicts;
- economic instability, inflation, recessions and interest rate and currency exchange rate fluctuations, as discussed below in further detail;
- uncertainties regarding non-U.S. judicial systems, rules and procedures; and
- minimal or limited protection of intellectual property in some countries.

These and other risks of doing business outside of the U.S. could materially adversely affect our business, financial condition and results of operations.

Foreign currency exchange fluctuations may have a material adverse impact on our business, financial condition and results of operations.

We have manufacturing operations in the U.S., Canada and France, and we sell our products all over the world, in either USD, CAD or Euros. As a result, we are exposed to movements in foreign currency exchange rates and our earnings are affected by changes in the value of the CAD and Euro relative to the USD. A strengthening of the USD or a weakening of the home currency of the countries in which our international competitors manufacture products can adversely impact our competitive position. In addition to ordinary-course currency fluctuations, specific events have had, and could in the future have, an impact on currency valuation. Our risk management policy allows management, with oversight from the Audit Committee of our Board of Directors, to hedge a significant portion of our exposure to fluctuations in foreign currency exchange rates, though no hedges are currently in place. To accomplish this, we have used, and may in the future use, derivative instruments, such as currency options and foreign exchange forward contracts, to mitigate our exposure to fluctuations in foreign currency exchange rates. Such measures, however, may not fully protect against substantial foreign currency fluctuations and such fluctuations may have a material adverse impact on our business, financial condition and results of operations.

Restrictions on trade through tariffs, countervailing and anti-dumping duties, quotas and other trade barriers, in the U.S. and internationally, could materially adversely affect our ability to access certain markets.

We manufacture our products in the U.S., Canada and France, and sell them in more than 40 countries. Our financial results are highly dependent on our ability to sell our products globally. Trade barriers such as tariffs, countervailing and anti-dumping duties, quotas and other similar restrictions on trade have in the past resulted in, and may in the future result in, a material reduction in revenues and profitability. The effects of such restrictions on trade and tariffs on our business in China and Canada are set forth below.

China

In 2022, we had total sales of \$346 million of products shipped to customers in China and, of this amount, \$274 million were products manufactured in the U.S. Trade tensions and trade-related actions, such as tariffs and duties, between China and the U.S. have previously impacted our business and our customers' businesses and could do so in the future. Failure of the U.S. and Chinese governments to reach acceptable agreements regarding trade, as well as continued trade volatility and additional trade-related actions by the Chinese government, could have a material adverse impact on our business, financial condition and results of operations.

Canada

We previously operated six softwood lumber mills in Ontario and Quebec, Canada, and exported softwood lumber into the U.S. from Canada. As part of the sale of our lumber assets in August 2021, we retained all rights and obligations to softwood lumber duties generated or incurred through the closing date of the transaction. The U.S. and Canada have a history of trade disputes, dating to the early 1980s, related to the export of softwood lumber from Canada into the U.S. Each dispute has been resolved via agreement or litigation, which generally involved some combination of duties and/or quotas, as well as a return of all or most of the duties previously paid by Canadian softwood lumber producers. In October 2015, a 10-year Softwood Lumber Agreement between the U.S. and Canada, which resolved a 2001-2006 lumber dispute between the countries, expired. No agreement was reached to extend or renew it, and as a result, after a one-year cooling-off period, the U.S. commenced a dumping investigation of lumber exports from Canada into the U.S. Beginning in 2017, anti-dumping and countervailing duties were assessed by the USDOC on lumber exported into the U.S. and we were assigned an anti-dumping duty rate of six percent and a countervailing duty rate of 14 percent. These duties are being legally challenged by Canada under both the North American Free Trade Agreement and World Trade Organization dispute resolution processes. Canada has filed an appeal under Chapter 10 of the United States-Mexico-Canada Agreement on Trade to contest these revised duties. The USDOC has completed administrative reviews in 2020, 2021 and 2022 for the 2017, 2018, 2019 and 2020 periods and reduced rates applicable to us to a combined anti-dumping and countervailing duty rate of less than 9 percent. Canada has filed an appeal under Chapter 10 of the United States-Mexico-Canada Agreement on Trade to contest these revised duties.

We paid approximately \$112 million in lumber duties through the date of the sale of our lumber assets, recorded as an expense in the periods incurred. As of December 31, 2022, we had a \$38 million long-term receivable associated with the USDOC's administrative reviews. Cash is not expected to return to us until final resolution of the softwood lumber dispute, which remains subject to legal challenges and to USDOC administrative review processes covering the remaining 2021 period. No assurances can be given that the duties will be overturned or repaid through the legal process or a negotiated settlement, or that lumber pricing will be sufficient to substantially offset their impact.

Business and Operational Risks

Our ten largest customers represented approximately 40 percent of our 2022 revenue, and the loss of all or a substantial portion of our revenue from these customers could have a material adverse effect on our business.

While we are not dependent on any single customer or group of customers and we continue to strive to broaden and diversify our customer base, our ten largest customers accounted for a significant portion, approximately 40 percent, of our 2022 revenue. Due to the highly competitive nature of our businesses, we regularly bid to both acquire new business and retain existing business; as such, we are subject to the potential for material changes in revenue and sales volumes. The loss of all or a substantial portion of sales to any of our largest customers, or significant, unfavorable changes to pricing or terms contained in contracts with them, could materially adversely affect our business, financial condition and results of operations.

We are also subject to credit risk associated with these customers. If one or more of our ten largest customers were to become bankrupt, insolvent or otherwise were unable to pay for our products, we may incur significant write-offs that may have a material adverse effect on our business, financial condition and results of operations.

A material disruption at any of our major manufacturing facilities could prevent us from meeting customer demand, reduce our sales and profitability, increase our cost of production and capital needs, or otherwise materially adversely affect our business, financial condition and results of operations.

Any of our major manufacturing facilities, or a significant portion of any of these facilities, could cease operations unexpectedly or suffer a material disruption to all or a portion of its operations due to a number of material adverse events, including:

- unscheduled outages or downtime due to the need for unexpected maintenance or equipment failure, including boilers and turbines that produce steam and electricity, pollution control equipment and equipment directly used to manufacture our products. We experienced such reliability issues during the first quarter of 2019 at our Temiscaming, Quebec plant and during the third quarter of 2021 at our Jesup, Georgia plant;
- prolonged power interruptions or failures;
- explosion of boilers or other pressure vessels;
- interruptions in the supply of raw materials, including chemicals and wood fiber;
- disruptions to or failures of the transportation infrastructure, such as roads, bridges, railroad tracks and tunnels, as well as lack of availability of rail, trucking and ocean shipping equipment and service from third party transportation providers;
- interruption or material reduction of water supply;
- a chemical spill or release or other event causing impacts to the environment or human health and safety;
- information technology system failures and cybersecurity incidents causing systems to be inaccessible or unusable;
- natural disasters (including those as a result of climate change), including fires, floods, windstorms, earthquakes, hurricanes or other similar catastrophes;
- labor interruptions, including strikes and short duration walk-outs, such as the walk-outs in 2019 and 2021 at our plant in Tartas, France;
- terrorism or threats of terrorism;
- new climate change or other environmental regulations, compliance with which may require significant capital expenditures to address modifications to our facilities, supply chain or other infrastructure; and
- other operational issues resulting from these and other risks.

Some of these matters are discussed in more detail in other sections of this Item 1A — *Risk Factors*. Depending on the nature, magnitude and duration of any operational interruption, the event could materially adversely affect our business, financial condition and results of operations.

Unfavorable changes in the availability of, and prices for, wood fiber may have a material adverse impact on our business, financial condition and results of operations.

Wood fiber is the largest raw material used in the manufacturing process for virtually all of our products. Many factors can impact its availability and pricing. Fiber for our U.S. and French facilities is primarily harvested from privately-held lands, while fiber for our Canadian facilities is primarily harvested from lands owned or controlled by the governments of the provinces of Ontario and Quebec, referred to as “Crown lands.” In connection with the sale of our lumber and newsprint assets in August 2021, we transferred agreements with provincial authorities, which granted timber “tenures” for terms varying from five to 20 years, to a third party. Concurrent with the transaction, we entered into a 20-year wood chip and residual fiber supply agreement with the buyer of those assets, securing supply for our operations at the Temiscaming plant. There can be no assurance that, upon termination of this wood chip and residual fiber supply agreement due to its natural expiration or otherwise, this agreement will be renewed, extended or replaced in the future on acceptable terms, or at all.

Regulatory developments and environmental litigation also have caused, and may cause in the future, significant reductions in the amount of timber available for commercial harvest from non-Crown lands in Canada and privately-owned lands in the U.S. and France, thereby increasing prices for these sources of wood fiber. In Canada, for example, future legislation and policy changes, litigation advanced by environmental groups and Indigenous communities concerning rights and limitations on harvesting and use of timberlands, the protection of endangered species, the promotion of forest diversity, control over insect and disease infestations, and the response to and prevention of wildfires could also affect wood fiber supply, pricing and availability.

In addition, much of the wood fiber we use is sourced by or from third party contractors who harvest, chip and/or transport the wood fiber to our manufacturing facilities, either as logs for lumber and chipping or as chips. A significant reduction in the availability of contractors experienced in harvesting and transporting logs could impact wood fiber supply, pricing and availability. Wood fiber supply and pricing may also be impacted by the proximity between available experienced logging and fiber transportation contractors and our manufacturing facilities. Sourcing wood fiber from greater distances could result in increased transportation costs.

Finally, natural conditions, including prolonged wet or cold or other weather events, timber growth cycles and restrictions on access to timberlands for harvesting, may also limit the availability, and increase the price, of wood, as may other factors, including damage by fire, insect infestation, disease, prolonged drought and natural disasters (including those as a result of climate change) such as windstorms and hurricanes. During 2021 and 2022, we experienced significant price volatility in various chemicals we rely upon as a result of weather events in the southeastern U.S. that substantially impacted supply. The occurrence, magnitude and duration of natural conditions and events and their impact on the availability and price of wood fiber cannot be predicted.

In sum, any sustained decrease in harvestable lands or wood supply, increase in wood fiber prices, whether sourced from Crown lands in Canada or from private parties in Canada, the U.S. or France, changes in the logging and transportation supply base or significant changes to historically customary natural conditions could materially increase our costs and thereby materially adversely impact our business, financial condition and results of operations.

Substantial capital is required to maintain our facilities, and the cost to repair or replace equipment, as well as the associated downtime, could materially adversely affect our business.

We operate capital intensive businesses and require substantial capital for ongoing maintenance, repair and replacement of existing facilities and equipment. Although we endeavor to maintain our production equipment with regular scheduled maintenance, key pieces of equipment and systems, some of which are large in scale, may need to be repaired or replaced periodically. The costs of repairing or replacing such equipment and the associated downtime of the affected production line could adversely affect our financial condition and results of operations. In addition, new or existing environmental regulations at times require additional capital expenditures for compliance. We believe our capital resources are currently adequate to meet our projected operating needs, capital expenditures and other cash requirements. However, our inability to provide for our operating cash requirements on reasonable economic terms could materially adversely affect our business, financial condition and results of operations.

We depend on third parties for transportation services and unfavorable changes in the cost and availability of transportation could materially adversely affect our business.

Our business depends on transportation services provided by third parties, both domestically and internationally. We rely on these providers for transportation of the products we manufacture as well as delivery of raw materials to our manufacturing facilities. A significant portion of the products we manufacture and raw materials we use are transported by railroad or trucks, and by ship.

If any of our transportation providers fail to deliver the goods we manufacture in a timely manner, or damage them during transport, we may be unable to sell those products at full value, if at all. Similarly, if any of these providers fail to deliver raw materials to us in a timely manner, we may be unable to timely manufacture our products in response to customer demand. In addition, the cost of energy, and specifically fuel, may adversely impact the cost of transporting our products. Finally, if the port system that we rely on for international shipping suffers work stoppages, slowdowns or strikes, our business could be materially adversely impacted.

Failure to maintain satisfactory labor relations could have a material adverse effect on our business.

As of December 31, 2022, 71 percent of our global work force is unionized. As a result, we are required to negotiate the wages, benefits and other terms of employment with these employees collectively. Our financial results could be materially adversely affected if labor negotiations result in substantially higher compensation costs or materially restrict how we are able to run our operations. In addition, our inability to negotiate acceptable contracts with any of these labor unions as existing agreements expire could result in strikes or work stoppages by the affected workers. While we do not expect any labor interruptions of significant duration, if our unionized employees were to engage in a strike or other work stoppage, such as the short-duration walk-outs in 2019 and 2021 at our plant in Tartas, France, at one or more of our major facilities, we could experience a significant disruption of our operations, which could materially adversely affect our business, financial condition and results of operations.

We are dependent upon attracting and retaining key personnel, the loss of whom could materially adversely affect our business.

We believe our success depends, to a significant extent, upon our ability to attract and retain key senior management and operations management personnel. Changing demographics and labor work force trends may result in the loss of knowledge and skills as experienced workers retire. Furthermore, some of our facilities are in relatively remote locations, which can challenge our ability to recruit and retain employees. To the extent that the demand for qualified personnel exceeds supply, as has been the case from time to time in recent years due to industry trends, we could experience higher labor, recruiting or training costs in order to attract and retain such employees, or difficulties in performing under our customer contracts if our needs for such employees were unmet. Our failure to develop and retain key personnel and recruit and develop qualified replacements for retiring and other departing employees could materially adversely affect our business, financial condition and results of operations, as well as our ability to succeed in our human capital goals and priorities.

Failure to develop new products or discover new applications for our existing products, or our inability to protect the intellectual property underlying new products or applications, could have a material adverse impact on our business.

We have an active R&D program to develop new products and new applications for our existing products. However, there can be no assurance this program will be successful, either from a product development or commercialization perspective, or that any particular invention, product or development, or the program as a whole, will lead to significant revenue or profit generation. Moreover, some of our new products and new applications may not contain intellectual property that can be protected under intellectual property laws. Failure to generate meaningful revenue and profit from our R&D efforts could materially adversely affect our business, financial condition and results of operations.

Loss of our intellectual property and sensitive data or disruption of our manufacturing operations due to cyberattacks or cybersecurity breaches could materially adversely impact our business.

Like most companies, we have been, and expect to continue to be, subject to attempted cyberattacks. Such attacks could include, for example, the increasingly prevalent practice of cyber extortion through the deployment of ransomware. Cyberattacks or cybersecurity breaches could compromise our intellectual property and confidential business information, cause a disruption to our operations or harm our reputation. Moreover, the recent increase in remote work and virtual interaction has only served to expand our “attack surface.” Our information technology systems, some of which are dependent on services provided by third parties, serve an important role in the efficient operation of our business. This role includes equipment, parts and raw material purchasing and fulfillment, inventory management, management of the processes we use to produce finished products, the reporting of financial results, facilitation of internal and external communications, administration of human capital functions and other process support necessary to manage our business. We have implemented and maintain cybersecurity policies, programs, controls and systems. On a quarterly basis, our Board of Director’s Audit Committee receives and reviews reports from management regarding our cybersecurity program covering, among other things, strategies and processes for the identification, assessment and mitigation of material cybersecurity-related risks facing the Company; existing and emerging cybersecurity trends and threat landscapes; and the status of projects to strengthen the Company’s information security systems and improve cyber readiness. Under the oversight of our Board of Directors, our CEO-chaired Enterprise Risk Management team and our Cyber-Security Steering Committee, each comprised of a cross-functional team of executives and key functional leads and subject matter experts, meet at least quarterly to ensure cybersecurity risks are being appropriately identified and mitigated, cybersecurity strategies are being efficiently carried out and cybersecurity processes are being adequately strengthened. These teams also help oversee implementation of bi-annual information security compliance training in addition to bi-annual testing exercises (e.g., “phishing simulations”) to reinforce training and assess and shore up vulnerabilities. Notwithstanding the foregoing, while we have not experienced an information security breach within the past three years (or to the best of our knowledge, any material information security breach prior to that), there can be no assurance that a cyberattack will not be successful or that such a cybersecurity breach will not occur in the future. Such an event could have a material adverse impact on our financial condition and results of operations.

Regulatory and Environmental Risks

Our business is subject to extensive environmental laws, regulations and permits that may materially restrict or adversely affect how we conduct business and our financial results.

Our plants are subject to environmental laws, regulations and permits that may require significant capital to enable our compliance or that could limit our operations and production. We are subject to environmental laws, regulations and permits that contain stringent conditions governing how we operate our facilities, including how much and, in some cases, what types of products, we can produce. These laws, regulations and permits, now and in the future, may materially adversely restrict our current production, limit our ability to increase production and impose significant costs on our operations with respect to environmental compliance. We expect that compliance-related capital and operating costs will likely increase over time as environmental laws, regulations and permit conditions become more strict, and as the expectations of the communities in which we operate become more demanding.

Environmental laws, regulations and permits are constantly changing and are generally becoming more restrictive. Laws, regulations, permits and related judicial decisions and administrative interpretations affecting our business are subject to change, and new laws and regulations are frequently enacted. These laws and regulations may limit, prohibit or affect, among other things, air emissions, wastewater discharges, receiving water quality, water withdrawal, remedial standards for contaminated property and groundwater, and the type of chemicals we use in our manufacturing processes. Over time, the complexity and restrictions imposed by these laws and regulations have increased and regulatory enforcement efforts have intensified. Environmental regulatory authorities have pursued a number of initiatives which, if implemented, could impose additional obligations and constraints on our operations, especially in the area of air emissions, wastewater and storm water control. See Item 1 — *Business — Environmental Matters* of this 2022 Form 10-K for further information. Environmental laws and regulations will likely continue to become more restrictive and over time could materially adversely affect our business, financial condition and results of operations.

Environmental groups, Indigenous communities and interested individuals may seek to delay or prevent a variety of our operations. We expect that environmental groups, Indigenous communities and interested individuals will intervene with increasing frequency in the regulatory processes in areas where we operate. Generally, environmental permitting programs in all areas where we operate include provisions for public and stakeholder engagement for both renewal of existing permits and approvals for expansions or modifications of our manufacturing operations. In Canada, direct consultation with Indigenous communities may also be required. Delays, restrictions and increased costs caused by the intervention of these groups or interested individuals could adversely affect our operating results. In addition to intervention in permit proceedings, interested groups and individuals may file or threaten to file lawsuits that seek to prevent us from obtaining permits, implementing capital improvements or pursuing operating plans. For example, in March 2014, litigation was commenced in federal court by the Altamaha Riverkeeper alleging violations of federal and state environmental laws relating to permitted wastewater discharges from our plant in Jesup, Georgia (although it was dismissed by the court on summary judgment in 2015), and in January of 2016 the same group brought an action against the EPD in opposition to the EPD's issuance of a renewed wastewater treatment permit for our Jesup plant. While these proceedings have, to date, been decided largely in our favor, we would expect similar attempts at legal intervention to be made in the future.

We currently own and may acquire properties that require environmental remediation or otherwise are subject to environmental and other liabilities. We currently own and may acquire properties that require environmental remediation or otherwise are subject to environmental and other liabilities. We currently own, and may acquire in the future, properties which are subject to environmental liabilities, such as remediation of soil, sediment and groundwater contamination and other liabilities. In addition, we may have such liabilities at properties, such as formerly operated manufacturing facilities, that we no longer own. The cost of assessment and remediation of contaminated properties could be substantial and materially adversely affect our financial results. These costs could include costs of investigation and assessment, corrective measures, installation of pollution control equipment and other remediation and closure costs, as well as costs to resolve third-party claims for property damage and personal injury as a result of alleged violations of, or liabilities arising out of, environmental laws and regulations. Although we believe we currently have adequate liabilities recorded, legal requirements relating to assessment and remediation of contaminated properties continue to become more stringent and there can be no assurance that actual expenditures will not exceed current liabilities and forecasts, or that other presently unknown liabilities will not be discovered in the future. See Item 1 — *Business — Environmental Matters* and Note 10 — *Environmental Liabilities* to our Financial Statements for additional information.

The potential longer-term impacts of climate-related risks remain uncertain at this time.

Climate change and its impacts on people and our planet continue to be a topic of significant focus and attention of our customers, investors and various other stakeholders. We can give no assurance that climate-related issues or associated expenditures will not exceed current expectations, and such expenditures may increase in future years.

Regulatory measures to address climate change may materially restrict how we conduct business or adversely affect our financial results.

Regulatory risks associated with climate change. There are numerous international, federal and state-level initiatives and proposals to address domestic and global climate issues. Within the U.S., Canada and France, where we have operations, most of these initiatives and proposals would, or currently do, regulate and/or tax the production of carbon dioxide and other GHGs to facilitate the reduction of carbon compound emissions into the atmosphere and provide incentives to produce and use more “clean energy.” Initiatives that materially impact purchased electricity prices could increase our manufacturing costs, especially in our Canadian operations, which use more purchased electricity (on a percentage basis) than our U.S. facilities. In addition, the federal government of Canada has indicated its intent to regulate priority air pollutants and GHGs under its Clean Air Act and Canadian Environmental Protection Act. Under the proposed regulatory targets, our Canadian operations may be required to reduce air pollutants, such as particulate matter, SO_x, NO_x and GHGs. While industry consultations are ongoing with the federal government of Canada, the cost of making any such reductions cannot currently be estimated; however, the requirements associated with particulate matter, SO_x and NO_x are not expected to be material to our business given our current operations and pollution control systems.

The federal government of Canada has adopted the Greenhouse Gas Pollution Pricing Act which implements the federal carbon pollution pricing system. Under the provisions of the Greenhouse Gas Pollution Pricing Act, the provinces, who have previously implemented their own carbon pollution price, or “cap-and-trade” system, will not be subject to the federal program provided their program meets the minimum federal pricing and emissions reduction targets. Quebec has a cap-and-trade program for GHGs that meets the minimum criteria, and our Temiscaming, Quebec plant was a net purchaser of credits under this program in 2022. To date, the cost of GHG credits under cap-and-trade programs purchased by our business and incorporated into the overall cost of our purchased wood fiber has not been material, although no assurances can be given that they will not substantially increase in the future, as the future regulatory state and the cost of GHG credits in applicable jurisdictions is currently unknown.

Transition. The transition to a low carbon economy, as predicted by many investors and other stakeholders, poses both risk and opportunity for us that are, as yet, not able to be quantified. Similar to other manufacturers in our industry, we use biomass, natural gas, liquid fossil fuels and purchased electricity to power our plants. Changes in policy, regulation or technology related to fuels that we, or our electricity providers, use could materially increase our costs. Additionally, customers continue to express a desire for certified material and improvements in sustainable performance.

The primary input of all our products is wood, a renewable, natural raw material. Further, our cellulose specialty products are natural polymers that can be used as an effective, more climate-friendly substitute for certain applications that currently use fossil fuel-based products. We continue to explore additional climate-friendly applications for existing products and pursue projects to develop new sustainable products from renewable resources, including our 2G bioethanol project in Tartas, France, however, these opportunities, as well as their attendant risks, are not fully known or understood at this time.

Physical. The potential impacts of extreme weather, such as hurricanes, blizzards, and heavy rain, which could result from the impacts of climate change, are factored into our enterprise risk assessment process and the mitigation measures we currently take to protect our assets and business. It is not clear whether increased frequency of these or similar events would materially change our risk profile, analyses or mitigation measures, but there can be no assurance that they would not require additional material expenditures.

In sum, additional business and regulatory initiatives may be implemented to address GHG emissions and other climate-change-related concerns. If such initiatives are implemented, we may be required to incur additional capital expenditures, increased operating costs for wood fiber or raw materials and/or increased mitigating expenses, such as carbon taxes or other charges, to address and comply with any such initiatives. No assurance can be given that the increased costs associated with compliance of future GHG-related requirements will not have a material adverse effect on our business, financial condition and results of operations.

Financial Risks

We may need to make significant additional cash contributions to our retirement benefit plans if investment returns on pension assets are lower than expected or interest rates decline, and/or due to changes to regulatory, accounting and actuarial requirements.

We have a qualified non-contributory defined benefit pension plan, which covers many of our salaried and hourly employees in the U.S. The Federal Pension Protection Act of 2006 requires that certain capitalization levels be maintained in each of these benefit plans. Our non-U.S. pension plans, while currently adequately funded, will also require periodic contributions to ensure that applicable legal requirements are met. Because it is unknown what interest rates and the investment return on pension assets will be in future years, no assurances can be given that applicable law will not require us to make future material plan contributions. In addition, it is possible that new accounting rules and/or changes to actuarial requirements may also result in the need for additional contributions to the plans. Any such contributions could materially adversely affect our financial condition. See Item 7 - *Management's Discussion and Analysis of Financial Condition and Results of Operations - Critical Accounting Policies and Use of Estimates* and Note 17 - *Employee Benefit Plans* to our Financial Statements for additional information about these plans.

We have debt obligations that could materially adversely affect our business and our ability to meet our obligations.

As of December 31, 2022, our total combined indebtedness was approximately \$1 billion. This significant amount of debt could have material adverse consequences to us and our investors, including:

- requiring a substantial portion of our cash flows from operations to be used for interest payments on this debt;
- making it more difficult to satisfy debt service and other obligations;
- increasing the risk of a future credit ratings downgrade of our debt, which could increase future debt costs and limit the future availability of debt financing;
- increasing our vulnerability to general adverse economic and industry conditions;
- reducing the cash flows available to fund capital expenditures and other corporate purposes and to grow our business;
- limiting our flexibility in planning for, or reacting to, market or other changes in our businesses and industry;
- placing us at a disadvantage to our competitors that may not be as highly leveraged with debt;
- limiting our ability to borrow additional funds as needed or take advantage of business opportunities as they arise, pay cash dividends or repurchase shares of our common stock; and
- limiting access to liquidity, including through our asset-based revolving credit facility.

To the extent we incur additional indebtedness, the risks described above could increase. In addition, our actual cash requirements in the future may be greater than expected. Our cash flows from operations may not be sufficient to repay all of the outstanding debt as it becomes due, and we may not be able to borrow money, sell assets or otherwise raise funds on acceptable terms, or at all, to refinance our debt. See Note 9 — *Debt and Finance Leases* to our Financial Statements for further information regarding our debt obligations.

Challenges in the commercial and credit environments may materially adversely affect our future access to capital.

Our ability to issue debt or equity or enter into other financing arrangements on acceptable terms could be materially adversely affected if there is a material decline in the pricing or sales volume of our products, or if significantly unfavorable changes in economic conditions occur. Volatility in the world financial markets could increase borrowing or other costs of capital or affect our ability to gain access to the capital markets, which could have a material adverse effect on our competitive position, business, financial condition, results of operations and cash flows.

We may require additional financing in the future to meet our capital needs or to make acquisitions, and such financing may not be available on favorable terms, if at all, and may be dilutive to existing stockholders.

We may require additional financing in the future for general corporate purposes, such as to increase our investment in R&D activities, make strategic investments in our facilities, invest in joint ventures or make acquisitions. We may be unable to obtain desired additional financing on terms favorable to us, if at all. For example, during periods of volatile credit markets, there is a risk that lenders, even those with strong balance sheets and sound lending practices, could fail or refuse to honor their credit commitments and obligations, including, but not limited to, extending credit up to the maximum permitted by a credit facility and otherwise accessing capital and/or honoring loan commitments. If our lenders are unable to fund borrowings under their loan commitments or we are unable to borrow, it could be difficult to replace such loan commitments on similar terms or at all. If adequate funds are not available on acceptable terms, we may be unable to fund growth opportunities, successfully develop or enhance products or respond to competitive pressures, any of which could negatively affect our business. If we raise additional funds through the issuance of equity securities, our stockholders will experience dilution of their ownership interest. If we raise additional funds by issuing debt, the terms of such debt may subject us to further limitations on our operations and ability to pay dividends or repurchase stock than are currently in place pursuant to our existing indebtedness.

Common Stock and Certain Corporate Matters Risks

Our stockholders' ownership in RYAM may be diluted.

In the future, stockholder ownership in RYAM may be diluted as the result of equity issuances for acquisitions, capital market transactions and other corporate purposes, including equity awards for our directors, officers and employees. Additionally, our employees have options to purchase shares of our common stock. We anticipate that our compensation committee will continue to grant stock options or other stock-based awards to our employees under our employee benefit plans. Such awards will have a dilutive effect on our earnings per share, which could adversely affect the market price of our common stock.

Certain provisions in our amended and restated certificate of incorporation and bylaws, and of Delaware law, could prevent or delay an acquisition of RYAM, which could decrease the price of our common stock.

Our amended and restated certificate of incorporation authorizes us to issue, without the approval of our stockholders, one or more classes or series of preferred stock having such designation, powers, preferences and relative, participating, optional and other special rights, including preferences over our common stock respecting dividends and distributions, as our Board of Directors generally may determine. The terms of one or more classes or series of preferred stock could dilute the voting power or reduce the value of our common stock. For example, we could issue preferred stock and grant the holders thereof the right to elect some number of our directors in all events or on the happening of specified events or the right to veto specified transactions. Similarly, the repurchase or redemption rights or liquidation preferences we could assign to holders of preferred stock could affect the residual value of the common stock.

Item 1B. Unresolved Staff Comments

Not applicable.

Item 2. Properties

The following table details the material properties we owned or leased at December 31, 2022:

Location by Segment	Annual Production Capacity ^(a)	Owned/Leased
High Purity Cellulose Facilities:		
Jesup, Georgia, United States	330,000 MTs of cellulose specialties or commodity products 270,000 MTs of commodity products	Owned
Fernandina Beach, Florida, United States	155,000 MTs of cellulose specialties or commodity products	Owned
Temiscaming, Quebec, Canada	150,000 MTs of cellulose specialties or commodity products	Owned
Tartas, France	140,000 MTs of cellulose specialties or commodity products	Owned
Paperboard Facilities:		
Temiscaming, Quebec, Canada	180,000 MTs of paperboard	Owned
High-Yield Pulp Facilities:		
Temiscaming, Quebec, Canada	290,000 MTs of high-yield pulp	Owned
Corporate and Other:		
Jacksonville, Florida, United States	Corporate Headquarters	Leased

^(a) Based on historic average production and not adjusted for potential market-related downtime and/or reliability issues.

Our manufacturing facilities are maintained through ongoing capital investments, regular maintenance and equipment upgrades. As a result, production capacities may vary from the amounts listed above. These facilities, warehouses, machinery and equipment that we owned or leased as of December 31, 2022 are in good operating condition and in regular use.

Item 3. Legal Proceedings

As disclosed in Note 21 — *Commitments and Contingencies* to our Financial Statements, we are engaged in certain legal proceedings and the disclosures set forth in Note 21 relating to legal proceedings are incorporated herein by reference.

Part II

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

Market Information

Our common stock is traded on the New York Stock Exchange under the trading symbol “RYAM.”

Holders

The number of record holders of our common stock at February 27, 2023 was 3,450.

Dividends

In September 2019, our Board of Directors suspended our quarterly common stock dividend and no dividends have since been declared. The declaration and payment of future common stock dividends, if any, will be at the discretion of our Board of Directors and will be dependent upon our financial condition, results of operations, capital requirements and other factors that our Board of Directors deems relevant. In addition, our debt facilities place limitations on the declaration and payment of future dividends.

Issuer Purchases of Equity Securities

The following table provides information regarding our purchases of RYAM common stock during the quarter ended December 31, 2022:

	Total Number of Shares Purchased ^(a)	Average Price Paid per Share	Total Number of Shares Purchased as Part of Publicly Announced Plans or Programs	Approximate Dollar Value of Shares That May Yet Be Purchased Under the Plans or Programs ^(b)
September 25 to October 29	—	\$ —	—	\$ 60,294,000
October 30 to November 26	—	\$ —	—	\$ 60,294,000
November 27 to December 31	15,964	\$ 8.11	—	\$ 60,294,000
Total	<u>15,964</u>		<u>—</u>	

^(a) Represents shares repurchased to satisfy tax withholding requirements related to the issuance of stock under our stock incentive plans.

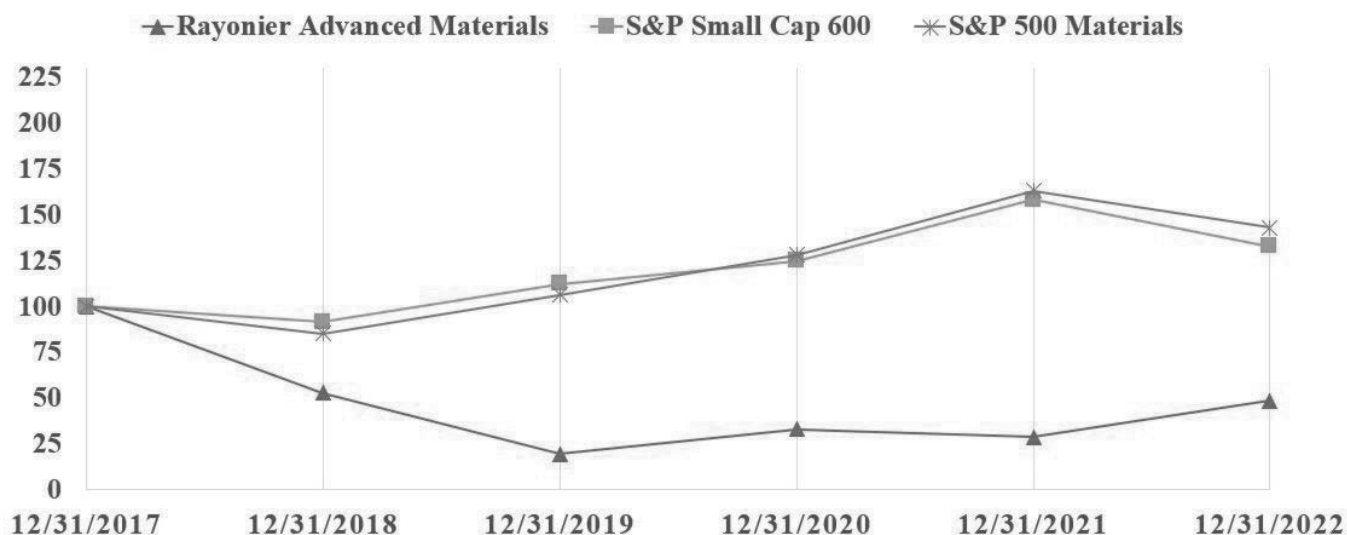
^(b) In January 2018, our Board of Directors authorized a share buyback program pursuant to which we may, from time to time, purchase shares of our common stock with an aggregate purchase price of up to \$100 million. As of December 31, 2022, the remaining unused authorization under our share buyback program was \$60 million. See Note 16 — *Incentive Stock Plans* to our Financial Statements for further information.

Securities Authorized for Issuance under Equity Compensation Plans

See Item 12 — *Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters* for information relating to our equity compensation plans.

Stock Performance Graph

The following graph compares the performance of a \$100 investment in our common stock, assuming reinvestment of dividends, with the same investment in a broad-based market index, the S&P Small Cap 600, and an industry-specific index, the S&P 500 Materials, over the five-year period beginning December 31, 2017. The table and related information shall not be deemed to be “soliciting material” or to be “filed” with the SEC, nor shall such information be incorporated by reference into any future filing under the Securities Act or Exchange Act, except to the extent that we specifically incorporate it by reference into such filing.



The data in the following table was used to create the previous graph:

	12/31/2017	12/31/2018	12/31/2019	12/31/2020	12/31/2021	12/31/2022
RYAM	\$ 100	\$ 53	\$ 19	\$ 33	\$ 29	\$ 48
S&P Small Cap 600	100	91	112	125	158	133
S&P 500 Materials	100	85	106	128	163	143

Recent Sales of Unregistered Securities

We did not issue or sell any unregistered equity securities in 2022.

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

The following discussion and analysis of our financial condition and results of operations should be read in conjunction with our Financial Statements, the notes thereto, and the other financial information appearing elsewhere in this 2022 Form 10-K. The following discussion includes forward-looking statements that involve certain risks and uncertainties. See *Forward-Looking Statements* and Item 1A — *Risk Factors* in this 2022 Form 10-K.

This section primarily discusses 2022 and 2021 items and comparisons between these years. For a discussion of year-over-year comparisons between 2021 and 2020 and other financial information related to 2020 that is not included in this 2022 Form 10-K, refer to Item 7 — *Management’s Discussion and Analysis of Financial Condition and Results of Operations* of our Annual Report on Form 10-K for the year ended December 31, 2021 filed with the SEC on March 1, 2022.

Overview

We are a diversified global leader of cellulose-based technologies that operates in the following business segments:

- High Purity Cellulose
- Paperboard
- High-Yield Pulp

Our High Purity Cellulose business has leading positions in the cellulose specialties markets. In addition, our other business segments provide a more diversified earnings stream.

High Purity Cellulose

We manufacture and market high purity cellulose, which is sold as either cellulose specialties or commodity products. We are the leading global producer of cellulose specialties, which are primarily used in dissolving chemical applications that require a highly purified form of cellulose. Pricing for our cellulose specialties products is typically set by contract for a duration of at least one year, based on discussions with customers. Our commodity products primarily consist of commodity viscose and absorbent materials. Commodity viscose pulp is a raw material required for the manufacture of viscose staple fibers which are used in woven and non-woven applications. Absorbent materials, typically referred to as fluff fibers, are used as an absorbent medium in consumer products. Pricing for commodity products is typically referenced to published indices or based on publicly available spot market prices. Sales of chemicals and energy, a majority of which are by-products of our manufacturing processes, are included in the High Purity Cellulose segment.

Our four production facilities, located in the U.S., Canada and France, have a combined annual production capacity of 1,045,000 MTs of cellulose specialties and commodity products. Of our total annual capacity, we dedicate 270,000 MTs of annual production to commodity products, primarily absorbent materials.

Wood fiber, chemicals and energy represent approximately 50 percent of our per MT cost of sales. Labor, manufacturing and maintenance supplies, depreciation, manufacturing overhead and transportation costs represented our remaining cost of sales.

Paperboard

We manufacture paperboard that is used for packaging, printing documents, brochures, promotional materials, paperback book and catalog covers, file folders, tags and lottery tickets.

Pricing for paperboard is typically referenced to published indices and marketed through our internal sales team. Our production facility, located in Canada, has an annual production capacity of 180,000 MTs of paperboard. Wood pulp, chemicals and energy represent approximately 80 percent of our per MT cost of sales. Labor, manufacturing and maintenance supplies, depreciation, manufacturing overhead and transportation costs represent our remaining cost of sales.

High-Yield Pulp

We manufacture and market high-yield pulp, which is used by paper manufacturers to produce paperboard, packaging, printing and writing papers and a variety of other paper products. Pricing for high-yield pulp is typically referenced to published indices marketed through our internal sales team. Our production facility, located in Canada, has an annual production capacity of 290,000 MTs of high-yield pulp.

Wood fiber, chemicals and energy represent approximately 40 percent of our per MT cost of sales. Labor, manufacturing and maintenance supplies, depreciation, manufacturing overhead and transportation costs represent our remaining cost of sales.

Recent Business Developments

- During the second, third and fourth quarters of 2022, we repurchased a total \$47 million of our Senior Notes through open-market transactions and retired the notes for \$47 million in cash.
- During the third and fourth quarters of 2022, we repaid CAD fixed interest rate term loans in the total amount of CAD \$24 million (USD \$18 million).
- During the second quarter of 2022, we sold the 28.7 million shares of GreenFirst common stock we received in connection with the August 2021 sale of our lumber and newsprint assets for \$43 million. The shares sale agreement contains a purchase price protection clause whereby we are entitled to participate in further stock price appreciation under certain circumstances until December 2023.
- During 2022, our business experienced a significant increase in the costs for wood, chemicals, energy and supply chain. In response, we implemented a \$146 per MT cost surcharge applicable to all shipments of our cellulose specialties, effective starting with shipments made on April 1, 2022 and later. In connection with contract negotiations, the cost surcharge was phased out in early 2023.
- As of March 2022, our fluff pulp qualifies as an “Inspected Raw Material” by Nordic Swan Ecolabelling. The Nordic Swan Ecolabel sets strict environmental requirements in all phases of manufacturing, including requirements for eco-friendly chemicals used in ecolabeled products. The status will appear on products made with our fluff pulp and indicates to consumers and commercial buyers that the product is sustainably produced and environmentally friendly.
- On March 21, 2022, our Board of Directors adopted a stockholder rights plan and declared a dividend of one preferred share purchase right for each outstanding share of our common stock, par value \$0.01 per share. See Note 13 — *Stockholders’ Equity* to our Financial Statements for further information.

Market Assessment

This market assessment represents our best current estimate of our business segments’ future performance.

High Purity Cellulose

Demand for cellulose specialties and commodity products is mixed. Strength in acetate, casings, filtration and nitrocellulose end markets are offsetting softness for construction ethers, food additives in microcrystalline cellulose and tire cord. Fluff market demand remains resilient but at lower prices than fourth quarter levels. Viscose markets started the year soft, with signs of improvement as China’s economy reopens. Average sales prices for cellulose specialties in 2023 are expected to be high single-digit percent higher than average 2022 sales prices. Commodity sales prices are expected to decline versus 2022 levels, in line with industry forecasts for fluff and viscose cellulose pricing. Commodity sales volumes are expected to increase as production and logistics constraints improve. Raw material prices are expected to remain elevated, offset by benefits expected from prior strategic capital investments.

Paperboard

Paperboard prices for 2023 are expected to continue to increase from 2022 levels, driven by strong demand in both the packaging and commercial printing end markets. Sales volumes are expected to increase slightly, driven by improved logistics, while raw material prices reduce as pulp markets decline.

High-Yield Pulp

High-yield pulp markets have declined as global economic demand slows, impacting sales price. The reopening of the Chinese economy may provide catalyst for more stable pricing. Sales volumes are expected to improve slightly in 2023, primarily due to improved productivity and logistics.

A Sustainable Future

For over 95 years, we have invested in renewable product offerings and our biorefinery model provides a platform to grow existing and new products to address the needs of the changing economy. We continue to focus on growing our bio-based product offering. In 2022, other sales in our High Purity Cellulose segment were \$115 million, primarily related to sales of bioelectricity and liginosulfonates. We expect to grow these sales and increase overall margins over time.

Our bioethanol facility at our Tartas, France facility is anticipated to be operational in 2024. The total estimated cost of the project is approximately \$39 million, with \$29 million to be spent in 2023. We plan to utilize \$28 million of low-cost green loans to help fund the project, including \$8 million already raised in 2022, and \$4 million in grants. The project is expected to provide \$9 million to \$11 million of annual incremental EBITDA beginning in 2024.

Results of Operations: Year Ended December 31, 2022 versus December 31, 2021

(in millions, except percentages)	Year Ended December 31,	
	2022	2021
Net sales	\$ 1,717	\$ 1,408
Cost of sales	(1,594)	(1,333)
Gross margin	123	75
Selling, general and administrative expenses	(91)	(76)
Other operating expense, net	(6)	(9)
Operating income (loss)	26	(10)
Interest expense	(66)	(66)
Interest income and other, net	6	—
Other components of net periodic benefit (expense)	5	(4)
Gain (loss) on GreenFirst equity securities	5	(4)
Gain on debt extinguishment	—	1
Loss from continuing operations before income taxes	(24)	(83)
Income tax (expense) benefit	(1)	35
Equity in loss of equity method investment	(2)	(2)
Loss from continuing operations	(27)	(50)
Income from discontinued operations, net of taxes	12	116
Net income (loss)	\$ (15)	\$ 66
Gross Margin %	7.2 %	5.3 %
Operating Margin %	1.5 %	(0.7)%
Effective Tax Rate %	(3.8)%	41.9 %

Net Sales

(in millions)	Year Ended December 31,	
	2022	2021
High Purity Cellulose	\$ 1,336	\$ 1,091
Paperboard	250	208
High-Yield Pulp	160	136
Eliminations	(29)	(27)
Net sales	\$ 1,717	\$ 1,408

Net sales increased by \$309 million or 22 percent, in 2022 compared to 2021, driven primarily by higher sales prices across all segments. See *Operating Results by Segment* below for further discussion.

Operating Income (Loss)

(in millions)	Year Ended December 31,	
	2022	2021
High Purity Cellulose	\$ 31	\$ 20
Paperboard	37	13
High-Yield Pulp	16	7
Corporate	(58)	(50)
Operating income (loss)	\$ 26	\$ (10)

Operating results for 2022 improved by \$36 million when compared to 2021 due to higher sales prices across all segments, partially offset by increased costs resulting from inflation on chemicals, wood fiber, energy and logistics costs.

Non-operating Expenses

Included in non-operating expenses for 2022 was a \$5 million gain associated with the GreenFirst shares received in connection with the sale of lumber and newsprint assets in August 2021. A loss of \$4 million was recognized on these shares during the year ended December 31, 2021. See Note 12 — *Fair Value Measurements* to our Financial Statements for further information.

Included in non-operating expenses for 2021 was \$8 million in pension settlement losses.

Income Taxes

The effective tax rate on the loss from continuing operations for 2022 was an expense of 4 percent. The most significant items creating a difference between the 2022 effective tax rate and the statutory rate of 21 percent were changes in the valuation allowance on disallowed U.S. interest deductions, nondeductible executive compensation, U.S. tax credits and tax return-to-accrual adjustments on filed returns.

The effective tax rate on continuing operations for 2021 was a benefit of 42 percent. The 2021 effective tax rate differed from the statutory rate of 21 percent primarily due to a tax benefit recognized by remeasuring the Canadian DTAs at a higher Canadian blended statutory tax rate. The Canadian statutory tax rate increased as a result of changing the allocation of income between the Canadian provinces after the sale of our lumber and newsprint assets. See Note 19 — *Income Taxes* to our Financial Statements for further information.

Discontinued Operations

In 2021, we received \$193 million of cash upon closing of the sale of our lumber and newsprint assets to GreenFirst. In the first quarter of 2022, we trued-up certain sale-related items with GreenFirst for a total net cash outflow of \$3 million, as expected and previously disclosed. Pursuant to the terms of the asset purchase agreement, we had been engaged with GreenFirst in efforts to finalize the closing inventory valuation adjustment, which could have impacted the final purchase price. In November 2022, the arbitration proceeding was resolved in our favor and no changes were made to the gain on sale recorded during 2021.

During the third quarter of 2022, the USDOC completed its third administrative review of duties applied to Canadian softwood lumber exports to the U.S. during 2020 and reduced rates applicable to us to a combined 8.6 percent. We recorded a \$16 million pre-tax gain in connection with this development and increased the total long-term receivable related to the USDOC's administrative reviews to date to \$38 million. In January 2023, the USDOC released the preliminary results of its fourth administrative review, which indicate a reduction in rates to a combined 8.2 percent. We will adjust its long-term receivable as appropriate when these rates are finalized and issued, expected later in 2023. In total, we paid approximately \$112 million in softwood lumber duties from 2017 through 2021. Although no assurances can be given, we expect to receive all or the vast majority of these duties upon settlement of the dispute.

See Note 3 — *Discontinued Operations* to our Financial Statements for further information.

Operating Results by Segment

High Purity Cellulose

(in millions)	Year Ended December 31,	
	2022	2021
Net sales	\$ 1,336	\$ 1,091
Operating income	\$ 31	\$ 20
Average sales prices (\$ per MT)	\$ 1,330	\$ 1,122
Sales volumes (thousands of MTs)	918	884

Net Sales

(in millions)	Year Ended December 31, 2021	Changes Attributable to:		Year Ended December 31, 2022
		Price	Volume/Mix/Other	
Cellulose specialties	\$ 712	\$ 139	\$ 15	\$ 866
Commodity products	279	62	14	355
Other sales ^(a)	100	—	15	115
Net sales	\$ 1,091	\$ 201	\$ 44	\$ 1,336

^(a) Includes sales of bioelectricity, lignosulfonates and other by-products to third parties.

Net sales of our High Purity Cellulose segment increased \$245 million in 2022 when compared to 2021. Cellulose specialties sales prices increased 19 percent, inclusive of the \$146 per MT cost surcharge effective April 2022, due to the impact of contract negotiations, and sales volumes increased 2 percent due to improved demand. Commodity products sales prices and volumes increased 19 percent and 7 percent, respectively, driven by higher demand. Included within net sales for 2022 was \$115 million of other sales, primarily from bio-based energy and lignosulfonates.

Operating Income

(in millions, except percentages)	Year Ended December 31, 2021	Gross Margin Changes Attributable to:				SG&A and other	Year Ended December 31, 2022
		Sales Price	Sales Volume/ Mix/Other ^(a)	Cost			
Operating income	\$ 20	\$ 201	\$ 30	\$ (215)	\$ (5)	\$ 31	
Operating margin %	1.8 %	15.3 %	1.7 %	(16.1)%	(0.4)%	2.3 %	

^(a) Computed based on contribution margin.

Operating income of our High Purity Cellulose segment increased \$11 million in 2022 when compared to 2021, driven by higher sales prices and volumes. Sales prices for the segment increased 19 percent, driven by 19 percent increases in both cellulose specialties, inclusive of the \$146 per MT cost surcharge, and commodity products. Total volumes increased 4 percent, driven by 2 percent and 7 percent increases in cellulose specialties and commodity products, respectively. Costs increased compared to 2021 as the result of inflation on chemicals, wood fiber, energy and logistics costs. Partially offsetting higher energy costs in both 2022 and 2021 were \$12 million of sales of excess emission allowances related to our operations in Tartas, France. Additionally, 2022 included \$8 million of sales of certificates of energy savings associated with Tartas operations.

Paperboard

(in millions)	Year Ended December 31,	
	2022	2021
Net sales	\$ 250	\$ 208
Operating income	\$ 37	\$ 13
Average sales prices (\$ per MT)	\$ 1,478	\$ 1,165
Sales volumes (thousands of MTs)	169	179

Net Sales

(in millions)	Year Ended December 31, 2021	Changes Attributable to:		Year Ended December 31, 2022
		Price	Volume/Mix	
Net sales	\$ 208	\$ 53	\$ (11)	\$ 250

Net sales of our Paperboard segment increased \$42 million in 2022 when compared to 2021, due to a 27 percent increase in sales prices, driven by strong demand, partially offset by a 6 percent decrease in sales volumes driven by the timing of sales and lower productivity.

Operating Income

(in millions, except percentages)	Year Ended December 31, 2021	Gross Margin Changes Attributable to:				SG&A and other	Year Ended December 31, 2022
		Sales Price	Sales Volume/ Mix ^(a)	Cost			
Operating income	\$ 13	\$ 53	\$ (4)	\$ (26)	\$ 1	\$ 37	
Operating margin %	6.3 %	19.0 %	(0.5)%	(10.4)%	0.4 %	14.8 %	

^(a) Computed based on contribution margin.

Operating income of our Paperboard segment increased \$24 million in 2022 when compared to 2021, due to higher sales prices, partially offset by higher logistics, raw material pulp and chemicals costs and lower sales volumes.

High-Yield Pulp

(in millions)	Year Ended December 31,	
	2022	2021
Net sales	\$ 160	\$ 136
Operating income	\$ 16	\$ 7
Average sales prices (\$ per MT) ^(a)	\$ 685	\$ 546
Sales volumes (thousands of MTs) ^(a)	191	197

^(a) Average sales prices and sales volumes for external sales only. During the years ended December 31, 2022 and 2021, the High-Yield Pulp segment sold 66,000 MTs and 68,000 MTs of high-yield pulp for \$29 million and \$28 million, respectively, to the Paperboard segment.

Net Sales

(in millions)	Year Ended December 31, 2021	Changes Attributable to:		Year Ended December 31, 2022
		Price	Volume/Mix	
Net sales	\$ 136	\$ 28	\$ (4)	\$ 160

Net sales of our High-Yield Pulp segment increased \$24 million in 2022 when compared to 2021, driven by a 25 percent increase in sales prices, partially offset by a 3 percent decline in sales volumes.

Operating Income

(in millions, except percentages)	Year Ended December 31, 2021	Gross Margin Changes Attributable to:				SG&A and other	Year Ended December 31, 2022
		Sales Price	Sales Volume/ Mix ^(a)	Cost			
Operating income	\$ 7	\$ 28	\$ (2)	\$ (17)	\$ —	\$ 16	
Operating margin %	5.1 %	16.2 %	(0.7)%	(10.6)%	— %	10.0 %	

^(a) Computed based on contribution margin.

Operating income of our High-Yield Pulp segment increased \$9 million in 2022 when compared to 2021, driven by higher sales prices, partially offset by higher chemicals and logistics costs and lower sales volumes.

Corporate

(in millions)	Year Ended December 31,	
	2022	2021
Operating loss	\$ (58)	\$ (50)

The operating loss of our Corporate segment increased \$8 million in 2022 when compared to 2021, driven by an increase in severance and variable stock-based compensation costs, partially offset by favorable foreign currency exchange impacts.

Liquidity and Capital Resources

Overview

Cash flows from operations, primarily driven by operating results, have historically been our primary source of liquidity and capital resources. As operating cash flows can be negatively impacted by fluctuations in market prices for our commodity products and changes in demand for our products, we maintain a key focus on cash, managing working capital closely and optimizing the timing and level of our capital expenditures.

Our Board of Directors suspended our quarterly common stock dividend in September 2019. No dividends have been declared since. The declaration and payment of future common stock dividends, if any, will be at the discretion of our Board of Directors and will be dependent upon our financial condition, results of operations, capital requirements and other factors that the Board of Directors deems relevant. In addition, our debt facilities place limitations on the declaration and payment of future dividends.

In January 2018, our Board of Directors authorized a \$100 million common stock share buyback program. We did not repurchase any shares under this program during the years ended December 31, 2022 and 2021, and do not expect to utilize any of the remaining \$60 million in unused authorization in the near future.

As of December 31, 2022, we were in compliance with all financial and other customary covenants under our credit arrangements. We believe our future cash flows from operations, availability under our ABL Credit Facility and our ability to access the capital markets, if necessary or desirable, will be adequate to fund our operations and anticipated long-term funding requirements, including capital expenditures, defined benefit plan contributions and repayment of debt maturities.

Our non-guarantor subsidiaries had assets of \$507 million, liabilities of \$177 million, year-to-date revenue of \$248 million and a trailing twelve month ABL Credit Facility covenant EBITDA for continuing operations of \$37 million as of December 31, 2022.

Our liquidity and capital resources are summarized below:

(in millions, except ratios)	December 31,	
	2022	2021
Cash and cash equivalents ^(a)	\$ 152	\$ 253
Availability under the ABL Credit Facility ^(b)	130	103
Total debt ^(c)	853	929
Stockholders' equity	829	814
Total capitalization (total debt plus stockholders' equity)	1,682	1,743
Debt to capital ratio	51 %	53 %

^(a) Cash and cash equivalents consisted of cash, money market deposits and time deposits with original maturities of 90 days or less.

^(b) Amounts available under the ABL Credit Facility fluctuate based on eligible accounts receivable and inventory levels. At December 31, 2022, we had \$166 million of gross availability and net available borrowings of \$130 million after taking into account outstanding letters of credit of \$36 million. In addition to the availability under the ABL Credit Facility, we have \$19 million available under our accounts receivable factoring line of credit in France. See Note 9 — *Debt and Finance Leases* to our Financial Statements for further information.

^(c) See Note 9 — *Debt and Finance Leases* to our Financial Statements for further information.

Other Sources of Cash

In May 2022, we sold our GreenFirst shares for \$43 million. See Note 3 — *Discontinued Operations* to our Financial Statements for further information.

In 2022, we received net tax refunds of \$15 million. See Note 19 — *Income Taxes* to our Financial Statements for further information.

Cash Requirements

We experienced increased operating expenses and capital expenditures during the year ended December 31, 2022, including for the extensive planned maintenance outages performed in the first half of the year.

Contractual Commitments

Our principal contractual commitments include standby letters of credit, surety bonds, guarantees, purchase obligations and leases. We utilize arrangements such as standby letters of credit and surety bonds to provide credit support for certain suppliers and vendors in case of their default on critical obligations, collateral for certain of our self-insurance programs and guarantees for the completion of our remediation of environmental liabilities. As part of our ongoing operations, we also periodically issue guarantees to third parties. Our primary purchase obligation payments relate to natural gas, steam energy and wood chips purchase contracts. As of December 31, 2022, our noncancellable unconditional purchase obligations totaled \$894 million. See Note 21 — *Commitments and Contingencies* to our Financial Statements for further information.

Senior Notes

During the year ended December 31, 2022, we repurchased \$47 million of our Senior Notes through open-market transactions and retired the notes for cash of \$47 million.

Our next significant debt maturity is in June 2024. We withdrew our opportunistic offering of senior secured notes earlier this year as terms and conditions were not sufficiently attractive at the time. We continue to monitor the capital markets and are prepared to opportunistically refinance the Senior Notes at the appropriate time and at acceptable terms, considering market conditions and all other relevant factors. We are confident that by executing on our strategy to improve our credit profile, we can obtain a refinancing at acceptable terms based on market conditions. We may also use a portion of our cash balance to repay debt or assist in a holistic refinancing of our capital structure.

CAD Term Loans

During the year ended December 31, 2022, we repaid CAD fixed interest rate term loans in the amount of CAD \$24 million (USD \$18 million).

Cash Flows

(in millions)	Year Ended December 31,	
	2022	2021
Cash flows provided by (used in):		
Operating activities-continuing operations	\$ 69	\$ 74
Operating activities-discontinued operations	—	159
Investing activities-continuing operations	(138)	(97)
Investing activities-discontinued operations	44	183
Financing activities	(73)	(157)

Cash provided by operating activities of continuing operations decreased \$5 million during 2022 when compared to 2021. Operating cash flows in 2022 were driven by net tax refunds of \$15 million, partially offset by increased cash outflows from working capital, driven by inflation and logistics constraints, and expenditures related to extensive planned maintenance outages through the first half of the year. Operating cash flows in 2021 included the receipt of \$35 million of net tax refunds and \$20 million related to CEWS claims, partially offset by an increase in working capital.

Cash used in investing activities of continuing operations increased \$41 million during 2022 when compared to 2021, due to increased capital spending related to the planned maintenance outages in the current year.

Cash provided by investing activities of discontinued operations decreased \$139 million during 2022 when compared to 2021. The cash inflow in 2022 was the result of the sale of GreenFirst common stock and the first installment on the credit note associated with the sale of our lumber and newsprint assets in August 2021. The cash inflow in 2021 consisted of the net cash received in connection with the sale of our lumber and newsprint assets.

Cash used in financing activities decreased by \$84 million during 2022 when compared to 2021, primarily due to a decrease in repayments of long-term debt.

Performance and Liquidity Indicators

The discussion below is presented to enhance the reader's understanding of our operating performance, liquidity and ability to generate cash and satisfy rating agency and creditor requirements. This information includes the non-GAAP financial measures of EBITDA, adjusted EBITDA and adjusted free cash flows. These measures are not defined by GAAP and our discussion of them is not intended to conflict with or change any of our GAAP disclosures provided in this 2022 Form 10-K.

We believe these non-GAAP financial measures provide useful information to our Board of Directors, management and investors regarding our financial condition and results of operations. Our management uses these non-GAAP financial measures to compare our performance to that of prior periods for trend analyses, to determine management incentive compensation and for budgeting, forecasting and planning purposes. Our management considers these non-GAAP financial measures, in addition to operating income, to be important in estimating our enterprise and stockholder values and for making strategic and operating decisions. In addition, analysts, investors and creditors use these non-GAAP financial measures when analyzing our operating performance, financial condition and cash-generating ability. We use EBITDA and adjusted EBITDA as performance measures and adjusted free cash flows as a liquidity measure.

We do not consider non-GAAP financial measures an alternative to financial measures determined in accordance with GAAP. The principal limitation of these non-GAAP financial measures is that they may exclude significant expense and income items that are required by GAAP to be recognized in our Financial Statements. In addition, they reflect the exercise of management's judgment about which expense and income items are excluded or included in determining these non-GAAP financial measures. In order to compensate for these limitations, reconciliations of our non-GAAP financial measures to their most directly comparable GAAP financial measures are provided below. Non-GAAP financial measures should not be relied upon, in whole or part, in evaluating our financial condition, results of operations or future prospects.

EBITDA and Adjusted EBITDA

EBITDA is defined as earnings before interest, taxes, depreciation and amortization. EBITDA is not necessarily indicative of results that may be generated in future periods. Adjusted EBITDA-continuing operations is defined as EBITDA-continuing operations adjusted for a settlement of certain pension plans, severance costs associated with an executive departure and gain on debt extinguishment.

Loss from Continuing Operations is reconciled to EBITDA and adjusted EBITDA as follows:

(in millions)	Year Ended December 31,	
	2022	2021
Loss from continuing operations	\$ (27)	\$ (50)
Depreciation and amortization	135	139
Interest expense, net	64	66
Income tax expense (benefit)	1	(35)
EBITDA-continuing operations	173	120
Pension settlement loss	1	8
Severance	4	—
Gain on debt extinguishment	(1)	(1)
Adjusted EBITDA-continuing operations	\$ 177	\$ 127

EBITDA and adjusted EBITDA from continuing operations increased \$53 million and \$50 million, respectively, compared to 2021, primarily driven by higher sales prices across all segments, partially offset by higher key input and logistics costs. See *Results of Operations* for additional discussion of the changes in our operating results.

Adjusted Free Cash Flows

Adjusted free cash flows is defined as cash provided by operating activities of continuing operations adjusted for capital expenditures, net of proceeds from the sale of assets and excluding strategic capital expenditures deemed discretionary by management. Adjusted free cash flows, as defined by us, is a non-GAAP financial measure of cash generated during a period which is available for debt reduction, strategic capital expenditures, acquisitions and repurchases of our common stock. Adjusted free cash flows is not necessarily indicative of the adjusted free cash flows that may be generated in future periods.

Cash flows of operating activities of continuing operations is reconciled to adjusted free cash flows as follows:

(in millions)	Year Ended December 31,	
	2022	2021
Cash provided by operating activities-continuing operations	\$ 69	\$ 74
Capital expenditures, net ^(a)	(104)	(76)
Adjusted free cash flows-continuing operations	<u>\$ (35)</u>	<u>\$ (2)</u>

^(a) Net of proceeds from the sale of assets and excluding strategic capital expenditures. Strategic capital expenditures were \$34 million and \$16 million for the years ended December 31, 2022 and 2021, respectively.

Adjusted free cash flows of continuing operations declined due to changes in working capital and other items and higher capital expenditures. See Liquidity and Capital Resources — *Cash Flows* for additional discussion of our operating cash flows.

Critical Accounting Estimates

The preparation of financial statements requires us to make estimates, assumptions and judgments that affect our assets, liabilities, revenues and expenses, and to disclose contingent assets and liabilities in our Financial Statements. We base these estimates and assumptions on historical data and trends, current fact patterns, expectations and other sources of information we believe are reasonable. Actual results may differ from these estimates.

Revenue Recognition and Measurement

Revenue is recognized when performance obligations under the terms of a contract with a customer are satisfied. The majority of our contracts have a single performance obligation to transfer products. Accordingly, we recognize revenue when control has been transferred to the customer. Generally, control transfers upon delivery to a location in accordance with terms and conditions of the sale. Changes in customer contract terms and conditions, as well as the timing of orders and shipments, may have an impact on the timing of revenue recognition.

Revenue is measured as the amount of consideration we expect to receive in exchange for transferring our products and is generally based upon contractual arrangements with customers or published indices. We sell our products both directly to customers and through distributors and agents typically under agreements with payment terms less than 90 days.

The nature of our contracts may give rise to variable consideration, which may be constrained, including sales volume-based rebates to customers. We estimate the level of volumes based on anticipated purchases at the beginning of the period and record a rebate accrual for each purchase toward the requisite rebate volume. These estimated rebates are included in the transaction price as a reduction to net sales.

Property, Plant & Equipment

Depreciation

Depreciation expense is computed using the units-of-production method for our high purity cellulose, paperboard and high-yield pulp plant and equipment and the straight-line method for all other property, plant and equipment over the useful economic lives of the assets involved. The total units of production used to calculate depreciation expense is determined by factoring annual production days, based on normal production conditions, by the economic useful life of the asset involved. Our estimate of useful lives and salvage values are based on assumptions and judgments that reflect both historical experience and expectations regarding future use of our assets, including wear and tear, obsolescence, technical standards, market demand and geographic location. The use of different assumptions and judgments in the calculation of depreciation, especially those involving useful lives, would likely result in significantly different net book values and results of operations.

Asset Impairment

Long-lived assets are reviewed annually for impairment or whenever events or changes in circumstances indicate the carrying amount of an asset may not be recoverable. Recoverability of assets that are held and used is measured by net undiscounted cash flows expected to be generated by the asset. An impairment loss may exist when the estimated recovery value is less than the carrying amount. Should a review for impairment be required, determining whether the carrying amount of an asset is recoverable requires judgments regarding long-term forecasts of future revenue and costs related to the asset subject to review. These forecasts are uncertain, as they require significant assumptions about future market conditions. Significant and unanticipated changes to these assumptions could require a provision for impairment in a future period. Property, plant and equipment are grouped for purposes of evaluating recoverability at the combined plant level, the lowest level for which independent cash flows are identifiable.

Environmental Liabilities

At December 31, 2022, we had \$171 million of accrued liabilities for environmental costs relating to disposed operations. Numerous price, quantity, cost and probability assumptions are used in estimating these obligations. Factors affecting these estimates include changes in the nature or extent of contamination, changes in the content or volume of the material discharged or treated in connection with one or more impacted sites, requirements to perform additional or different assessment or remediation, changes in technology that may lead to additional or different environmental remediation strategies, approaches and workplans, discovery of additional or unanticipated contaminated soil, groundwater or sediment on or off-site, changes in remedy selection, changes in law or interpretation of existing law and the outcome of negotiations with governmental agencies or non-governmental parties. We periodically review our environmental liabilities and also engage third-party consultants to assess our ongoing remediation of contaminated sites. Quarterly, we review our environmental liabilities related to assessment activities and remediation costs and adjust them as necessary. Liabilities for financial assurance, monitoring and maintenance activities and other activities are assessed annually. A significant change in any of these estimates could have a material effect on our results of operations and financial condition. See Note 10 — *Environmental Liabilities* to our Financial Statements for further information.

Pension and Other Postretirement Benefit Assets and Liabilities

Our defined benefit pension and postretirement plans for employees in the U.S. and Canada require numerous estimates and assumptions to determine the proper amount of pension and postretirement liabilities and annual expense to record in our Financial Statements. The key assumptions include discount rate, return on assets, salary increases, health care cost trends, mortality rates, longevity and service lives of employees. Although authoritative guidance on how to select most of these assumptions exists, we exercise judgment when selecting these assumptions based on input from our actuary and other advisors. Different assumptions, as well as actual versus expected results, would change the periodic benefit cost and funded status of the benefit plans recognized in the financial statements.

Our assumed long-term return on plan assets was established based on historical long-term rates of return on broad equity and bond indices, discussions with our actuary and investment advisors and consideration of the actual historical annualized rate of returns. In determining future pension obligations, we select a discount rate based on information supplied by our actuary. The actuarial rates are developed by models which incorporate high-quality (AA rated), long-term corporate bond rates into their calculations. The weighted average discount rate increased from 2.82 percent at December 31, 2021 to 4.95 percent at December 31, 2022.

Our defined pension plans were underfunded by \$87 million at December 31, 2022. The underfunded status decreased by \$39 million in 2022, primarily due to actuarial gains as a result of increased discount rates. In 2023, pension expense is expected to increase slightly as lower amortization of actuarial losses is offset by higher interest cost. Future pension expense will be impacted by many factors including actual investment performance, changes in discount rates, timing of contributions and other employee related matters. See Note 17 — *Employee Benefit Plans* to our Financial Statements for further information.

In 2022, we made mandatory contributions and benefit payments to plan participants of \$8 million. During 2023, we expect to make mandatory and discretionary benefit payments to plan participants of \$9 million. Future mandatory contribution requirements will vary depending on actual investment performance, changes in valuation assumptions, interest rates and legal requirements to maintain a certain funding status.

The sensitivity of pension expense and projected benefit obligation related to our pension plans to changes in economic assumptions is presented below:

(in millions)	Increase (Decrease) in 2023 Pension Expense	Increase (Decrease) in December 31, 2022 Projected Benefit Obligation
Change in Assumption		
50 bp decrease in discount rate	\$1	\$32
50 bp increase in discount rate	\$—	\$(29)
50 bp decrease in long-term return on assets	\$3	n/a
50 bp increase in long-term return on assets	\$(3)	n/a

Realizability of Recorded and Unrecorded Tax Assets and Liabilities

Our income tax expense, deferred tax assets and liabilities and reserves for unrecognized tax benefits reflect management's best assessment of estimated current and future taxes to be paid. Significant judgments and estimates are required in determining consolidated income tax expense.

Realizability of Deferred Tax Assets

We have recorded certain DTAs that we believe will be realized in future periods. The recognition of these DTAs is based on our analysis of both positive and negative evidence regarding the future realization of the tax benefit of each existing deductible temporary difference or carryforward. Future realization is based on the existence of sufficient taxable income, of the appropriate character, within the appropriate taxing jurisdiction (for example country, state or province) and within the carryback and carryforward periods available under applicable tax laws. In projecting future taxable income, we evaluate historical earnings, excluding results from discontinued operations, along with future earnings forecasts, the reversal of temporary differences, and the implementation of feasible and prudent tax-planning strategies.

The vast majority of our DTAs are in Canada, including \$505 million of NOLs subject to expiration after 20 years and other DTAs which can be carried forward indefinitely. We evaluate the realizability of these Canadian DTAs in two steps.

The first step determines the realizability of the Canadian NOLs prior to expiration. This is done by forecasting Canadian taxable income in each year to confirm each NOL pool is more-likely-than-not to be realized before its respective expiration, which ranges from 2025 to 2037. The forecasted taxable income excludes depreciation, which can be deferred indefinitely under Canadian tax law.

The second step evaluates future projected Canadian earnings from continuing operations to confirm the Canadian operations are more-likely-than-not to be profitable in future years, inclusive of depreciation. This second step establishes that the NOLs are not realized due solely to the suspension of Canadian tax depreciation. Although this step does not require earnings be realized before any set time period, the Canadian operations would eventually need cumulative profits (excluding permanent tax adjustments) sufficient to utilize the indefinite-lived DTAs.

Evaluation of all available evidence supports the realizability of most recorded DTAs. If the review of evidence indicates the realizability may be less than likely, then a valuation allowance is recorded, with the exception of DTAs for suspended U.S. interest deductions, which do not have a full valuation allowance in accordance with specific AICPA guidance. See Note 19 — *Income Taxes* to our Financial Statements for further information.

Unrecognized Tax Benefits

Our income tax returns are subject to examination by U.S. federal and state taxing authorities as well as foreign jurisdictions, including Canada and France. In evaluating the tax benefits associated with various tax filing positions, we record a tax benefit for an uncertain tax position if it is more-likely-than-not to be realized upon ultimate settlement of the issue. We record a liability or an offset to the corresponding DTAs for any uncertain tax position that does not meet this criterion. The liabilities for unrecognized tax benefits are adjusted in the period in which it is determined the issue is settled with the taxing authorities, the statute of limitations expires for the relevant taxing authority to examine the tax position or when new facts or information become available. See Note 19 — *Income Taxes* to our Financial Statements for further information.

Item 7A. Quantitative and Qualitative Disclosures about Market Risk

Market and Other Economic Risks

We are exposed to various market risks, primarily changes in interest rates, currency and commodity prices. Our objective is to minimize the economic impact of these market risks. We may use derivatives in accordance with policies and procedures approved by the Finance & Strategic Planning Committee of our Board of Directors. Derivatives are managed by a senior executive committee whose responsibilities include initiating, managing and monitoring resulting exposures. See Note 11 — *Derivative Instruments* to our Financial Statements for further information.

Foreign Currency

We manage our foreign currency exposures by balancing certain assets and liabilities denominated in foreign currencies. We may also use foreign currency forward contracts to manage these exposures. The principal objective of such contracts is to minimize the potential volatility and financial impact of changes in foreign currency exchange rates. We do not utilize financial instruments for trading or other speculative purposes.

Prices

The prices, sales volumes and margins of the commodity products of our High Purity Cellulose segment and all the products of the High-Yield Pulp segment have historically been cyclically affected by economic and market shifts, fluctuations in capacity and changes in foreign currency exchange rates. These products have less distinguishing qualities from producer to producer and competition is based primarily on price, which is determined by market supply relative to demand. The overall levels of demand for the products we manufacture, and consequently our sales and profitability, reflect fluctuations in end user demand. Our cellulose specialties product prices are impacted by market supply and demand, raw material and processing costs, changes in global currencies and other factors.

Certain key input costs, such as wood fiber, chemicals and energy, may experience significant price fluctuations, also impacted by market shifts, fluctuations in capacity and other demand and supply dynamics. We may periodically enter into commodity forward contracts to fix some of our energy costs that are subject to price volatility caused by weather, supply conditions, political and economic variables and other unpredictable factors. Such forward contracts partially mitigate the risk of changes to our gross margins resulting from an increase or decrease in these costs. Forward contracts that are derivative instruments are reported in our consolidated balance sheets at their fair values, unless they qualify for the normal purchase normal sale exception and such exception has been elected, in which case the fair values of such contracts are not recognized in the balance sheet.

Variable Interest Rates

As of December 31, 2022 and 2021, we had \$4 million and \$7 million, respectively, of variable rate debt subject to interest rate risk. At these borrowing levels, a hypothetical one percent change in interest rates would have resulted in an immaterial change in interest expense for the respective periods.

The fair market value of our long-term fixed interest rate debt is also subject to interest rate risk. However, we intend to hold most of our debt until maturity. The estimated fair value of our fixed-rate debt at December 31, 2022 and 2021 was \$839 million and \$964 million, respectively, compared to the respective \$854 million and \$928 million principal amounts. We use quoted market prices to estimate the fair value of our fixed-rate debt. Generally, the fair market value of fixed-rate debt will increase as interest rates fall and decrease as interest rates rise.

Item 8. Financial Statements and Supplementary Data

The information required by this Item 8, including our Financial Statements and related financial statement schedule, together with the reports of independent registered accounting firm, is presented in Part IV Item 15 of this 2022 Form 10-K, and are incorporated by reference into this Item 8.

Item 9. Changes in and Disagreements with Accountants on Accounting and Financial Disclosure

Not applicable.

Item 9A. Controls and Procedures

Management's Evaluation of Disclosure Controls and Procedures

RYAM management is responsible for establishing and maintaining adequate disclosure controls and procedures. Disclosure controls and procedures (as defined in Rule 13a-15(e) under the Exchange Act) are designed with the objective of ensuring that information required to be disclosed in reports filed under the Exchange Act, such as this 2022 Form 10-K, is (1) recorded, processed, summarized and reported within the time periods specified in the SEC's rules and forms and (2) accumulated and communicated to our management, including our Chief Executive Officer and Chief Financial Officer, as appropriate to allow timely decisions regarding required disclosure.

Because of the inherent limitations in all control systems, no control evaluation can provide absolute assurance all control exceptions and instances of fraud have been prevented or detected on a timely basis. Even systems determined to be effective can provide only reasonable assurance their objectives are achieved.

Based on an evaluation of our disclosure controls and procedures as of the end of the period covered by this annual report on 2022 Form 10-K, our management, including the Chief Executive Officer and Chief Financial Officer, concluded the design and operation of the disclosure controls and procedures were effective as of December 31, 2022.

Internal Control over Financial Reporting

With regard to our internal control over financial reporting as defined in Rule 13a-15(f), our Management's Report on Internal Control over Financial Reporting on page F-2, and the Reports of Independent Registered Public Accounting Firm on page F-3, included in Item 8 — *Financial Statements and Supplementary Data* of this 2022 Form 10-K, are incorporated by reference into this Item 9A.

For the quarter ended December 31, 2022, based upon the evaluation required by Rule 13a-15(d), there were no changes in our internal control over financial reporting that would materially affect 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

Certain information required by Part III is incorporated by reference from our definitive Proxy Statement to be filed with the SEC in connection with the solicitation of proxies for our 2023 Annual Meeting of Stockholders. We will make the Proxy Statement available on our website at www.ryam.com as soon as it is filed with the SEC.

Item 10. Directors, Executive Officers and Corporate Governance

The information required by this Item 10 is incorporated by reference to sections “Commitment to Best Practices in Corporate Governance,” “Proposal 1: Election of Directors,” “Executive Compensation Tables and Related Information-Executive Officers,” “Delinquent Section 16(a) Reports,” “Proposal 6: Ratification of the Appointment of Independent Registered Public Accounting Firm” and “Audit Committee Financial Experts” of our Proxy Statement.

Our Standard of Ethics and Code of Corporate Conduct, which is applicable to our principal executive officer and financial and accounting officers, is available on our website, www.ryam.com at the “Investors” tab under “Corporate Governance.” Any amendments to or waivers of the Standard of Ethics and Code of Corporate Conduct will also be disclosed on our website.

Item 11. Executive Compensation

The information required by this Item 11 is incorporated by reference to sections “Compensation Discussion and Analysis,” “Report of the Compensation and Management Development Committee,” “Executive Compensation Tables and Related Information” and “Commitment to Best Practices in Corporate Governance-Director Compensation” of our Proxy Statement.

Item 12. Security Ownership of Certain Beneficial Owners and Management and Related Stockholder Matters

The information required by this Item 12 is incorporated by reference to sections “Executive Compensation Tables and Related Information-Stock Ownership of Directors and Executive Officers,” “Security Ownership of Certain Beneficial Owners” and “Equity Compensation Plan Information” of our Proxy Statement.

Item 13. Certain Relationships and Related Transactions, and Director Independence

The information required by this Item 13 is incorporated by reference to sections “Proposal 1: Election of Directors,” “Commitment to Best Practices in Corporate Governance-Corporate Governance Principles,” “Director Independence” and “Related Person Transactions” of our Proxy Statement.

Item 14. Principal Accounting Fees and Services

The information required by this Item 14 is incorporated by reference to section “Proposal 6: Ratification of the Appointment of Independent Registered Public Accounting Firm-Information Regarding Independent Registered Public Accounting Firm” of our Proxy Statement.

Part IV

Item 15. Exhibit and Financial Statement Schedules

(a) Documents filed as a part of this 2022 Form 10-K

1. Financial Statements

See page F-1 of this 2022 Form 10-K.

2. Financial Statement Schedules

See page F-1 of this 2022 Form 10-K.

3. Exhibits

Exhibit No.	Description	Location
2.1	Separation and Distribution Agreement between Rayonier Advanced Materials Inc. and Rayonier Inc., dated as of May 28, 2014	Incorporated herein by reference to Exhibit 2.1 to the Registrant's Amendment No. 4 to the Registration Statement on Form 10 filed on May 29, 2014
2.2*	Arrangement Agreement by and between Tembec Inc. and Rayonier Advanced Materials Inc. dated as of May 24, 2017	Incorporated herein by reference to Exhibit 2.1 to the Registrant's Form 8-K filed on May 25, 2017
2.3	Amending Agreement, dated as of July 23, 2017, to the Arrangement Agreement by and between Tembec Inc. and Rayonier Advanced Materials Inc. dated as of May 24, 2017	Incorporated herein by reference to Exhibit 2.1 to the Registrant's Form 8-K filed on July 24, 2017
3.1	Amended and Restated Certificate of Incorporation of Rayonier Advanced Materials Inc.	Incorporated herein by reference to Exhibit 3.1 to the Registrant's Form 8-K filed on June 30, 2014
3.2	Certificate of Designations of 8.00% Series A Mandatory Convertible Preferred Stock of Rayonier Advanced Materials Inc., filed with the Secretary of State of the State of Delaware and effective August 10, 2016	Incorporated herein by reference to Exhibit 3.1 to the Registrant's Form 8-K filed on August 10, 2016
3.3	Certificate of Designations of Series A Junior Participating Preferred Stock	Incorporated herein by reference to Exhibit 3.1 to the Registrant's Form 8-K filed on March 21, 2022
3.4	Amended and Restated Bylaws of Rayonier Advanced Materials Inc., effective October 19, 2022	Incorporated herein by reference to Exhibit 3.1 to the Registrant's Form 8-K filed on October 19, 2022
4.1	Indenture among Rayonier A.M. Products Inc., the guarantors party thereto from time to time and Wells Fargo Bank, National Association, as Trustee, dated as of May 22, 2014	Incorporated herein by reference to Exhibit 4.1 to the Registrant's Amendment No. 4 to Registration Statement on Form 10 filed on May 29, 2014
4.2	Description of Common Stock	Incorporated herein by reference to Exhibit 4.2 to the Registrant's Form 10-K filed on March 2, 2020
4.3	Indenture, dated as of December 23, 2020, by and among Rayonier A.M. Products Inc., the Guarantors party thereto and Wells Fargo Bank, National Association as trustee and as notes collateral agent	Incorporated herein by reference to Exhibit 4.1 to the Registrant's Form 8-K filed on December 23, 2020
4.4	Form of 7.625% Senior Secured Notes due 2026, included as Exhibit A to the Indenture	Incorporated herein by reference to Exhibit 4.2 to the Registrant's Form 8-K filed on December 23, 2020
	Pursuant to Regulation S-K, Item 601(b)(4)(iii)(A), Rayonier Advanced Materials Inc. by this filing agrees, upon request, to furnish to the SEC a copy of other instruments defining the rights of holders of long-term debt of Rayonier Advanced Materials Inc.	

Exhibit No.	Description	Location
4.5	Rights Agreement, dated as of March 21, 2022, between Rayonier Advanced Materials Inc. and Computershare Trust Company, N.A., which includes the form of Certificate of Designations as Exhibit A, the form of Right Certificate as Exhibit B and the Summary of Rights to Purchase Preferred Shares as Exhibit C	Incorporated herein by reference to Exhibit 4.1 to the Registrant's Form 8-K filed on March 21, 2022
10.1	Transition Services Agreement, dated as of June 27, 2014, by and between Rayonier Inc. and Rayonier Advanced Materials Inc.	Incorporated herein by reference to Exhibit 10.1 to the Registrant's Form 8-K filed on June 30, 2014
10.2	Tax Matters Agreement, dated as of June 27, 2014, by and among Rayonier Inc., Rayonier Advanced Materials Inc., Rayonier TRS Holdings Inc. and Rayonier A.M. Products Inc.	Incorporated herein by reference to Exhibit 10.2 to the Registrant's Form 8-K filed on June 30, 2014
10.3	Employee Matters Agreement, dated as of June 27, 2014, by and between Rayonier Inc. and Rayonier Advanced Materials Inc.	Incorporated herein by reference to Exhibit 10.3 to the Registrant's Form 8-K filed on June 30, 2014
10.4	Intellectual Property Agreement, dated as of June 27, 2014, by and between Rayonier Inc. and Rayonier Advanced Materials Inc.	Incorporated herein by reference to Exhibit 10.4 to the Registrant's Form 8-K filed on June 30, 2014
10.5**	Rayonier Advanced Materials Inc. Incentive Stock Plan, as amended effective May 23, 2016	Incorporated herein by reference to Appendix C to the Registrant's Proxy Statement filed on April 8, 2016
10.6**	Rayonier Advanced Materials Inc. 2017 Incentive Stock Plan, effective May 22, 2017	Incorporated herein by reference to Appendix B to the Registrant's Proxy Statement filed on April 7, 2017
10.7**	Rayonier Advanced Materials Inc. 2017 Incentive Stock Plan (as amended effective December 15, 2017)	Incorporated herein by reference to Appendix A to the Registrant's Proxy Statement filed on April 6, 2018
10.8**	First Amendment to the Rayonier Advanced Materials Inc. 2017 Incentive Stock Plan, effective May 22, 2017	Incorporated herein by reference to Exhibit 10.2 to the Registrant's Form 10-Q filed on November 7, 2019
10.9**	Rayonier Advanced Materials Inc. 2021 Incentive Stock Plan effective May 17, 2021	Incorporated herein by reference to Appendix B to the Registrant's Proxy Statement filed on April 2, 2021
10.10**	Form of Rayonier Advanced Materials Inc. 2021 Restricted Stock Unit Award Agreement	Incorporated herein by reference to Exhibit 10.11 to the Registrant's Form 10-K filed on March 1, 2021
10.11**	Form of Rayonier Advanced Materials Inc. 2022 Restricted Stock Unit Award Agreement	Incorporated herein by reference to Exhibit 10.1 to the Registrant's Form 10-Q filed on May 5, 2022
10.12**	Form of Rayonier Advanced Materials Inc. 2021 Performance Share Unit Award Agreement	Incorporated herein by reference to Exhibit 10.12 to the Registrant's Form 10-K filed on March 1, 2021
10.13**	Form of Rayonier Advanced Materials Inc. 2022 Performance Share Unit Award Agreement	Incorporated herein by reference to Exhibit 10.2 to the Registrant's Form 10-Q filed on May 5, 2022
10.14**	Form of Rayonier Advanced Materials Inc. 2023 Performance Share Unit Award Agreement	Filed herewith
10.15**	Form of Rayonier Advanced Materials Inc. 2021 Performance Cash Unit Award Agreement	Incorporated herein by reference to Exhibit 10.13 to the Registrant's Form 10-K filed on March 1, 2021
10.16**	Form of Rayonier Advanced Materials Inc. 2022 Performance Cash Unit Award Agreement	Incorporated herein by reference to Exhibit 10.3 to the Registrant's Form 10-Q filed on May 5, 2022
10.17**	Form of Rayonier Advanced Materials Inc. 2023 Performance Cash Unit Award Agreement	Filed herewith
10.18**	Form of Rayonier Advanced Materials Inc. 2022 Leveraged Performance Unit Award Agreement	Incorporated herein by reference to Exhibit 10.4 to the Registrant's Form 10-Q filed on May 5, 2022
10.19**	Form of Rayonier Advanced Materials Inc. Incentive Stock Plan Supplemental Terms Applicable to the 2021 Equity Award Grant	Incorporated herein by reference to Exhibit 10.16 to the Registrant's Form 10-K filed on March 1, 2021
10.20**	Form of Rayonier Advanced Materials Inc. Incentive Stock Plan Supplemental Terms Applicable to the 2022 Equity Award Grant	Incorporated herein by reference to Exhibit 10.15 to the Registrant's Form 10-K filed on March 1, 2022
10.21**	Form of Rayonier Advanced Materials Inc. Incentive Stock Plan Supplemental Terms Applicable to the 2023 Equity Award Grant	Filed herewith

Exhibit No.	Description	Location
10.22** #	Description of Rayonier Advanced Materials Inc. 2021 Performance Share Award Program	Incorporated herein by reference to Exhibit 10.2 to the Registrant's Form 10-Q filed on August 5, 2021
10.23** #	Description of Rayonier Advanced Materials Inc. 2022 Senior Team Equity Incentive Program Structure	Filed herewith
10.24** #	Description of Rayonier Advanced Materials Inc. 2023 Equity Incentive Program Design	Filed herewith
10.25**	Rayonier Advanced Materials Inc. Non-Equity Incentive Plan, as amended effective May 23, 2016	Incorporated herein by reference to Appendix B to the Registrant's Proxy Statement filed on April 8, 2016
10.26**	Rayonier Advanced Materials Inc. Executive Severance Pay Plan, Amended and Restated effective October 21, 2019	Incorporated herein by reference to Exhibit 10.3 to the Registrant's Form 10-Q filed on November 7, 2019
10.27**	Rayonier Advanced Materials Inc. Non Change In Control Executive Severance Plan	Incorporated herein by reference to Exhibit 10.20 to the Registrant's Form 10-K filed on February 26, 2016
10.28**	First Amendment to the Rayonier Advanced Materials Inc. Non Change In Control Executive Severance Plan	Incorporated herein by reference to Exhibit 10.4 to the Registrant's Form 10-Q filed on November 7, 2019
10.29**	Trust Agreement for Rayonier Advanced Materials Inc. Legal Resources Trust, dated June 28, 2014, by and between Rayonier Advanced Materials Inc. and Wells Fargo Bank, National Association	Incorporated herein by reference to Exhibit 10.23 to the Registrant's Form 10-Q/A filed on September 4, 2014
10.30**	Rayonier Advanced Materials Inc. Excess Benefit Plan, effective June 27, 2014	Incorporated herein by reference to Exhibit 10.24 to the Registrant's Form 10-Q/A filed on September 4, 2014
10.31**	First Amendment to Rayonier Advanced Materials Inc. Excess Benefit Plan, effective December 31, 2022	Incorporated herein by reference to Exhibit 10.2 to the Registrant's Form 10-Q filed on November 2, 2022
10.32**	Rayonier Advanced Materials Inc. Excess Savings and Deferred Compensation Plan, effective June 28, 2014	Incorporated herein by reference to Exhibit 10.25 to the Registrant's Form 10-Q/A filed on September 4, 2014
10.33**	Form of Rayonier Advanced Materials Inc. Excess Savings and Deferred Compensation Plan Agreements, effective June 28, 2014	Incorporated herein by reference to Exhibit 10.18 to the Registrant's Form 10-K filed on February 27, 2015
10.34**	Retirement Plan for Salaried Employees of Rayonier Advanced Materials Inc., effective June 27, 2014 and Amended and Restated as of October 21, 2019	Incorporated herein by reference to Exhibit 10.5 to the Registrant's Form 10-Q filed on November 7, 2019
10.35**	Seventh Amendment to Retirement Plan for Salaried Employees of Rayonier Advanced Materials Inc., effective December 31, 2022	Incorporated herein by reference to Exhibit 10.1 to the Registrant's Form 10-Q filed on November 2, 2022
10.36**	Rayonier Advanced Materials Inc. Investment and Savings Plan for Salaried Employees, effective January 1, 2015	Incorporated herein by reference to Exhibit 10.24 to the Registrant's Form 10-K filed on February 24, 2017
10.37**	Amendment to Rayonier Advanced Materials Inc. Investment and Savings Plan for Salaried Employees, effective January 1, 2015	Incorporated herein by reference to Exhibit 10.25 to the Registrant's Form 10-K filed on February 24, 2017
10.38**	Amendment to Rayonier Advanced Materials Inc. Investment and Savings Plan for Salaried Employees, effective January 1, 2016	Incorporated herein by reference to Exhibit 10.26 to the Registrant's Form 10-K filed on February 24, 2017
10.39**	Amendment to Rayonier Advanced Materials Inc. Investment and Savings Plan for Salaried Employees, effective January 1, 2016	Incorporated herein by reference to Exhibit 10.27 to the Registrant's Form 10-K filed on February 24, 2017
10.40**	Amendment to Rayonier Advanced Materials Inc. Investment and Savings Plan for Salaried Employees, effective October 1, 2016	Incorporated herein by reference to Exhibit 10.28 to the Registrant's Form 10-K filed on February 24, 2017
10.41**	Amendment to Rayonier Advanced Materials Inc. Investment and Savings Plan for Salaried Employees, effective February 13, 2017	Incorporated herein by reference to Exhibit 10.29 to the Registrant's Form 10-K filed on February 24, 2017

Exhibit No.	Description	Location
10.42**	Form of Indemnification Agreement between Rayonier Advanced Materials Inc. and individual directors or officers	Incorporated herein by reference to Exhibit 10.5 to the Registrant's Amendment No. 4 to the Registration Statement on Form 10 filed on May 29, 2014
10.43**	Form of Rayonier Advanced Materials Inc. Outside Directors Compensation Program/Cash Deferral Option Agreement, effective January 1, 2020	Incorporated herein by reference to Exhibit 10.35 to the Registrant's Form 10-K filed on March 1, 2021
10.44	Revolving Credit Agreement, dated as of December 10, 2020, among Rayonier Advanced Materials Inc., Rayonier A.M. Products Inc., the other subsidiaries of Rayonier Advanced Materials Inc. party thereto, the lenders party thereto and Bank of America, N.A., as administrative agent and collateral agent.	Incorporated herein by reference to Exhibit 10.1 to the Registrant's Form 8-K filed on December 23, 2020
10.45	Amendment No. 1 to Revolving Credit Agreement, dated as of January 17, 2023, by and among Rayonier Advanced Materials Inc., Rayonier A.M. Products, Inc., the other subsidiaries of Rayonier Advanced Materials Inc. party thereto, the lenders party thereto and Bank of America, N.A., as administrative agent and collateral agent.	Incorporated herein by reference to Exhibit 10.1 to the Registrant's Form 8-K filed on January 17, 2023
10.46#	Asset Purchase Agreement by and between 9437-6001 Quebec Inc., as purchaser and GreenFirst Forest Products Inc., as Purchaser guarantor, and Rayonier A.M. Canada G.P. and Rayonier A.M. Canada Industries Inc., collectively the Seller, dated as of April 10, 2021	Incorporated herein by reference to Exhibit 10.1 to the Registrant's Form 10-Q filed on May 6, 2021
10.47**	Separation and Release Agreement dated January 19, 2022 between Paul G. Boynton and Rayonier Advanced Materials Inc.	Incorporated herein by reference to Exhibit 10.1 to the Registrant's Form 8-K filed on January 20, 2022
10.48**	Letter Agreement, dated May 28, 2022 between Rayonier Advanced Materials Inc. and De Lyle W. Bloomquist	Incorporated herein by reference to Exhibit 3.1 to the Registrant's Form 8-K filed on May 31, 2022
21	Subsidiaries of the registrant	Filed herewith
23.1	Consent of Grant Thornton LLP	Filed herewith
31.1	Chief Executive Officer's Certification Pursuant to Rule 13a-14(a)/15d-14(a) and pursuant to Section 302 of the Sarbanes-Oxley Act of 2002	Filed herewith
31.2	Chief Financial Officer's Certification Pursuant to Rule 13a-14(a)/15d-14(a) and pursuant to Section 302 of the Sarbanes-Oxley Act of 2002	Filed herewith
32	Certification of Periodic Financial Reports Under Section 906 of the Sarbanes-Oxley Act of 2002	Furnished herewith
101	Interactive data files (formatted in Inline XBRL) pursuant to Rule 405 of Regulation S-T	Filed herewith
104	Cover page interactive data file (formatted in Inline XBRL and contained in Exhibit 101) pursuant to Rule 406 of Regulation S-T	Filed herewith

* The exhibits to the Arrangement Agreement have been omitted from this filing pursuant to Item 601(b)(2) of Regulation S-K. The Company will furnish copies of any such schedules and exhibits to the SEC upon request.

** Management contract or compensatory plan.

Certain confidential portions of this exhibit were omitted by means of marking such portions with asterisks because the identified confidential portions (i) are not material and (ii) would be competitively harmful if publicly disclosed.

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.

Rayonier Advanced Materials Inc.

By: /s/ MARCUS J. MOELTNER

Marcus J. Moeltner
*Chief Financial Officer and
Senior Vice President, Finance*

Date: March 1, 2023

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>Signature</u>	<u>Title</u>	<u>Date</u>
<u>/s/ DE LYLE W. BLOOMQUIST</u> De Lyle W. Bloomquist (Principal Executive Officer)	Chief Executive Officer and President	March 1, 2023
<u>/s/ MARCUS J. MOELTNER</u> Marcus J. Moeltner (Principal Financial Officer)	Chief Financial Officer and Senior Vice President, Finance	March 1, 2023
<u>/s/ GABRIELA GARCIA</u> Gabriela Garcia (Principal Accounting Officer)	Chief Accounting Officer and Vice President, Corporate Controller	March 1, 2023

Power of Attorney

KNOW ALL MEN BY THESE PRESENTS, that the persons whose signatures appear below constitute and appoint Marcus J. Moeltner and R. Colby Slaughter, his/her true and lawful attorneys-in-fact, with full power in each to act without the other and with full power of substitution and resubstitution, to sign in the name of such person and in each of his/her offices and capacities with Rayonier Advanced Materials Inc., the Company's Annual Report on Form 10-K for the fiscal year ended December 31, 2022, together with any amendments thereto, and to file same, with all exhibits thereto and other documents in connection therewith, with the Securities and Exchange Commission.

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 indicated.

<u>Signature</u>	<u>Title</u>	<u>Date</u>
<u>/s/ LISA M. PALUMBO</u> Lisa M. Palumbo	Chair	January 20, 2023
<u>/s/ CHARLES E. ADAIR</u> Charles E. Adair	Director	January 23, 2023
<u>/s/ JULIE A. DILL</u> Julie A. Dill	Director	January 19, 2023
<u>/s/ CHARLES R. EGGERT</u> Charles R. Eggert	Director	February 1, 2023
<u>/s/ JAMES F. KIRSCH</u> James F. Kirsch	Director	January 19, 2023
<u>/s/ DAVID C. MARIANO</u> David C. Mariano	Director	January 20, 2023
<u>/s/ THOMAS I. MORGAN</u> Thomas I. Morgan	Director	January 19, 2023
<u>/s/ IVONA SMITH</u> Ivona Smith	Director	January 20, 2023

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All other financial statement schedules are omitted because they are not applicable or the required information is otherwise supplied in the Financial Statements or the notes thereto.

Management's Report on Internal Control over Financial Reporting

The management of Rayonier Advanced Materials Inc. and its subsidiaries is responsible for establishing and maintaining adequate internal control over financial reporting (as defined in Rule 13a-15(f) under the Securities Exchange Act of 1934, as amended). Our system of internal controls over financial reporting is designed to provide reasonable assurance to the Company's management and Board of Directors regarding the reliability of financial reporting and the preparation of the financial statements for external purposes in accordance with accounting principles generally accepted in the United States of America.

Because of the inherent limitations of internal control over financial reporting, misstatements due to error or fraud may not be prevented or detected on a timely basis. 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.

Rayonier Advanced Materials Inc.'s management, under the supervision and with the participation of the Chief Executive Officer and Chief Financial Officer, assessed the effectiveness of our internal control over financial reporting as of December 31, 2022. In making this assessment, we used the framework included in *Internal Control — Integrated Framework* issued by the Committee of Sponsoring Organizations of the Treadway Commission (2013 Framework). Based on our management's assessment and the criteria set forth in *Internal Control — Integrated Framework*, our management concluded that our internal control over financial reporting was effective as of December 31, 2022.

Grant Thornton LLP, the independent registered public accounting firm that audited the Company's Financial Statements, has audited and issued a report on the Company's internal control over financial reporting as of December 31, 2022. The report appears on page F-5 of this 2022 Form 10-K.

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

Board of Directors and Stockholders
Rayonier Advanced Materials Inc.

Opinion on the financial statements

We have audited the accompanying consolidated balance sheets of Rayonier Advanced Materials Inc. (a Delaware corporation) and subsidiaries (the “Company”) as of December 31, 2022 and 2021, the related consolidated statements of operations, comprehensive income, stockholders’ equity, and cash flows for each of the three years in the period ended December 31, 2022, and the related notes and financial statement schedule included under Item 15(a) (collectively referred to as the “financial statements”). In our opinion, the financial statements present fairly, in all material respects, the financial position of the Company as of December 31, 2022 and 2021, and the results of its operations and its cash flows for each of the three years in the period ended December 31, 2022, in conformity with accounting principles generally accepted in the United States of America.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (“PCAOB”), the Company’s internal control over financial reporting as of December 31, 2022, based on criteria established in the 2013 Internal Control—Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission (“COSO”), and our report dated March 1, 2023 expressed an unqualified opinion.

Basis for opinion

These financial statements are the responsibility of the Company’s management. Our responsibility is to express an opinion on the Company’s financial statements based on our audits. We are a public accounting firm registered with the 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. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the financial statements are free of material misstatement, whether due to error or fraud. Our audits included performing procedures to assess the risks of material misstatement of the 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 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 financial statements. We believe that our audits provide a reasonable basis for our opinion.

Critical audit matter

The critical audit matter communicated below is a matter arising from the current period audit of the financial statements that was communicated or required to be communicated to the audit committee and that: (1) relates to accounts or disclosures that are material to the financial statements and (2) involved our especially challenging, subjective, or complex judgments. The communication of critical audit matters does not alter in any way our opinion on the 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.

Accruals for environmental liabilities

As described further in Note 10 to the financial statements, the Company records accruals for environmental liabilities based on its current interpretation of environmental laws and regulations when it is probable a liability has been incurred and the amount of such liability is estimable. Accruals for environmental liabilities totaled approximately \$170 million at December 31, 2022. These liabilities are established based on projected spending over many years and require significant estimates and specialized knowledge to determine the proper amount at any point in time. In addition to the estimated liabilities recorded, the Company is subject to the risk of reasonably possible additional liabilities in excess of the established liabilities due to potential changes in circumstances and future events. The Company estimates this exposure could range up to approximately \$85 million in addition to the liabilities recorded and has disclosed this exposure in Note 10.

The principal considerations for our determination that the accruals for environmental liabilities is a critical audit matter is that the length of time over which the obligation will be resolved is significant and the estimate requires specialized knowledge of environmental engineering. The estimate, which involves assumptions such as the nature and extent of contamination at each site, the nature and extent of required cleanup efforts, the duration and effectiveness of the chosen remedial strategy and changes in environmental regulations, is subjective in nature and involved our complex and subjective judgment.

Our audit procedures related to the accruals for environmental liabilities included the following, among others. We evaluated the design and tested the operating effectiveness of relevant controls over the Company's estimation process and accounting for the accruals, and the completeness and accuracy of the underlying data used in the reserve estimates as well as the related financial statement disclosures. We performed a public domain search to determine whether the sites being accounted for by the Company are complete and whether all information from regulators is being considered in the estimation process. We engaged an environmental specialist to assist us in evaluating the appropriateness of the Company's remediation plans and the reasonableness of management's estimates in relation to the regulatory requirements and to review the estimated costs used by the Company, including consideration of information available from external data from other sources. With the support of our environmental specialist, we evaluated the competency of the specialist used by the Company in addition to whether the method, models and assumptions utilized in estimating the reserve balances were appropriate based on testing of engineering studies and historical experience and evaluated the sufficiency of the Company's disclosures.

/s/ GRANT THORNTON LLP

We have served as the Company's auditor since 2016.

Jacksonville, Florida
March 1, 2023

REPORT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

Board of Directors and Stockholders
Rayonier Advanced Materials Inc.

Opinion on internal control over financial reporting

We have audited the internal control over financial reporting of Rayonier Advanced Materials Inc. (a Delaware corporation) and subsidiaries (the “Company”) as of December 31, 2022, based on criteria established in the 2013 Internal Control—Integrated Framework issued by the Committee of Sponsoring Organizations of the Treadway Commission (“COSO”). In our opinion, the Company maintained, in all material respects, effective internal control over financial reporting as of December 31, 2022, based on criteria established in the 2013 Internal Control—Integrated Framework issued by COSO.

We also have audited, in accordance with the standards of the Public Company Accounting Oversight Board (United States) (“PCAOB”), the consolidated financial statements of the Company as of and for the year ended December 31, 2022, and our report dated March 1, 2023 expressed an unqualified opinion on those financial statements.

Basis for opinion

The Company’s management is responsible 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 an opinion on the Company’s internal control over financial reporting based on our audit. We are a public accounting firm registered with the 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 audit in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether effective internal control over financial reporting was maintained in all material respects. Our audit included obtaining an understanding of internal control over financial reporting, assessing the risk that a material weakness exists, testing and evaluating the design and operating effectiveness of internal control based on the assessed risk, and performing such other procedures as we considered necessary in the circumstances. We believe that our audit provides a reasonable basis for our opinion.

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 (1) pertain to the maintenance of records that, in reasonable detail, accurately and fairly reflect the transactions and dispositions of the assets of the company; (2) 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 (3) 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.

/s/ GRANT THORNTON LLP

Jacksonville, Florida
March 1, 2023

Rayonier Advanced Materials Inc.
Consolidated Statements of Operations
(in thousands, except per share amounts)

	Year Ended December 31,		
	2022	2021	2020
Net sales	\$ 1,717,267	\$ 1,407,558	\$ 1,343,834
Cost of sales	(1,594,184)	(1,332,836)	(1,280,405)
Gross margin	123,083	74,722	63,429
Selling, general and administrative expenses	(91,475)	(75,789)	(77,942)
Foreign exchange gains (losses)	4,726	875	(5,677)
Other operating expense, net (Note 18)	(10,199)	(10,253)	(10,175)
Operating income (loss)	26,135	(10,445)	(30,365)
Interest expense	(66,183)	(66,394)	(55,517)
Interest income and other income (expense), net	5,418	785	(7,064)
Other components of pension and OPEB, excluding service costs	4,960	(4,337)	2,559
Gain (loss) on GreenFirst equity securities	5,197	(3,597)	—
Gain (loss) on debt extinguishment	651	1,116	(7,841)
Loss from continuing operations before income taxes	(23,822)	(82,872)	(98,228)
Income tax (expense) benefit (Note 19)	(902)	34,688	60,890
Equity in loss of equity method investment	(2,653)	(1,585)	(731)
Loss from continuing operations	(27,377)	(49,769)	(38,069)
Income from discontinued operations, net of taxes (Note 3)	12,458	116,183	38,624
Net income (loss)	<u>\$ (14,919)</u>	<u>\$ 66,414</u>	<u>\$ 555</u>
Basic earnings per common share (Note 15)			
Loss from continuing operations	\$ (0.42)	\$ (0.78)	\$ (0.60)
Income from discontinued operations	0.19	1.83	0.61
Net income (loss) per common share-basic	<u>\$ (0.23)</u>	<u>\$ 1.05</u>	<u>\$ 0.01</u>
Diluted earnings per common share (Note 15)			
Loss from continuing operations	\$ (0.42)	\$ (0.78)	\$ (0.60)
Income from discontinued operations	0.19	1.83	0.61
Net income (loss) per common share-diluted	<u>\$ (0.23)</u>	<u>\$ 1.05</u>	<u>\$ 0.01</u>

See Notes to Consolidated Financial Statements.

Rayonier Advanced Materials Inc.
Consolidated Statements of Comprehensive Income
(in thousands)

	Year Ended December 31,		
	2022	2021	2020
Net income (loss)	\$ (14,919)	\$ 66,414	\$ 555
Other comprehensive income (loss), net of tax (Note 14)			
Foreign currency translation adjustments	(12,763)	(17,919)	25,024
Unrealized gain (loss) on derivative instruments	280	(2,681)	544
Net gain (loss) on pension and postretirement plans	33,155	69,765	(19,976)
Total other comprehensive income	20,672	49,165	5,592
Comprehensive income	\$ 5,753	\$ 115,579	\$ 6,147

See Notes to Consolidated Financial Statements.

Rayonier Advanced Materials Inc.
Consolidated Balance Sheets
(in thousands, except share amounts)

	December 31,	
	2022	2021
Assets		
Current assets		
Cash and cash equivalents	\$ 151,803	\$ 253,307
Accounts receivable, net (Note 5)	211,526	181,604
Inventory (Note 6)	265,334	230,691
Prepaid and other current assets	59,671	50,597
Investment in GreenFirst equity securities (Note 3)	—	38,510
Income tax receivable (Note 19)	1,196	21,411
Total current assets	<u>689,530</u>	<u>776,120</u>
Property, plant and equipment, net (Note 7)	1,151,268	1,146,162
Deferred tax assets (Note 19)	322,164	335,119
Intangible assets, net (Note 2)	24,423	31,432
Other assets	160,143	156,191
Total assets	<u>\$ 2,347,528</u>	<u>\$ 2,445,024</u>
Liabilities and Stockholders' Equity		
Current liabilities		
Accounts payable	\$ 163,962	\$ 169,456
Accrued and other current liabilities (Note 8)	164,369	136,124
Debt due within one year (Note 9)	14,617	37,680
Current environmental liabilities (Note 10)	10,732	11,303
Total current liabilities	<u>353,680</u>	<u>354,563</u>
Long-term debt (Note 9)	838,508	891,031
Non-current environmental liabilities (Note 10)	159,949	159,919
Pension and other postretirement benefits (Note 17)	119,571	170,317
Deferred tax liabilities (Note 19)	17,021	20,485
Other liabilities	29,486	34,366
Commitments and contingencies (Note 21)		
Stockholders' equity (Note 13)		
Common stock, 140,000,000 shares authorized at \$0.01 par value, 64,020,761 and 63,738,409 issued and outstanding, respectively	640	637
Additional paid-in capital	418,048	408,834
Retained earnings	474,423	489,342
Accumulated other comprehensive loss (Note 14)	(63,798)	(84,470)
Total stockholders' equity	<u>829,313</u>	<u>814,343</u>
Total liabilities and stockholders' equity	<u>\$ 2,347,528</u>	<u>\$ 2,445,024</u>

See Notes to Consolidated Financial Statements.

Rayonier Advanced Materials Inc.
Consolidated Statements of Stockholders' Equity
(in thousands, except share data)

	Common Stock		Additional Paid in Capital	Retained Earnings	Accumulated Other Comprehensive Loss	Total Stockholders' Equity
	Shares	Par Value				
Balance at December 31, 2019	63,136,129	\$ 632	\$ 399,020	\$ 422,373	\$ (139,227)	\$ 682,798
Net income	—	—	—	555	—	555
Other comprehensive income, net of tax	—	—	—	—	5,592	5,592
Issuance of common stock under incentive stock plans	416,454	4	(4)	—	—	—
Stock-based compensation	—	—	6,599	—	—	6,599
Repurchase of common stock ^(a)	(192,744)	(3)	(454)	—	—	(457)
Balance at December 31, 2020	63,359,839	633	405,161	422,928	(133,635)	695,087
Net income	—	—	—	66,414	—	66,414
Other comprehensive income, net of tax	—	—	—	—	49,165	49,165
Issuance of common stock under incentive stock plans	509,713	5	(5)	—	—	—
Stock-based compensation	—	—	5,099	—	—	5,099
Repurchase of common stock ^(a)	(131,143)	(1)	(1,421)	—	—	(1,422)
Balance at December 31, 2021	63,738,409	637	408,834	489,342	(84,470)	814,343
Net income	—	—	—	(14,919)	—	(14,919)
Other comprehensive income, net of tax	—	—	—	—	20,672	20,672
Issuance of common stock under incentive stock plans	360,495	4	(4)	—	—	—
Stock-based compensation	—	—	9,650	—	—	9,650
Repurchase of common stock ^(a)	(78,143)	(1)	(432)	—	—	(433)
Balance at December 31, 2022	64,020,761	\$ 640	\$ 418,048	\$ 474,423	\$ (63,798)	\$ 829,313

^(a) Repurchased to satisfy tax withholding requirements related to the issuance of stock under the Company's incentive stock plans.

See Notes to Consolidated Financial Statements.

Rayonier Advanced Materials Inc.
Consolidated Statements of Cash Flows
(in thousands)

	Year Ended December 31,		
	2022	2021	2020
Operating activities			
Net income (loss)	\$ (14,919)	\$ 66,414	\$ 555
Income from discontinued operations	(12,458)	(116,183)	(38,624)
Adjustments to reconcile net income (loss) to cash provided by operating activities:			
Depreciation and amortization	134,576	138,299	138,371
Stock-based incentive compensation expense	9,650	5,099	6,432
Amortization of debt discount and issuance costs	4,033	3,802	2,198
Deferred income tax benefit	(3,948)	(37,094)	(12,243)
Increase in environmental liabilities	4,595	6,099	5,381
(Gain) loss on GreenFirst equity securities	(5,197)	3,597	—
(Gain) loss on debt extinguishment	(651)	(1,866)	7,841
Net periodic benefit cost of pension and postretirement plans	5,290	16,095	7,659
Loss on disposal of property, plant and equipment	3,742	1,010	481
Unrealized (gain) loss on foreign currency	(5,666)	3,978	8,646
Other	—	(3,690)	3,837
Changes in operating assets and liabilities:			
Receivables	(33,824)	(11,518)	4,539
Inventories	(35,113)	(58,310)	15,168
Income tax receivables	19,795	32,915	(52,568)
Accounts payable	(8,266)	7,376	(5,715)
Accrued liabilities	27,909	23,900	9,128
Other	(8,359)	8,871	(31,839)
Contributions for pension and other postretirement plans	(7,915)	(8,552)	(9,654)
Expenditures for environmental liabilities	(4,461)	(6,556)	(5,308)
Cash provided by operating activities-continuing operations	68,813	73,686	54,285
Cash provided by operating activities-discontinued operations	—	159,538	70,185
Cash provided by operating activities	68,813	233,224	124,470
Investing activities			
Capital expenditures, net	(138,223)	(93,217)	(61,868)
Investment in equity method investment	(379)	(4,142)	(4,426)
Cash used in investing activities-continuing operations	(138,602)	(97,359)	(66,294)
Cash provided by (used in) investing activities-discontinued operations	44,428	182,750	(11,527)
Cash provided by (used in) investing activities	(94,174)	85,391	(77,821)
Financing activities			
Borrowings of long-term debt	5,721	4,393	500,000
Revolving credit facility and other borrowings	—	—	29,043
Repayments of long-term debt	(75,250)	(161,025)	(498,875)
Repayments of revolving credit facility and other borrowings	—	—	(30,328)
Short-term financing, net	(3,153)	2,028	5,044
Repurchase of common stock	(433)	(1,422)	(457)
Debt issuance costs	—	(636)	(23,817)
Cash used in financing activities	(73,115)	(156,662)	(19,390)
Net increase (decrease) in cash and cash equivalents	(98,476)	161,953	27,259
Net effect of foreign exchange on cash and cash equivalents	(3,028)	(2,299)	2,369
Balance, beginning of period	253,307	93,653	64,025
Balance, end of period	\$ 151,803	\$ 253,307	\$ 93,653

Year Ended December 31,

	2022		2021		2020
Supplemental cash flow information:					
Interest paid on debt	\$	58,053	\$	46,770	\$ 49,294
Income taxes refunded (paid), net		15,200		34,715	(1,168)
Capital assets purchased on account		29,726		25,580	19,594
Assets acquired under operating leases		2,975		6,774	182

See Notes to Consolidated Financial Statements.

Rayonier Advanced Materials Inc.
Notes to Consolidated Financial Statements
(in thousands unless otherwise stated)

1. Nature of Operations and Basis of Presentation

Nature of Operations

The Company is a leading manufacturer of high purity cellulose, paperboard and high-yield pulp products and operates in the following business segments: High Purity Cellulose, Paperboard and High-Yield Pulp.

High Purity Cellulose

The Company, through its four production facilities located in the U.S., Canada and France, manufactures and markets high purity cellulose, which is sold as either cellulose specialties or commodity products. Cellulose specialties are primarily used in dissolving chemical applications that require a highly purified form of cellulose. Commodity products are used for absorbent materials and viscose pulp applications. Absorbent materials, typically referred to as fluff fibers, are used as an absorbent medium in consumer products. Commodity viscose pulp is a raw material required for the manufacture of viscose staple fibers which are used in woven and non-woven applications. Sales of chemicals and energy, a majority of which are by-products of the manufacturing process, are also included in the High Purity Cellulose segment.

Paperboard

The Company, through its production facility in Canada, manufactures and markets lightweight multi-ply paperboard products. Paperboard is used for packaging, printing documents, brochures, promotional materials, paperback book and catalog covers, file folders, tags and lottery tickets.

High-Yield Pulp

The Company, through its production facility in Canada, manufactures and markets bulky high-yield pulp. High-yield pulp is used by paper manufacturers to produce paperboard, packaging, printing and writing papers and a variety of other paper products.

Basis of Presentation

The Financial Statements include the accounts and operations of the Company and its wholly owned, majority owned and controlled subsidiaries. The Company applies the equity method of accounting for investments in which it has an ownership interest from 20 percent to 50 percent or exercises significant influence over the related investee's operations. All intercompany accounts and transactions are eliminated in consolidation. Certain amounts in prior periods have been reclassified to conform with current period presentation.

The Financial Statements are prepared in accordance with GAAP and the rules and regulations of the SEC. The preparation of consolidated financial statements in conformity with GAAP requires management to make estimates and assumptions that affect the reported amounts of assets, liabilities, revenues, expenses and disclosures of contingent assets and liabilities. Because of the inherent uncertainties in using estimates, actual results could differ from those expected as of the reporting date. Management believes that the estimates and assumptions used are reasonable.

The Company's fiscal year end is the last day of the calendar year. For interim reporting periods, the Company uses the last Saturday of the fiscal quarter.

Discontinued Operations

As a result of the sale of its lumber and newsprint assets, the Company presents the results for those operations as discontinued operations. Unless otherwise stated, information in these Notes to Financial Statements relates to continuing operations. The Company presents businesses that represent components as discontinued operations when they meet the criteria for held for sale or are sold, and their disposal represents a strategic shift that has, or will have, a major effect on the Company's operations and financial results. See Note 3 - *Discontinued Operations* for further information.

Rayonier Advanced Materials Inc.
Notes to Consolidated Financial Statements
(in thousands unless otherwise stated)

Subsequent Events

In January 2023, the USDOC released the preliminary results of its fourth administrative review of duties applied to Canadian softwood lumber exports to the U.S., which indicate a reduction in rates to a combined 8.2 percent. The Company will adjust its long-term receivable as appropriate when these rates are finalized and issued, which is expected later in 2023. See Note 3 — *Discontinued Operations* and Note 21 — *Commitments and Contingencies* for further information.

2. Significant Accounting Policies and Recent Accounting Developments

Significant Accounting Policies

Translation of Foreign Currency

Assets and liabilities of consolidated subsidiaries whose functional currency is other than the USD are translated into USD using currency exchange rates at the balance sheet date. Revenues and expenses are translated using the average currency exchange rates during the period. Foreign currency translation gains and losses are reported as a component of AOCI. Realized and unrealized gains and losses resulting from foreign currency transactions are included in operating results as incurred.

Cash and Cash Equivalents

Cash and cash equivalents include time deposits and other investments that are highly liquid with original maturities of three months or less.

Allowance for Expected Credit Losses

Trade accounts receivable are stated at the net amount expected to be collected. All customers are granted credit on a short-term basis and related credit risks are considered minimal. The Company maintains an allowance for expected credit losses resulting from the inability of its customers to make required payments. The Company's allowance is established based on historical patterns of accounts receivable collections and expected losses, including consideration of general economic conditions. Outstanding accounts receivable balances are reviewed quarterly or more frequently when circumstances indicate a review is warranted, such as a significant change in the aging of the Company's receivables or a customer's financial condition. Write-offs are recorded at the time a customer receivable is deemed uncollectible and collection efforts have been exhausted.

Inventory

Finished goods, work-in-process and raw materials inventories are valued at the lower of cost, as determined on the first-in first-out basis, or net realizable value. Manufacturing and maintenance supplies are valued at average cost. Inventory costs include material, labor and manufacturing overhead. The need for a provision for estimated losses from obsolete, excess or slow-moving inventories is reviewed periodically.

Property, Plant and Equipment

Depreciation

Property, plant and equipment are recorded at cost, including applicable freight, interest, construction and installation costs. High purity cellulose, paperboard and high-yield pulp production-related plant and equipment are depreciated using the units-of-production method. The total units of production used to calculate depreciation expense is determined by factoring annual production days, based on normal production conditions, by the economic useful life of the asset involved. Production-related assets under finance leases are depreciated using the straight-line method over the related lease term. The Company depreciates its non-production assets, including office, lab and transportation equipment, using the straight-line depreciation method over 3 to 25 years. Buildings and land improvements are depreciated using the straight-line method over 15 to 35 years and 5 to 30 years, respectively.

Impairment

Long-lived assets are reviewed for impairment whenever events or changes in circumstances indicate the carrying amount of an asset may not be recoverable. Recoverability of assets that are held and used is measured by net undiscounted cash flows expected to be generated by the asset. If such assets are considered to be impaired, the impairment to be recognized is measured as the amount by which the carrying value exceeds the fair value of the assets, which is based on a discounted cash flows model. Assets to be disposed of are reported at the lower of the carrying amount or fair value, less cost to sell.

Rayonier Advanced Materials Inc.
Notes to Consolidated Financial Statements
(in thousands unless otherwise stated)

Asset Retirement Obligations

The Company is obligated to close out its operating sites' landfills in accordance with certain legal requirements and records a liability for these obligations when the fair value can be reasonably estimated. In connection with these obligations, asset retirement liabilities are initially estimated and recorded based on discounted expected cash flows with a corresponding asset, capitalized as part of the related long-lived asset. Initial cost estimates are updated whenever events and circumstances indicate a new estimate is more appropriate. The asset is depreciated on a straight-line basis over the remaining useful life of the related asset. Accretion expense in connection with the discounted liability is also recognized over the same time period. As of December 31, 2022 and 2021, the Company had accrued \$11 million and \$8 million, respectively, for asset retirement obligations in "other liabilities." Related depreciation and accretion expenses are included in "other operating expense, net" in the consolidated statements of operations. During 2022, no obligations were incurred or settled; the change in balance was due to a revision in estimated cash flows and less than \$1 million of accretion. For the years ended December 31, 2021 and 2020, the accretion related to asset retirement obligations was immaterial.

Capitalized Software

The Company capitalizes certain costs in connection with obtaining software for internal use. These costs are generally amortized over a period of 5 years, once the assets are ready for their intended use. Amortization expense for software is recorded in "cost of sales" and "selling, general and administrative expenses" in the consolidated statements of operations and totaled \$4 million, \$7 million and \$6 million for the years ended December 31, 2022, 2021 and 2020, respectively.

Maintenance Costs

The Company performs scheduled inspections, repairs and maintenance of plant machinery and equipment at the Company's high purity cellulose, paperboard and high-yield pulp manufacturing facilities during a full plant shutdown. Costs associated with these planned outage periods are referred to as shutdown costs and are incurred to ensure the long-term reliability and safety of the manufacturing operations. Shutdown costs are accounted for using the deferral method, under which expenditures related to shutdown are capitalized when incurred and amortized to production costs on a straight-line basis over the period benefited or the period of time until the next scheduled shutdown, which generally ranges from one year to 18 months. Shutdown costs are classified as operating activities in the consolidated statements of cash flows. As of December 31, 2022 and 2021, the Company had \$23 million and \$19 million, respectively, in shutdown costs capitalized in "prepaid and other current assets" in the consolidated balance sheets.

Emissions Allowances

The Company is subject to numerous international, federal and state-level rules, initiatives and proposals that address domestic and global climate issues, including those governing emissions. In order to comply with certain of these regulations and ordinances, the Company is allotted certain allowances or credits by governing authorities to offset the obligations created by the Company's operations. There is no value assigned to the government-allotted emissions allowances recorded on the consolidated balance sheets. Income or expense from the sale or purchase of emission allowances are recognized within "cost of sales" in the consolidated statements of operations. During the years ended December 31, 2022, 2021 and 2020, the Company recorded \$12 million, \$12 million and \$2 million, respectively, of sales of excess emission allowances associated with our Tartas, France operations.

Research and Development Expenses

R&D capabilities and activities are primarily focused on the High Purity Cellulose segment. These efforts are directed at further developing products and technologies, including improving the quality of cellulose fiber grades, improving manufacturing efficiency and environmental controls and reducing fossil fuel consumption. R&D expenses were \$7 million for each of the years ended December 31, 2022, 2021 and 2020.

Rayonier Advanced Materials Inc.
Notes to Consolidated Financial Statements
(in thousands unless otherwise stated)

Intangible Assets

The Company has definite-life intangible assets which it acquired through a business combination. The definite-life intangible assets consist of customer lists and trade-names and are amortized over their estimated useful lives generally for periods ranging from 8 to 15 years. The Company evaluates the recovery of its definite-life intangible assets by comparing the net carrying value of the asset group to the undiscounted net cash flows expected to be generated from the use and eventual disposition of that asset group when events or changes in circumstances indicate that its carrying amount may not be recoverable. If the carrying amount of the asset group is not recoverable, the fair value of the asset group is measured, and, if the carrying amount exceeds the fair value, an impairment loss is recognized.

The Company's definite-lived intangible assets were as follows:

	December 31, 2022			
	Gross Carrying Amount	Accumulated Amortization	Net Carrying Amount	Weighted Average Remaining Life
Customer Lists	\$ 51,680	\$ (32,914)	\$ 18,766	2.9 years
Trade Names	8,604	(2,947)	5,657	9.9 years
Total Definite-Lived Intangibles	<u>\$ 60,284</u>	<u>\$ (35,861)</u>	<u>\$ 24,423</u>	4.5 years

	December 31, 2021			
	Gross Carrying Amount	Accumulated Amortization	Net Carrying Amount	Weighted Average Remaining Life
Customer Lists	\$ 51,680	\$ (26,481)	\$ 25,199	3.9 years
Trade Names	8,604	(2,371)	6,233	10.9 years
Total Definite-Lived Intangibles	<u>\$ 60,284</u>	<u>\$ (28,852)</u>	<u>\$ 31,432</u>	5.3 years

Total amortization expense related to definite-lived intangible assets was \$7 million for each of the years ended December 31, 2022, 2021 and 2020, respectively.

The following table presents the estimated future amortization expense related to intangible assets held as of December 31, 2022:

2023	\$ 7,009
2024	7,009
2025	6,473
2026	575
2027	575
Thereafter	2,782
Total	<u>\$ 24,423</u>

Equity Method Investments

Anomera, Inc.

The Company is an investor in Anomera, a Canadian start-up corporation headquartered in Montreal, Quebec. Anomera manufactures CNC, a patented, biodegradable product, with uses in the cosmetics industry and various other industrial applications, including concrete, inks and pigments, polymer composites, coatings and adhesives industries. Anomera has a product development lab in Mississauga, Ontario and a production facility on the Company's Temiscaming site that was constructed during 2021. In exchange for voting and non-voting interests, the Company has invested a total of \$12 million in Anomera through December 31, 2022. The Company and Anomera have entered into various service, leasing and supply agreements to support Anomera's operations at the production facility.

Rayonier Advanced Materials Inc.
Notes to Consolidated Financial Statements
(in thousands unless otherwise stated)

The Company has a 44 percent voting interest in Anomera and is able to exercise significant influence, but not control, as it does not have the ability to direct the decisions that most significantly impact its economic performance. The Company has evaluated this investment and has concluded it is not a variable interest entity. The Company accounts for this investment under the equity method of accounting and records its share of net earnings and losses on the investment in “equity in loss of equity method investment” in the consolidated statements of operations. During the years ended December 31, 2022, 2021 and 2020, the Company recorded losses of \$3 million, \$2 million and \$1 million, respectively, on its equity investment in Anomera.

There are no financing agreements at Anomera for which the Company is liable.

LignoTech Florida LLC

The Company holds a 45 percent interest in LTF, a joint venture accounted for under the equity method of accounting. Borregaard ASA, a public company in Norway traded on the Oslo Exchange, owns the remaining 55 percent interest. LTF purchases sulfite liquor from the Company’s Fernandina Beach, Florida plant and converts it to purified lignins and lignosulfonates, which are used in concrete, textile dyes, pesticides, batteries and other products.

The Company recorded \$20 million, \$14 million and \$7 million of lignin sales to the LTF joint venture during the years ended December 31, 2022, 2021 and 2020, respectively. The Company records its share of net earnings and losses on the investment in “other operating expense, net” in the consolidated statements of operations. During the years ended December 31, 2022, 2021 and 2020, the Company recorded losses of \$3 million, \$2 million and \$4 million, respectively, on its equity investment in LTF. See Note 18 — *Other Operating Expense, Net* for further information.

The Company is liable for certain financing agreements related to LTF. See Note 21 — *Commitments and Contingencies* for further information.

Revenue Recognition and Measurement

The Company accounts for revenue in accordance with ASC Topic 606, Revenue from Contracts with Customers. The core principle of ASC 606 is that a company should recognize revenue when it transfers control of goods or services to customers for an amount that reflects the consideration to which the company expects to be entitled to in exchange for those goods or services.

Revenue is recognized when performance obligations under the terms of a contract with a customer are satisfied. The majority of the Company’s contracts have a single performance obligation to transfer products. Accordingly, it recognizes revenue when control has been transferred to the customer. Generally, control passes upon delivery to a location in accordance with terms and conditions of the sale. Changes in customer contract terms and conditions, as well as the timing of orders and shipments, may have an impact on the timing of revenue recognition.

Revenue is measured as the amount of consideration the Company expects to receive in exchange for transferring its products and is generally based upon contractual arrangements with customers or published indices. The Company sells its products both directly to customers and through distributors and agents typically under agreements with payment terms less than 90 days.

The Company elected to account for shipping and handling as activities to fulfill the promise to transfer the goods. As such, shipping and handling costs incurred are recorded in cost of sales. In addition, the Company has excluded from net sales any value-add, sales and other taxes which are collected concurrent with its revenue-producing activities.

The nature of the Company’s contracts may give rise to variable consideration, which may be constrained, including sales volume-based rebates to customers. The Company estimates the level of sales volumes based on anticipated purchases at the beginning of the period and records a rebate accrual for each purchase toward the requisite rebate volume. These estimated rebates are included in the transaction price as a reduction to net sales.

The Company has certain contracts which contain performance obligations which are not significant in the context of the contract with the customer and have elected not to assess whether these promised goods or services are performance obligations.

The Company did not have any material contract assets or contract liabilities as of December 31, 2022 or 2021.

Rayonier Advanced Materials Inc.
Notes to Consolidated Financial Statements
(in thousands unless otherwise stated)

Environmental Costs

The Company has established liabilities to assess, remediate, maintain and monitor sites related to disposed operations from which no current or future benefit is discernible. These obligations are established based on projected spending over the next 20 years and require significant estimates to determine the proper amount at any point in time. The projected period, from 2023 through 2043, reflects the time during which potential future costs are both estimable and probable. As new information becomes available, these cost estimates are updated and the recorded liabilities are adjusted appropriately. Environmental liabilities are accounted for on an undiscounted basis and are reflected in current and non-current liabilities for disposed operations in the consolidated balance sheets.

Employee Benefit Plans

The determination of expense and funding requirements for the Company's defined benefit pension and postretirement health care and life insurance plans are largely based on a number of actuarial assumptions. The key assumptions include discount rate, return on assets, salary increases, health care cost trends, mortality rates, longevity and service lives of employees.

The components of periodic pension and post retirement costs, other than service costs, are presented separately outside of operating income in "other components of pension and OPEB, excluding service costs" on the consolidated statements of operations. The service cost component of net periodic benefit cost is presented in "cost of sales" and "selling, general and administrative expense," which correlates with the related employee compensation costs arising from services rendered during the period. Only the service cost component of the net periodic benefit cost is eligible for capitalization in assets.

Changes in the funded status of the Company's plans are recorded through comprehensive income in the year in which the changes occur. Actuarial gains and losses, which occur when actual experience differs from actuarial assumptions, are reflected in stockholders' equity, net of taxes. If actuarial gains and losses exceed ten percent of the greater of plan assets or plan liabilities, the Company will amortize them over the average future service period of employees.

Income Taxes

The Company uses the asset and liability method of accounting for income taxes. Under this method, deferred tax assets and liabilities are recognized for the estimated future tax consequences attributable to differences between the financial statement carrying amounts of assets and liabilities and their respective tax bases, operating loss carryforwards and tax credit carryforwards. Deferred tax assets and liabilities are measured pursuant to tax laws using rates expected to apply to taxable income in the years in which the temporary differences are expected to be recovered or settled. The Company records a valuation allowance to reduce the carrying amounts of DTAs if it is more likely than not that such DTAs will not be realized, with the exception of DTAs for suspended U.S. interest deductions, which do not have a full valuation allowance in accordance with specific AICPA guidance. See Note 19 — *Income Taxes* for further information.

The Company's income tax returns are subject to audit by U.S. federal and state taxing authorities as well as foreign jurisdictions, including Canada and France. In evaluating the tax benefits associated with various tax filing positions, the Company records a tax benefit for an uncertain tax position if it is more likely than not to be realized upon ultimate settlement of the issue. The Company records a liability or an offset to the corresponding DTA for any uncertain tax position that does not meet this criterion. The Company adjusts its liabilities for unrecognized tax benefits in the period in which it is determined the issue is settled with the taxing authorities, the statute of limitations expires for the relevant taxing authority to examine the tax position or when new facts or information becomes available. Interest expense and penalties, if applicable, related to unrecognized tax benefits are recorded in "income tax (expense) benefit" in the consolidated statements of operations.

Recent Accounting Developments

There have been no newly issued or adopted accounting pronouncements impacting the Financial Statements during 2022.

3. Discontinued Operations

In August 2021, the Company completed the sale of its lumber and newsprint facilities and certain related assets located in Ontario and Quebec, Canada, to GreenFirst for \$232 million, including cash of \$193 million, 28.7 million shares of GreenFirst common stock with a deemed fair value of \$42 million and a credit note issued to the Company by GreenFirst in the amount of CAD \$8 million (approximately USD \$5 million after present value discount). The credit note may be offset equally over the next 5 years against future amounts owed by the Company to GreenFirst for wood chip purchases.

Rayonier Advanced Materials Inc.
Notes to Consolidated Financial Statements
(in thousands unless otherwise stated)

The cash consideration received at closing was preliminary and subject to final purchase price and other sale-related adjustments. In connection with the sale, the Company recorded a net-of-tax gain on sale of \$4 million in 2021, inclusive of purchase price adjustments estimated as of closing. In the first quarter of 2022, the Company tried up certain sale-related items with GreenFirst for a total net cash outflow of \$3 million, as expected and previously disclosed. Pursuant to the terms of the asset purchase agreement, GreenFirst and the Company were engaged in efforts to finalize the closing inventory valuation adjustment, which could have impacted the final purchase price. In November 2022, the arbitration proceeding was resolved in favor of the Company and no changes were made to the gain on sale recorded during 2021.

The Company sold the GreenFirst common shares for \$43 million in the second quarter of 2022. Prior to the sale, the GreenFirst common shares were accounted for at fair value, with changes in fair value recorded in the consolidated statements of operations. See Note 12 — *Fair Value Measurements* to Financial Statements for further information. The shares sale agreement contains a purchase price protection clause whereby the Company is entitled to participate in further share price appreciation under certain circumstances until December 2023.

In connection with the sale, GreenFirst and the Company entered into a 20-year wood chip and residual fiber supply agreement, securing supply for the Company's operations at the Temiscaming plant. Additionally, the parties entered into a TSA whereby the Company provided certain transitional services to GreenFirst following the sale closing and through its termination in the second quarter of 2022. The TSA included support related to information technology, accounting, treasury, human resources and payroll, tax, supply chain and procurement functions. Costs incurred by the Company in connection with the TSA were reimbursed by GreenFirst.

During the third quarter of 2022, the USDOC completed its third administrative review of duties applied to Canadian softwood lumber exports to the U.S. during 2020 and reduced rates applicable to the Company to a combined 8.6 percent. In connection with this development, the Company recorded a \$16 million pre-tax gain and increased the long-term receivable related to all of the administrative reviews to date to \$38 million. In total, the Company paid \$112 million in softwood lumber duties from 2017 through 2021, and expects to receive all or the vast majority of these duties upon settlement of the dispute.

The lumber and newsprint assets sold were previously reported within the Forest Products and Pulp and Newsprint segments, respectively.

Income (loss) from discontinued operations was comprised of the following:

	Year Ended December 31,		
	2022	2021	2020
Net sales ^(a)	\$ —	\$ 442,583	\$ 395,065
Cost of sales	155	(236,670)	(320,710)
Gross margin	155	205,913	74,355
Selling, general and administrative expenses and other	16,808	(27,119)	(16,916)
Operating income	16,963	178,794	57,439
Interest expense ^(b)	(13)	(7,294)	(8,698)
Other non-operating income	—	967	3,457
Income from discontinued operations before income taxes	16,950	172,467	52,198
Income tax expense	(4,492)	(60,400)	(14,282)
Income from discontinued operations, net of taxes	12,458	112,067	37,916
Gain on sale of discontinued operation, pre-tax	—	8,751	956
Income tax expense on gain	—	(4,635)	(248)
Gain on sale of discontinued operations, net of tax	—	4,116	708
Income from discontinued operations	<u>\$ 12,458</u>	<u>\$ 116,183</u>	<u>\$ 38,624</u>

^(a) Net of intercompany sales of \$31 million and \$44 million for 2021 and 2020, respectively. There were no intercompany sales in 2022.

^(b) Allocated based on the total portion of debt not attributable to other operations repaid as a result of the transaction.

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Other discontinued operations information included the following:

	Year Ended December 31,		
	2022	2021	2020
Depreciation and amortization	\$ —	\$ 3,172	\$ 13,045
Capital expenditures	—	9,607	14,039

4. Leases

The Company's operating and finance leases are primarily for corporate offices, warehouse space, rail cars and equipment. As of December 31, 2022, the Company's leases had remaining lease terms of one year to 13.8 years with standard renewal and termination options available at the Company's discretion. Certain equipment leases have purchase options at the end of the term of the lease, which are not included in the ROU assets, as it is not reasonably certain that the Company will exercise such options. The Company's lease agreements do not contain any material residual value guarantees or restrictive covenants.

The Company uses its incremental borrowing rate in determining the present value of lease payments unless the lease provides an implicit or explicit interest rate. The weighted average discount rate used in determining the operating lease ROU assets and liabilities as of December 31, 2022 and 2021 was 8.9 percent and 7.6 percent, respectively. The weighted average discount rate used in determining the finance lease ROU assets and liabilities as of both December 31, 2022 and 2021 was 7.0 percent.

The Company's operating and finance lease cost were comprised of the following:

	Year Ended December 31,		
	2022	2021	2020
Operating Leases	\$ 7,751	\$ 6,049	\$ 6,034
Finance Leases:			
Amortization of ROU assets	377	352	328
Interest	138	163	187
Total lease cost	<u>\$ 8,266</u>	<u>\$ 6,564</u>	<u>\$ 6,549</u>

As of December 31, 2022, the weighted average remaining lease term was 5.8 years and 3.8 years for operating leases and financing leases, respectively. As of December 31, 2021, the weighted average remaining lease term was 5.3 years and 4.9 years for operating leases and finance leases, respectively. Cash provided by operating activities included \$8 million, \$6 million and \$6 million from operating lease payments made during the years ended December 31, 2022, 2021 and 2020, respectively. Finance lease cash flows were immaterial during the years ended December 31, 2022, 2021 and 2020.

As of December 31, 2022 and 2021, the Company had assets acquired under finance leases of \$1 million and \$2 million, respectively, included in "property, plant and equipment, net" in the consolidated balance sheets. The Company's finance leases liabilities are included in "long-term debt" and their maturities are disclosed in Note 9 — *Debt and Finance Leases*.

The Company's consolidated balance sheets included the following operating lease assets and liabilities:

	Balance Sheet Location	December 31,	
		2022	2021
ROU assets	Other assets	\$ 15,623	\$ 18,316
Lease liabilities, current	Accrued and other current liabilities	4,741	6,050
Lease liabilities, non-current	Other liabilities	11,399	12,551

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Operating lease maturities as of December 31, 2022 were as follows:

2023	\$	5,926
2024		3,719
2025		2,816
2026		2,118
2027		1,554
Thereafter		5,624
Total minimum lease payments		<u>21,757</u>
Less: imputed interest		(5,617)
Present value of future minimum lease payments	\$	<u><u>16,140</u></u>

5. Accounts Receivable, Net

Accounts receivable, net included the following:

	December 31,	
	2022	2021
Accounts receivable, trade	\$ 171,144	\$ 131,371
Accounts receivable, other ^(a)	41,446	51,007
Allowance for credit loss	(1,064)	(774)
Accounts receivable, net	<u>\$ 211,526</u>	<u>\$ 181,604</u>

^(a) Consists primarily of value-added/consumption taxes, grants receivable and accrued billings due from government agencies.

6. Inventory

Inventory included the following:

	December 31,	
	2022	2021
Finished goods	\$ 198,931	\$ 175,832
Work-in-progress	5,230	6,533
Raw materials	52,967	41,974
Manufacturing and maintenance supplies	8,206	6,352
Inventory	<u>\$ 265,334</u>	<u>\$ 230,691</u>

7. Property, Plant and Equipment, Net

Property, plant and equipment, net included the following:

	December 31,	
	2022	2021
Land and land improvements	\$ 37,346	\$ 34,831
Buildings	257,592	254,929
Machinery and equipment	2,515,827	2,435,508
Other	5,265	4,995
Construction in progress	57,136	58,341
Property, plant and equipment	<u>2,873,166</u>	<u>2,788,604</u>
Accumulated depreciation	(1,721,898)	(1,642,442)
Property, plant and equipment, net	<u>\$ 1,151,268</u>	<u>\$ 1,146,162</u>

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Depreciation expense reflected in the consolidated statements of operations was \$124 million, \$125 million and \$124 million for the years ended December 31, 2022, 2021 and 2020, respectively.

8. Accrued and Other Current Liabilities

Accrued and other current liabilities included the following:

	December 31,	
	2022	2021
Accrued customer incentives	\$ 28,702	\$ 26,726
Accrued payroll and benefits	13,763	13,363
Accrued interest	18,877	19,153
Accrued income taxes	9,321	9,210
Accrued property and other taxes	3,065	4,074
Deferred revenue ^(a)	21,645	22,518
Other current liabilities ^(b)	68,996	41,080
Accrued and other current liabilities	<u>\$ 164,369</u>	<u>\$ 136,124</u>

^(a) Included at both December 31, 2022 and 2021 was CAD \$25 million (USD \$18 million and \$20 million, respectively) associated with funds received in 2021 for the CEWS. All CEWS claims are subject to mandatory audit. The Company will recognize amounts from these claims in income at the time there is sufficient evidence that it will not be required to repay such amounts.

^(b) Included at December 31, 2022 was \$30 million of energy-related payables associated with Tartas facility operations.

9. Debt and Finance Leases

Debt and finance leases included the following:

	December 31,	
	2022	2021
ABL Credit Facility due 2025, \$130 million available and bearing interest of 6.64% (4.39% LIBOR plus 2.25%) at December 31, 2022	\$ —	\$ —
7.625% Senior Secured Notes due 2026	475,000	475,000
5.50% Senior Notes due 2024	322,675	369,185
5.50% CAD-based term loan due 2028	36,585	65,451
Other loans ^(a)	19,598	18,280
Short-term factoring facility-France	3,773	7,118
Finance lease obligations	1,760	2,138
Total principal payments due	859,391	937,172
Less: debt premium, original issue discount and issuance costs	(6,266)	(8,461)
Total debt	853,125	928,711
Less: debt due within one year	(14,617)	(37,680)
Long-term debt	<u>\$ 838,508</u>	<u>\$ 891,031</u>

^(a) Consist of loans for energy and bioethanol projects in France.

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Future debt and finance lease payments as of December 31, 2022 included:

	Finance Lease			Debt Principal Payments
	Minimum Lease Payments	Interest	Net Present Value	
2023	\$ 515	\$ 110	\$ 405	\$ 14,212
2024	515	81	434	333,733
2025	515	50	465	10,938
2026	472	16	456	485,318
2027	—	—	—	8,210
Thereafter	—	—	—	5,220
Total debt and finance lease payments due	\$ 2,017	\$ 257	\$ 1,760	\$ 857,631

ABL Credit Facility due 2025

The Company's \$200 million ABL Credit Facility matures in 2025 and is secured by certain U.S. and Canadian assets, including a first priority lien on inventory, accounts receivable and bank accounts, and a second priority lien on certain of the assets securing the Senior Secured Notes.

Availability under the ABL Credit Facility fluctuates based on eligible accounts receivable and inventory levels. As of December 31, 2022, the Company had \$166 million of gross availability under the ABL Credit Facility and net available borrowings of \$130 million after taking into account \$36 million outstanding letters of credit. Additionally, the Company is subject to cash dominion if net availability falls below a certain threshold, currently \$25 million.

The ABL Credit Facility has a springing maturity covenant whereby its 2025 maturity is accelerated to be 121 days prior to the final maturity of the Senior Notes, or February 2024, unless the aggregate outstanding principal balance of the Senior Notes on that date is less than \$30 million.

The credit agreement governing the ABL Credit Facility does not contain an ongoing financial maintenance covenant. However, the agreement requires the Company to meet a fixed charge coverage ratio of not less than 1.0 if net availability falls below a certain threshold, currently \$25 million. The agreement also contains various customary covenants that limit the ability of the Company and its restricted subsidiaries, as defined by the ABL Credit Facility, to take certain specified actions, subject to certain exceptions, including: creating liens, incurring indebtedness, making investments and acquisitions, engaging in mergers and other fundamental changes, making dispositions, making restricted payments, including dividends and distributions, and consummating transactions with affiliates. Additionally, the ABL Credit Facility contains customary affirmative covenants and customary events of default (subject, in certain cases, to customary grace or cure periods), including, without limitation, late payment, breach of covenant, bankruptcy, judgment and defaults under certain other indebtedness and changes in control. At December 31, 2022, the Company was in compliance with all covenants under the ABL Credit Facility.

7.625% Senior Secured Notes due 2026

In December 2020, the Company issued \$500 million aggregate principal amount of 7.625 percent senior secured notes due 2026, at an offering price of 100 percent. The Company used the net proceeds from the issuance towards the repayment of the outstanding obligations under the Company's previous credit facility and recorded a loss on extinguishment of \$8 million to "gain (loss) on debt extinguishment" in the consolidated statements of operations.

The Senior Secured Notes were issued and sold in a private placement to qualified institutional buyers pursuant to Rule 144A under the Securities Act and non-U.S. persons pursuant to Regulation S under the Securities Act.

The lenders under the Senior Secured Notes have a first priority security interest in substantially all of the Company's current and future U.S. and Canadian material assets, while the Senior Secured Notes have a second priority lien on certain of the assets securing the ABL Credit Facility.

During the third quarter of 2021, the Company repurchased \$25 million of the Senior Secured Notes at a redemption price of 103 percent and recorded a loss on extinguishment of \$1 million to "gain (loss) on debt extinguishment" in the consolidated statements of operations.

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The Senior Secured Notes have a springing maturity covenant whereby their 2026 maturity is accelerated to be 91 days prior to the final maturity of the Senior Notes, or March 2024, unless the aggregate outstanding principal balance of the Senior Notes on that date is less than \$50 million.

The indenture governing the Senior Secured Notes contains various customary covenants that limit the ability of the Company and its restricted subsidiaries, as defined by the Senior Secured Notes, to take certain specified actions, subject to certain exceptions, including: creating liens, incurring indebtedness, making investments and acquisitions, engaging in mergers and other fundamental changes, making dispositions, making restricted payments, including dividends and distributions, and consummating transactions with affiliates. Additionally, the Senior Secured Notes contain customary affirmative covenants and customary events of default (subject, in certain cases, to customary grace or cure periods), including, without limitation, late payment, breach of covenant, bankruptcy, judgment and defaults under certain other indebtedness and changes in control. At December 31, 2022, the Company was in compliance with all covenants under the Senior Secured Notes.

5.50% Senior Notes due 2024

In May 2014, the Company issued \$550 million aggregate principal amount of 5.50 percent senior notes due 2024. The Senior Notes were issued and sold in a private placement to qualified institutional buyers pursuant to Rule 144A under the Securities Act and non-U.S. persons pursuant to Regulation S under the Securities Act.

During the second, third and fourth quarters of 2022, the Company repurchased a total \$47 million of the Senior Notes through open-market transactions and retired the notes for cash of \$47 million. A net gain on extinguishment of \$1 million for the repurchases was recorded to “gain (loss) on debt extinguishment” in the consolidated statements of operations.

During the year ended December 31, 2021, the Company repurchased \$127 million of the Senior Notes through open-market transactions and retired them for \$124 million in cash. A net gain on extinguishment of \$2 million for the repurchase was recorded to “gain (loss) on debt extinguishment” in the consolidated statements of operations.

The indenture governing the Senior Notes contains various customary covenants that limit the ability of the Company and its restricted subsidiaries, as defined by the Senior Notes, to take certain specified actions, subject to certain exceptions, including: creating liens; incurring indebtedness; making investments and acquisitions; engaging in mergers and other fundamental changes; making dispositions; making restricted payments, including dividends and distributions; and consummating transactions with affiliates. Additionally, the Senior Notes contain customary affirmative covenants and customary events of default (subject, in certain cases, to customary grace or cure periods), including, without limitation, late payment, breach of covenant, bankruptcy, judgment and defaults under certain other indebtedness and changes in control. At December 31, 2022, the Company was in compliance with all covenants under the Senior Notes.

CAD Term Loan

During the third and fourth quarters of 2022, the Company repaid CAD fixed interest rate term loans in the total amount of CAD \$24 million (USD \$18 million).

Short-term Factoring Facility-France

The Company’s subsidiary in France entered into a factoring agreement with BNP pursuant to which it submits the value of eligible receivables up to USD \$3 million and euro 24 million for immediate payment. Eligibility of receivables is based on invoices issued to the Company’s subsidiary from customers previously approved by BNP. Upon collection of these receivables, on average no longer than 60 days, amounts outstanding under this agreement are paid off. The Company pays interest on a monthly basis for these borrowings based on the value of factored invoices at the Euribor 3-month rate, with floor at zero percent, plus 0.55 percent. The weighted-average interest rate on total short-term borrowings associated with this agreement at December 31, 2022 was 0.90 percent.

Other Loans

The Company has fixed rate loans with various financial institutions primarily related to energy projects in France. The weighted average interest rate on the loans outstanding at December 31, 2022 and 2021 was 0.8 percent and 1.1 percent, respectively.

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10. Environmental Liabilities

The Company's environmental liabilities relate to sawmills, pulp, paper and wood treating plants which have ceased operations other than environmental investigation and remediation activities. The Company owns or has liability for approximately 20 sites that are subject to various federal, state or provincial statutes, including but not limited to RCRA, CERCLA and the Environmental Protection Act in the U.S., and similar laws in Canada and France, related to the investigation and remediation of environmentally-impacted sites.

The Company estimates its environmental liabilities based on its current interpretation of environmental laws and regulations when it is probable a liability has been incurred and the amount of such liability is estimable. The Company calculates estimates based on a number of factors, including the application and interpretation of current environmental laws, regulations and other requirements; reports and advice of internal and third-party environmental specialists; and management's knowledge and experience with these and similar types of environmental matters. These estimates include potential costs for investigation, assessment, remediation, ongoing operation and maintenance (where applicable), and post-remediation monitoring of the sites, as well as the cost of legally-required financial assurance relating to the Company's obligations on an undiscounted basis, generally for a period of 20 years. These environmental liabilities do not include potential third-party recoveries to which the Company may be entitled unless they are probable and estimable.

The following table presents the activity of the Company's environmental liabilities, including those of specific sites where current estimates exceed 10 percent of the total liabilities for disposed operations at December 31, 2022, 2021 or 2020:

	December 31, 2020 Liability	Payments	Increase (Decrease) to Liability ^(a)	December 31, 2021 Liability	Payments	Increase (Decrease) to Liability ^(a)	December 31, 2022 Liability
Port Angeles, Washington	\$ 54,004	\$ (1,563)	\$ 123	\$ 52,564	\$ (558)	\$ 648	\$ 52,654
Augusta, Georgia	21,095	(877)	902	21,120	(1,069)	1,051	21,102
Baldwin, Florida	16,422	(429)	369	16,362	(431)	256	16,187
East Point, Georgia	16,902	(887)	1,244	17,259	(889)	1,699	18,069
All other sites	63,256	(2,800)	3,461	63,917	(1,514)	266	62,669
Total	<u>171,679</u>	<u>\$ (6,556)</u>	<u>\$ 6,099</u>	<u>171,222</u>	<u>\$ (4,461)</u>	<u>\$ 3,920</u>	<u>170,681</u>
Current portion	<u>(8,684)</u>			<u>(11,303)</u>			<u>(10,732)</u>
Non-current portion	<u>\$ 162,995</u>			<u>\$ 159,919</u>			<u>\$ 159,949</u>

^(a) Included in the increase (decrease) to liability during the year ended December 31, 2022 was a \$1 million increase due to foreign currency fluctuations. The liability as of December 31, 2021 was not significantly impacted by foreign currency fluctuations.

Port Angeles, Washington

The Company operated a pulp mill at this site from 1930 until 1997. The site and the adjacent marine areas (a portion of Port Angeles harbor) have been in various stages of the assessment process under the MTCA since 2000, and several voluntary interim soil clean-up actions have been performed during this time. In addition, the Company may be liable under CERCLA for "natural resource damages" caused by releases from the site. As a result of an agreed order with Ecology, the remainder of the MTCA regulatory process will be completed on a set timetable, subject to approval of all reports and studies by Ecology. Upon completion of all work required under the agreed order and negotiation of an approved remedy, additional remedial measures for the site and off-site areas may be necessary and, as a result, current cost estimates and the corresponding liability could change. During 2022, the estimated liability was relatively unchanged as payments nearly equaled the increase in estimated costs related to the site's operation and maintenance. During 2021, the estimated liability decreased \$1 million due to spend in the year.

Augusta, Georgia

The Company operated a wood treatment plant at this site from 1928 to 1988. This site operates under a 10-year hazardous waste permit renewed and issued pursuant to RCRA in 2015. Ongoing remediation activities currently consist primarily of groundwater recovery and treatment. Current cost estimates and the corresponding liability could vary if recovery or discharge volumes change or if changes to current remediation activities are required in the future. During 2022 and 2021, the estimated liability was relatively unchanged as payments nearly equaled the increase in estimated costs related to the site's operation and maintenance.

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Baldwin, Florida

The Company operated a wood treatment plant at this site from 1954 to 1987. This site operates under a 10-year hazardous waste permit renewed and issued pursuant to RCRA in 2017. Ongoing remediation activities currently consist primarily of groundwater recovery and treatment. Additional remedial activities may be necessary in the future that may result in changes to current cost estimates and the corresponding liability. During 2022 and 2021, the estimated liability was relatively unchanged as payments nearly equaled the increase in estimated remediation costs.

East Point, Georgia

The Company operated a wood treatment plant at this site from 1920 to 1984. Current site activities are governed by a 2009 Consent Order that will conclude with a new 10-year RCRA permit, which will replace the current 1996 permit. Onsite remediation activities consist primarily of groundwater recovery and treatment. Current cost estimates and the corresponding liability could vary if changes to current remediation activities are required in the future. During 2022, the reserve increased \$1 million due to an increase in cost estimates related to the remediation activities. During 2021, the reserve was relatively unchanged as payments nearly equaled the increase in estimated costs.

In addition to these estimated liabilities, the Company is subject to the risk of reasonably possible additional liabilities in excess of the established liabilities due to potential changes in circumstances and future events, including, without limitation, changes to current laws and regulations; changes in governmental agency personnel, direction, philosophy or enforcement policies; developments in remediation technologies; increases in the cost of remediation, operation, maintenance and monitoring of its disposed operations sites and providing financial assurance relating thereto; changes in the volume, nature or extent of contamination to be remediated or monitoring to be undertaken; the outcome of negotiations with governmental agencies or non-governmental parties; and changes in accounting rules or interpretations. Based on information available as of December 31, 2022, the Company estimates this exposure could range up to approximately \$85 million, although no assurances can be given that this amount will not be exceeded given the factors described above. These potential additional costs are attributable to several of the above sites and other applicable liabilities. This estimate excludes liabilities which would otherwise be considered reasonably possible but for the fact that they are not currently estimable primarily due to the factors discussed above.

Subject to the previous paragraph, the Company believes its estimates of liabilities are sufficient for probable costs expected to be incurred over the next 20 years with respect to its disposed operations. However, no assurances are given that these estimates of liabilities will be sufficient for the reasons described above and additional liabilities could have a material adverse effect on the Company's financial position, results of operations and cash flows.

11. Derivative Instruments

The Company's earnings and cash flows are subject to fluctuations due to changes in interest rates and foreign currency exchange rates. The Company has used derivative financial instruments to manage interest rate and foreign currency exchange rate exposure. The Company does not use derivatives for trading or speculative purposes.

Derivative instruments are recognized on the consolidated balance sheets at their fair value and are either designated as a hedge of a forecasted transaction or are undesignated. Changes in the fair value of a derivative designated as a hedge are recorded in other comprehensive income (loss) until earnings are affected by the hedged transaction and are then reported in current earnings. Changes in the fair value of undesignated derivative instruments and the ineffective portion of designated derivative instruments are reported in current earnings.

In December 2020, the Company terminated all its outstanding derivative instruments, which had been previously designated as hedging instruments and had various maturity dates through 2028. Accumulated gains and losses associated with these instruments were deferred as a component of AOCI to be recognized in earnings as the underlying hedged transactions occur and affect earnings.

Foreign Currency Exchange Rate Risk

Foreign currency fluctuations affect investments in foreign subsidiaries and foreign currency cash flows related to third party purchases, product shipments and foreign-denominated debt. The Company is also exposed to the translation of foreign currency earnings to the USD. Management may use foreign currency forward contracts to selectively hedge its foreign currency cash flows exposure and manage risk associated with changes in currency exchange rates. The Company's principal foreign currency exposure is to the CAD, and to a lesser extent, the euro.

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The effect of derivative instruments designated as cash flow hedges, the related changes in AOCI and the gains and losses in income were as follows:

Derivatives Designated as Hedging Instruments	Gain (Loss) Recognized in OCI	Gain (Loss) Reclassified from AOCI into Income	Location on Statements of Operations	
			December 31, 2022	
Interest rate swaps	\$ —	\$ —	Interest expense	
Foreign currency contracts	—	—	Other operating expense, net	
Foreign currency contracts	—	—	Cost of sales	
Foreign currency contracts	—	—	Interest income and other income (expense), net	
December 31, 2021				
Interest rate swaps	\$ —	\$ —	Interest expense	
Foreign currency contracts	—	—	Other operating expense, net	
Foreign currency contracts	—	4,088	Cost of sales	
Foreign currency contracts	—	(397)	Interest income and other income (expense), net	
December 31, 2020				
Interest rate swaps	\$ (2,027)	\$ (2,666)	Interest expense	
Foreign currency contracts	(13,045)	702	Other operating expense, net	
Foreign currency contracts	6,481	(6,481)	Cost of sales	
Foreign currency contracts	(197)	(918)	Interest income and other income (expense), net	

The effects of derivative instruments not designated as hedging instruments on the statements of operations were as follows:

Derivatives Not Designated as Hedging Instruments	Statements of Operations Location	Year Ended December 31,		
		2022	2021	2020
Foreign exchange contracts	Other operating expense, net	\$ —	\$ —	\$ (703)

The unrealized gain (loss) in AOCI related to hedge derivatives is presented below:

	December 31,	
	2022	2021
Foreign exchange cash flow hedges, net of tax	\$ (567)	\$ (847)

12. Fair Value Measurements

Fair value is defined as the exchange price that would be received for an asset or paid to transfer a liability in the principal or most advantageous market for the asset or liability in an orderly transaction between market participants at the measurement date. A three-level hierarchy prioritizes the inputs used to measure fair value as follows:

Level 1 — Quoted prices in active markets for identical assets or liabilities.

Level 2 — Observable inputs other than quoted prices included in Level 1, such as quoted prices for similar assets and liabilities in active markets, quoted prices for identical or similar assets and liabilities in markets that are not active, or other inputs that are observable or can be corroborated by observable market data.

Level 3 — Unobservable inputs that are supported by little or no market activity and that are significant to the fair value of the assets or liabilities. This includes certain pricing models, discounted cash flows methodologies and similar techniques that use significant unobservable inputs.

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The following table presents the carrying amount, estimated fair values and categorization under the fair value hierarchy for financial instruments held by the Company, using market information and what management believes to be appropriate valuation methodologies:

	December 31, 2022			December 31, 2021		
	Carrying Amount	Fair Value		Carrying Amount	Fair Value	
		Level 1	Level 2		Level 1	Level 2
Assets:						
Cash and cash equivalents						
Cash	\$ 127,288	\$ 127,288	\$ —	\$ 231,607	\$ 231,607	\$ —
Money market and similar funds	24,515	24,515	—	21,700	21,700	—
Investment in GreenFirst equity securities	—	—	—	38,510	—	38,510
Liabilities:^(a)						
Fixed-rate long-term debt	\$ 847,591	\$ —	\$ 838,502	\$ 919,455	\$ —	\$ 964,308

^(a) Excludes finance lease obligations.

The Company uses the following methods and assumptions in estimating the fair value of its financial instruments:

Cash and cash equivalents — Cash and cash equivalents are all highly liquid investments purchased with an original or remaining maturity of three months or less at the date of purchase and the carrying amount is equal to fair market value. The Company had investments in money market and similar funds of \$25 million and \$22 million as of December 31, 2022 and 2021, respectively, measured using level 1 inputs.

Debt — The fair value of fixed rate debt is based upon quoted market prices for debt with similar terms and maturities. The variable rate debt adjusts with changes in the market rate, therefore the carrying value approximates fair value.

Investment in GreenFirst shares — The Company received 28.7 million shares of GreenFirst common stock in connection with the sale of the lumber and newsprint assets to GreenFirst, which the Company was required to hold for a minimum of six months following the close of the transaction. Accordingly, prior to February 28, 2022, the fair value of these shares reflected a DLOM given the restriction on sale by the Company. The primary inputs in the fair value estimate during the minimum holding period were expected term, dividend yield, volatility and risk-free rate. All inputs to the DLOM were observable. In May 2022, the Company sold the 28.7 million common shares for \$43 million.

The following are the key inputs at each measurement date:

(not in thousands)	December 31, 2021	At closing of transaction
Expected Term	0.16 years	0.5 years
Risk-free rate	0.10 %	0.20 %
Dividend yield	—	—
Volatility	73.77 %	92.04 %
DLOM	6.77 %	14.38 %

13. Stockholders' Equity

Common Stock Buyback

On January 29, 2018, the Board of Directors authorized a share buyback program pursuant to which the Company may, from time to time, purchase shares of its common stock with an aggregate purchase price of up to \$100 million. No shares were repurchased in connection with the program during the years ended December 31, 2022, 2021 and 2020. The Company does not expect to utilize any further authorization in the near future.

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Stockholder Rights Plan

In March 2022, the Company adopted the Rights Agreement whereby a significant penalty is imposed upon any person or group which acquires beneficial ownership of 10% or more of the Company's common stock without the approval of the Board of Directors. Also on this date, the Board of Directors declared a dividend of one preferred share Purchase Right for each outstanding share of common stock of the Company, par value \$0.01 per share Company common stock, which was paid to Company stockholders of record as of the close of business on March 31, 2022.

The Purchase Rights trade with, and are inseparable from, shares of the Company common stock. Each Purchase Right will allow its holder to purchase from the Company one one-hundredth of a share of Series A Junior Participating Preferred Stock for \$35.00, once the Purchase Rights become exercisable. This portion of a Preferred Share will give the stockholder approximately the same dividend, voting and liquidation rights as would one share of Company common stock. The Purchase Rights expire on March 20, 2023 and are exercisable 10 days after the public announcement or public disclosure that a person or group has acquired a beneficial ownership of 10% or more of the outstanding Company common stock (including certain derivative positions), subject to certain exceptions.

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14. Accumulated Other Comprehensive Income (Loss)

	Year Ended December 31,		
	2022	2021	2020
Unrecognized components of employee benefit plans, net of tax:			
Balance, beginning of year	\$ (76,849)	\$ (146,614)	\$ (126,638)
Other comprehensive gain (loss) before reclassifications	38,105	63,147	(37,515)
Income tax on other comprehensive gain (loss)	(9,229)	(13,365)	8,940
Reclassifications to earnings: ^(a)			
Pension settlement loss (gain) ^(b)	—	7,618	(2,548)
Amortization of losses	5,534	15,491	12,838
Amortization of prior service costs	25	550	564
Income tax on reclassifications	(1,280)	(6,649)	(2,255)
Plans included in sale of assets to GreenFirst	—	4,012	—
Income tax on plans included in sale of assets to GreenFirst	—	(1,039)	—
Net comprehensive gain (loss) on employee benefit plans, net of tax	33,155	69,765	(19,976)
Balance, end of year	(43,694)	(76,849)	(146,614)
Unrealized gain on derivative instruments, net of tax:			
Balance, beginning of year	(847)	1,834	1,290
Other comprehensive income before reclassifications	—	—	(8,788)
Income tax on other comprehensive income	—	—	2,171
Reclassifications to earnings: ^(c)			
Interest rate contracts	—	—	2,666
Foreign exchange contracts	323	(3,691)	6,697
Income tax on reclassifications	(43)	1,010	(2,202)
Net comprehensive gain (loss) on derivative instruments, net of tax	280	(2,681)	544
Balance, end of year ^(c)	(567)	(847)	1,834
Foreign currency translation:			
Balance, beginning of year	(6,774)	11,145	(13,879)
Foreign currency translation, net of tax effects of \$0, \$0, and \$0 ^(d)	(12,763)	(17,919)	25,024
Balance, end of year	(19,537)	(6,774)	11,145
Accumulated other comprehensive loss, end of year	\$ (63,798)	\$ (84,470)	\$ (133,635)

^(a) The AOCI components for defined benefit pension and post-retirement plans are included in the computation of net periodic pension cost. See Note 17 — *Employee Benefit Plans* for further information.

^(b) During 2021, the Company purchased annuity contracts from a third-party insurance company who assumed responsibility for future pension benefits for certain participants in its U.S. defined benefit plan and recorded a loss of \$6 million on the settlement and de-recognition of the projected benefit obligation. Additionally, the Company continued the process of winding up certain Canadian pension plans and as a result recorded a settlement loss of \$2 million. During 2020, the Company finalized the wind up process of certain Canadian pension plans and as a result recorded a settlement gain of \$3 million. See Note 17 — *Employee Benefit Plans* for further information.

^(c) Reclassifications of interest rate contracts are recorded in interest expense. Reclassifications of foreign currency exchange contracts are recorded in “cost of sales,” “other operating income” or non-operating income as appropriate. Additional details about the reclassifications related to derivative instruments is included in Note 11 — *Derivative Instruments* for further information.

^(d) Foreign currency translation is net of tax effects of zero for all periods presented as the French operations are taxed on the foreign functional currency, not the translated Company’s reporting currency.

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15. Earnings per Common Share

Basic earnings per share is calculated by dividing net income available for common stockholders by the weighted-average number of shares of common stock outstanding during the year. Diluted earnings per share is calculated by dividing net income by the weighted-average number of shares of common stock outstanding adjusted to include the potentially dilutive effect of outstanding stock options, performance shares, restricted shares and Preferred Stock.

The following table provides details of the calculations of basic and diluted earnings per common share (share and per share amounts not in thousands):

	Year Ended December 31,		
	2022	2021	2020
Loss from continuing operations attributable to common stockholders	\$ (27,377)	\$ (49,769)	\$ (38,069)
Income from discontinued operations	12,458	116,183	38,624
Net income (loss) available for common stockholders	<u>\$ (14,919)</u>	<u>\$ 66,414</u>	<u>\$ 555</u>
Shares used in determining basic earnings per common share	63,910,010	63,645,245	63,241,197
Dilutive effect of:			
Stock options	—	—	—
Performance and restricted shares	—	—	—
Shares used in determining diluted earnings per common share	<u>63,910,010</u>	<u>63,645,245</u>	<u>63,241,197</u>
Basic earnings per common share			
Loss from continuing operations	\$ (0.42)	\$ (0.78)	\$ (0.60)
Income from discontinued operations	0.19	1.83	0.61
Net income (loss)	<u>\$ (0.23)</u>	<u>\$ 1.05</u>	<u>\$ 0.01</u>
Diluted earnings per common share			
Loss from continuing operations	\$ (0.42)	\$ (0.78)	\$ (0.60)
Income from discontinued operations	0.19	1.83	0.61
Net income (loss)	<u>\$ (0.23)</u>	<u>\$ 1.05</u>	<u>\$ 0.01</u>

Anti-dilutive instruments excluded from the computation of diluted earnings per share were as follows:

	Year Ended December 31,		
	2022	2021	2020
Stock options	77,767	111,124	152,281
Performance and restricted shares	3,654,506	2,387,272	2,650,357
Total	<u>3,732,273</u>	<u>2,498,396</u>	<u>2,802,638</u>

16. Incentive Stock Plans

As of December 31, 2022, the Company had three stock-based incentive plans. The Prior Plans provided for the grant of incentive stock options, non-qualified stock options, stock appreciation rights, performance shares, restricted stock, and restricted stock units, subject to certain limitations. The Company no longer issues shares under the Prior Plans. The 2021 Plan provides for up to 4.5 million shares to be granted for stock options, non-qualified stock options, stock appreciation rights, performance shares, restricted stock, and restricted stock units. Under the 2021 Plan, shares available for issuance may be increased by any shares of common stock subject to awards under the Prior Plan that, in whole or in part, are forfeited, terminated or expire unexercised, settled in cash in lieu of stock, or released from a reserve for failure to meet the maximum payout under a program. At December 31, 2022, approximately 2.0 million shares were available for future grants under the 2021 Plan.

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During the year ended December 31, 2022, the Company made new grants of restricted stock units and performance-based stock units to certain employees. The 2022 restricted stock unit awards cliff vest after three years. The 2022 performance-based stock unit awards measure TSR on an absolute basis and relative to peers. Participants can earn between 0 and 250 percent of the target award. Performance below the threshold for the absolute TSR would result in a zero payout for the TSR metric. There is a performance-based stock award and cash unit stock award that will be measured using the same objectives but paid and accounted for separately. As required by ASC 718, *Compensation-Stock Compensation*, the portion of the award to be settled in cash is classified as a liability and remeasured to fair value at the end of each reporting period until settlement.

In March 2022, the performance-based share units granted in 2019 vested without meeting the performance thresholds, resulting in no stock units being awarded.

In March 2021, the performance-based share units granted in 2018 were settled at an average of 60 percent of the performance-based stock units awarded, resulting in the issuance of 182,811 shares of common stock.

The Company recognizes stock-based compensation expense on a straight-line basis, net of forfeitures, over the service period of the award. The Company does not estimate a forfeiture rate for non-vested shares. Forfeitures are recognized and will lower stock-based compensation during the period in which they occur. The Company's total stock-based compensation cost, including allocated amounts, for the years ended December 31, 2022, 2021 and 2020 was \$10 million, \$5 million and \$6 million, respectively. These amounts may not reflect the cost of current or future equity awards.

The Company's employee stock option compensation program generally provides accelerated vesting (i.e., a waiver of the remaining period of service required to earn an award) for awards held by employees at the time of their retirement. Stock-based compensation expense for stock option awards is recognized over the shorter of: (1) the service period (i.e., the stated period of time required to earn the award) or (2) the period beginning at the start of the service period and ending when an employee first becomes eligible for retirement.

Fair Value Calculations by Award

All restricted stock and performance share awards are presented for RYAM stock only. Option awards include RYAM awards held by employees of its former parent Rayonier Inc.

Non-Qualified Employee Stock Option Awards

Stock options are granted with an exercise price equal to the market value of the underlying stock on the grant date. They generally vest ratably over three years and have a maximum term of 10 years and two days from the grant date.

The fair value of each option grant is estimated on the grant date using the Black-Scholes option-pricing model. The Company has elected to value each grant in total and recognize the expense for stock options on a straight-line basis over three years. No options were granted during the years ended December 31, 2022, 2021 and 2020.

A summary of the Company's stock option activity is presented below:

(not in thousands)	Stock Options	Weighted Average Exercise Price	Weighted Average Remaining Contractual Term (in years)	Aggregate Intrinsic Value
Outstanding at January 1, 2022	111,124	\$ 39.47		
Forfeited	—	—		
Exercised	—	—		
Expired	(33,357)	38.29		
Outstanding at December 31, 2022	77,767	\$ 39.98	0.6	\$ —
Options vested and expected to vest	77,767	\$ 39.98	0.6	\$ —
Options exercisable at December 31, 2022	77,767	\$ 39.98	0.6	\$ —

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Additional information pertaining to stock options granted to employees is presented below:

	Year Ended December 31,		
	2022	2021	2020
Intrinsic value of options exercised	\$ —	\$ —	\$ —
Fair value of options vested	—	—	—

Restricted Stock and Stock Unit Awards

Restricted stock and stock units granted in connection with the Company's performance share plan generally vest upon completion of periods ranging from one year to three years. The fair value of each share granted is equal to the share price of the underlying stock on the date of grant. As of December 31, 2022, there was \$5 million of unrecognized compensation cost related to the Company's outstanding restricted stock. This cost is expected to be recognized over a weighted average period of 1.7 years.

The following table summarizes the activity of restricted stock and stock units granted to employees:

	Year Ended December 31,		
	2022	2021	2020
Restricted stock and stock units granted (not in thousands)	1,328,931	561,025	426,469
Weighted average price of restricted stock or units granted (not in thousands)	\$ 5.50	\$ 9.71	\$ 3.73
Intrinsic value of restricted stock and units outstanding	\$ 16,297	\$ 5,296	\$ 5,405
Fair value of restricted stock and units vested	\$ 3,772	\$ 4,412	\$ 4,420

The Company's restricted stock and stock units activity is summarized below:

(not in thousands)	Restricted Stock and Stock Unit Awards	Weighted Average Grant Date Fair Value
Outstanding at January 1, 2022	927,556	\$ 8.72
Granted	1,328,931	5.50
Forfeited	(186,128)	5.81
Vested	(372,772)	10.12
Outstanding at December 31, 2022	<u>1,697,587</u>	<u>\$ 6.21</u>

Performance-Based Stock Unit Awards

The Company's performance-based stock unit awards generally vest upon completion of a three-year period. The performance-based stock unit award payout is calculated using a combination of Company specific performance metrics and TSR, which is measured on an absolute basis as well as relative to a peer group of companies. Depending on performance against these targets, the awards will pay out in common stock amounts between 0 and 250 percent of the performance-based stock units awarded.

The performance-based stock unit awards which are measured against a market condition or incorporate market conditions are valued using a Monte Carlo simulation model. The model generates the fair value of the market-based award or market-based portion of the award at the grant date. The related expense is then amortized over the award's vesting period.

As of December 31, 2022, there was \$4 million of unrecognized compensation cost related to the Company's performance-based stock unit awards. This cost is expected to be recognized over a weighted average period of 1.6 years.

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The following table summarizes the activity of the Company's performance-based stock units awarded to its employees:

	Year Ended December 31,		
	2022	2021	2020
Common shares of stock reserved for performance-based stock units (not in thousands)	2,861,963	534,172	980,641
Weighted average fair value of performance-based stock units granted (not in thousands)	\$ 6.21	\$ 12.29	\$ 14.98
Intrinsic value of outstanding performance-based stock units	\$ 18,786	\$ 8,335	\$ 4,572

The Company's performance-based stock unit award activity is summarized below:

(not in thousands)	Performance-Based Stock Unit Awards	Weighted Average Grant Date Fair Value
Outstanding at January 1, 2022	1,459,716	\$ 6.51
Granted	1,144,785	6.21
Forfeited	(647,582)	10.37
Vested	—	—
Outstanding at December 31, 2022	<u>1,956,919</u>	<u>\$ 6.79</u>

The expected volatility is based on representative price returns using the stock price of several peer companies. The risk-free rate was based on the 3-year U.S. treasury rate on the date of the award. The following chart provides a tabular overview of the weighted average assumptions used in calculating the fair value of the awards granted:

	Year Ended December 31,		
	2022	2021	2020
Expected volatility	75.0 %	93.0 %	67.8 %
Risk-free rate	4.3 %	0.3 %	0.9 %

17. Employee Benefit Plans

Defined Benefit Plans

The Company has defined benefit pension and other postretirement plans covering certain union and non-union employees, primarily in the U.S. and Canada. The defined benefit pension plans are closed to new participants. Certain Canadian plans were included with the sale of the Company's lumber and newsprint assets.

In the fourth quarter of 2022, the Company adopted a full freeze on future benefits for salaried participants in the U.S. defined benefit plans. The impact of the curtailment reduced the benefit obligation and the accumulated net loss within other comprehensive income by \$8 million. In 2021, the Company purchased annuity contracts from a third-party insurance company that assumed responsibility for future pension benefits for certain participants in its U.S. defined benefit plan and recorded a loss of \$6 million on the settlement and de-recognition of the projected benefit obligation. Additionally, the Company continued the process of winding up certain Canadian pension plans and as a result recorded a settlement loss of \$2 million. During 2020, the Company started the process of winding up certain Canadian pension plans and as a result recorded a settlement gain of \$3 million. During 2022, the Company recorded a \$1 million loss related to the asset surplus distribution to the plans' participants. The settlements were recognized in "other components of pension and OPEB, excluding service costs" in the Company's consolidated statements of operations for the year ended December 31, 2022, 2021 and 2020.

Defined benefit pension and other postretirement plan liabilities are calculated using actuarial estimates and management assumptions. These estimates are based on historical information, along with certain assumptions about future events. Changes in assumptions, as well as changes in actual experience, could cause the estimates to change.

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The following tables present the changes in the projected benefit obligation and plan assets and reconciles funded status and the amounts recognized in the consolidated balance sheets of the defined benefit pension and postretirement plans:

	Pension		Postretirement	
	2022	2021	2022	2021
Projected benefit obligation at beginning of year	\$ 784,426	\$ 919,385	\$ 36,525	\$ 34,417
Service cost	7,906	10,322	1,516	1,437
Interest cost	21,028	17,331	818	650
Actuarial loss (gain)	(157,828)	(32,221)	(7,617)	1,220
Participant contributions	723	818	133	113
Benefits paid	(40,220)	(43,454)	(1,334)	(1,808)
Settlement	—	(88,689)	—	—
Curtailment	(8,000)	—	—	—
Effects of foreign currency exchange rates	(13,580)	934	(97)	496
Projected benefit obligation at end of year	\$ 594,455	\$ 784,426	\$ 29,944	\$ 36,525
Fair value of plan assets at beginning of year	\$ 658,177	\$ 715,267	\$ —	\$ —
Actual return on plan assets	(101,914)	66,593	—	—
Employer contributions ^(a)	3,811	6,857	1,201	1,695
Participant contributions	723	818	133	113
Benefits paid	(40,152)	(43,454)	(1,334)	(1,808)
Settlement	(964)	(88,445)	—	—
Effects of foreign currency exchange rates	(12,411)	541	—	—
Fair value of plan assets at end of year	\$ 507,270	\$ 658,177	\$ —	\$ —
Funded Status at end of year	\$ (87,185)	\$ (126,247)	\$ (29,944)	\$ (36,525)

^(a) In 2022, the Company received cash of \$3 million related to surplus assets of unwound pension plans.

The projected benefit obligation decreased during the year ended December 31, 2022 due to the settlements of certain Canadian and U.S. pension plans, actuarial gains resulting from an increase in the discount rate assumed and foreign currency exchange rates.

	Pension		Postretirement	
	2022	2021	2022	2021
Non-current assets	\$ 8,742	\$ 13,376	\$ —	\$ —
Current liabilities	(4,513)	(4,013)	(1,787)	(1,817)
Non-current liabilities	(91,414)	(135,610)	(28,157)	(34,708)
Net amount recognized	\$ (87,185)	\$ (126,247)	\$ (29,944)	\$ (36,525)

Net gain (loss) recognized in other comprehensive income for the three years ended December 31 was as follows:

	Pension			Postretirement		
	2022	2021	2020	2022	2021	2020
Net gain (loss)	\$ 30,531	\$ 64,173	\$ (38,178)	\$ 7,574	\$ (1,025)	\$ 663

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Net gains or losses and prior service costs or credits reclassified from other comprehensive income and recognized as a component of pension and postretirement expense for the three years ended December 31 were as follows:

	Pension			Postretirement		
	2022	2021	2020	2022	2021	2020
Continuing operations:						
Pension settlement (gain) loss ^(a)	\$ —	\$ 7,618	\$ (1,571)	\$ —	\$ —	\$ —
Amortization of losses	5,462	15,471	13,084	72	20	(188)
Amortization of prior service cost (credit)	147	703	717	(122)	(153)	(153)
Discontinued operations:						
Pension settlement (gain) loss ^(a)	\$ —	\$ —	\$ (977)	\$ —	\$ —	\$ —
Amortization of losses	—	—	(58)	—	—	—
Amortization of prior service cost (credit)	—	—	—	—	—	—

^(a) The year ended December 31, 2020 included settlement gains for Canadian plans in the process of winding-up. During 2021, the Company completed the wind-up of certain Canadian pension plans and began the process of winding up additional Canadian plans, recognizing a loss. In 2021, the Company purchased annuity contracts from a third-party insurance company that assumed responsibility for future pension benefits for certain participants in the Company's U.S. defined benefit plans and recognized a loss on the settlement and de-recognition of the projected benefit obligation.

Net losses, prior service costs or credits and plan amendments that have not yet been included in pension and postretirement expense and have been recognized as a component of AOCI for the three years ended December 31 were as follows:

	Pension			Postretirement		
	2022	2021	2020	2022	2021	2020
Prior service cost (credit)	\$ (1,204)	\$ (1,455)	\$ (2,116)	\$ 757	\$ 879	\$ 1,032
Net gains (losses)	(67,770)	(95,470)	(187,533)	3,920	(3,547)	(1,820)
Curtailement	8,000	—	—	—	—	—
Deferred income tax benefit (expense)	13,750	22,243	43,731	(1,147)	501	90
Accumulated other comprehensive income (loss)	<u>\$ (47,224)</u>	<u>\$ (74,682)</u>	<u>\$ (145,918)</u>	<u>\$ 3,530</u>	<u>\$ (2,167)</u>	<u>\$ (698)</u>

For defined benefit pension plans, the following table presents the projected and accumulated benefit obligations and the fair value of plan assets:

	December 31,	
	2022	2021
Projected benefit obligation	\$ 594,455	\$ 784,426
Accumulated benefit obligation	585,404	754,727
Fair value of plan assets	507,270	658,177

For pension plans with a projected benefit obligation exceeding plan assets, the projected benefit obligation and fair value of plan assets were \$566 million and \$467 million, respectively, at December 31, 2022, and \$745 million and \$605 million, respectively, at December 31, 2021.

For pension plans with an accumulated benefit obligation exceeding plan assets, the accumulated benefit obligation and fair value of plan assets were \$557 million and \$467 million, respectively, at December 31, 2022 and \$717 million and \$605 million, respectively, at December 31, 2021.

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The following tables present the components of net pension and postretirement benefit cost that have been recognized in continuing operations for the three years ended December 31:

	Pension			Postretirement		
	2022	2021	2020	2022	2021	2020
Service cost	\$ 7,906	\$ 10,322	\$ 8,985	\$ 1,516	\$ 1,437	\$ 1,234
Interest cost	21,028	17,331	23,573	818	650	855
Expected return on plan assets	(32,419)	(37,255)	(36,786)	—	—	—
Amortization of prior service (credit) cost	147	703	717	(122)	(153)	(153)
Amortization of losses	5,553	15,471	13,084	72	20	(188)
Pension settlement (gain) loss	964	7,618	(1,571)	—	—	—
Other	—	—	—	(173)	(49)	(2,091)
Net periodic benefit cost ^(a)	\$ 3,179	\$ 14,190	\$ 8,002	\$ 2,111	\$ 1,905	\$ (343)

^(a) Service cost is included in “cost of sales” or “selling, general and administrative expenses” in the consolidated statements of operations, as appropriate. Interest cost, expected return on plan assets, amortization of prior service cost, amortization of losses and amortization of negative plan amendment are included in non-operating income on the consolidated statements of operations.

The Company uses the spot rate approach method to determine the service and interest cost components of net periodic benefit cost. Under this method, individual spot rates along the yield curve that correspond with the timing of each benefit payment will be used. The Company believes this provides a more precise measurement of service and interest costs by improving the correlation between projected cash outflows and corresponding spot rates on the yield curve.

The following table presents the weighted average principal assumptions inherent in the determination of benefit obligations and net periodic benefit cost of the pension and postretirement benefit plans:

	Pension			Postretirement		
	2022	2021	2020	2022	2021	2020
Assumptions used to determine benefit obligations at December 31:						
Discount rate	4.95 %	2.82 %	2.48 %	4.93 %	2.77 %	2.50 %
Rate of compensation increase	2.66 %	2.65 %	2.70 %	3.53 %	3.90 %	4.12 %
Assumptions used to determine net periodic benefit cost for years ended December 31:						
Discount rate	4.21 %	2.57 %	3.16 %	4.94 %	2.42 %	3.16 %
Expected long-term return on plan assets	5.88 %	5.93 %	6.24 %	N/A	N/A	N/A
Rate of compensation increase	2.66 %	2.65 %	2.70 %	3.53 %	3.90 %	4.12 %

The estimated return on plan assets is based on historical and expected long-term rates of return on broad equity and bond indices and consideration of the actual annualized rate of return. The Company, with the assistance of external consultants, utilizes this information in developing assumptions for returns, risks and correlation of asset classes, which are then used to establish the asset allocation ranges.

Assumed health care cost trends have a significant effect on the amounts reported for the postretirement benefit plans. The following table sets forth the assumed health care cost trend rates as of period end:

	Postretirement			
	2022		2021	
	U.S.	Canada	U.S.	Canada
Health care cost trend rate assumed for next year	6.60 %	6.00 %	7.40 %	6.00 %
Rate to which cost trend is assumed to decline (ultimate trend rate)	3.70 %	5.00 %	3.70 %	4.50 %
Year that ultimate trend rate is reached	2074	2037	2074	2023-2025

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Investment of Plan Assets

The Company's Pension and Savings Plan Committee and the Audit Committee of the Board of Directors oversee the defined benefit pension plans' investment program. The investment approach of each defined benefit pension plan is designed to maximize returns and provide sufficient liquidity to meet each plans obligations while maintaining acceptable risk levels. For certain defined benefit plans, investment target allocation percentages for equity securities can range up to 65 percent. In other more well-funded plans, 100 percent is allocated to fixed income securities. All plans were within their respective targeted ranges. The Company's weighted average defined benefit pension plan asset allocation at December 31, 2022 and 2021, by asset category were as follows:

	Percentage of Plan Assets	
	2022	2021
U.S. equity securities	21 %	26 %
International equity securities	24 %	24 %
U.S. fixed income securities	26 %	27 %
International fixed income securities	18 %	17 %
Other ^(a)	11 %	6 %
Total	100 %	100 %

^(a) Includes cash balances related to the timing of portfolio management activities.

Investments within the equity categories may include large capitalization, small capitalization and emerging market securities, while the international fixed income portfolio may include emerging markets debt. Pension assets did not include a direct investment in RYAM common stock at December 31, 2022 or 2021.

Fair Value Measurements

The following tables present, by level within the fair value hierarchy (see Note 12 — *Fair Value Measurements*), the assets of the plans:

	December 31, 2022			
	Level 1	Level 2	Level 3	Total
Mutual funds and Collective trusts	\$ 126,188	\$ —	\$ —	\$ 126,188
Corporate bonds	—	65,326	—	65,326
U.S. government securities	—	36,162	—	36,162
Investments at net asset value:				
Common collective trust funds				279,594
Total assets at fair value				\$ 507,270

	December 31, 2021			
	Level 1	Level 2	Level 3	Total
Mutual funds and Collective trusts	\$ 186,584	\$ —	\$ —	\$ 186,584
Corporate bonds	—	49,938	—	49,938
U.S. government securities	—	54,823	—	54,823
Investments at net asset value:				
Common collective trust funds				366,832
Total assets at fair value				\$ 658,177

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The valuation methodology used for measuring the fair value of these asset categories was as follows:

Mutual funds and Collective trusts — Net asset value in an observable market.

Corporate bonds — Valued using pricing models maximizing the use of observable inputs for similar securities. This includes basing value on yields currently available on comparable securities of issuers with similar credit ratings.

U.S. government securities — Valued using pricing models maximizing the use of observable inputs for similar securities.

Common collective trust funds — Common collective trusts are measured at NAV per share, as a practical expedient for fair value, as provided by the Plan trustee. The NAV is calculated by determining the fair value of the fund's underlying assets, deducting its liabilities, and dividing by the units outstanding as of the valuation date. These funds are not publicly traded; however, in the majority of cases the unit price calculation is based on observable market inputs of the funds' underlying assets.

There were no changes in the methodology used during the years ended December 31, 2022 and 2021.

Cash Flows

Expected benefit payments for the next ten years were as follows:

	Pension Benefits	Postretirement Benefits
2023	\$ 38,492	\$ 1,569
2024	38,995	1,576
2025	39,520	1,705
2026	40,057	1,914
2027	40,510	1,988
2028 — 2032	202,794	10,616

The Company has mandatory pension contribution requirements of \$3 million in 2023 and may make additional discretionary contributions.

Defined Contribution Plans

The Company provides defined contribution plans to all of its hourly and salaried employees. The Company's contributions charged to expense for these plans were \$7 million, \$8 million and \$7 million for the years ended December 31, 2022, 2021 and 2020, respectively.

18. Other Operating Expense, Net

Other operating expense, net was comprised of the following:

	Year Ended December 31,		
	2022	2021	2020
Environmental liability expense ^(a)	\$ (4,903)	\$ (6,709)	\$ (5,954)
Loss on sale or disposal of property, plant and equipment	(3,742)	(1,010)	(481)
Equity income (loss) from joint venture	(2,737)	(2,048)	(3,706)
Miscellaneous income (expense)	1,183	(486)	(34)
Other operating expense, net	<u>\$ (10,199)</u>	<u>\$ (10,253)</u>	<u>\$ (10,175)</u>

^(a) Reflects adjustments to the Company's estimates of the environmental liability for the assessment, remediation and long-term monitoring and maintenance of the disposed operations sites over the next 20 years and other related costs. See Note 10 — *Environmental Liabilities* for further information.

Rayonier Advanced Materials Inc.
Notes to Consolidated Financial Statements
(in thousands unless otherwise stated)

19. Income Taxes

Income Tax (Expense) Benefit from Continuing Operations

Income tax (expense) benefit from continuing operations consisted of the following:

	Year Ended December 31,		
	2022	2021	2020
Current tax (expense) benefit:			
Federal	\$ 2,815	\$ 2,676	\$ 49,940
Foreign	(7,511)	(4,924)	302
State and other	(154)	(158)	(332)
Total current	(4,850)	(2,406)	49,910
Deferred tax (expense) benefit:			
Federal	6,635	(5,241)	3,390
Foreign	(2,842)	41,962	6,868
State and other	155	373	722
Total deferred	3,948	37,094	10,980
Income tax (expense) benefit	<u>\$ (902)</u>	<u>\$ 34,688</u>	<u>\$ 60,890</u>

Rayonier Advanced Materials Inc.
Notes to Consolidated Financial Statements
(in thousands unless otherwise stated)

The following table reconciles the effective income tax rate on continuing operations to the U.S. federal statutory rate:

	Year Ended December 31,		
	2022	2021	2020
U.S. federal statutory income tax rate	21.0 %	21.0 %	21.0 %
CARES Act and other tax regulations ^(a)	—	(0.8)	20.2
Change in valuation allowance ^(b)	(38.2)	(3.6)	13.9
Adjustment to previously filed tax returns	11.3	5.2	6.4
Tax credits (excluding foreign tax credit)	17.8	2.1	2.5
Nondeductible compensation for executives and share-based awards	(10.5)	(3.0)	(2.1)
Net changes in uncertain tax positions	(5.6)	(2.2)	(1.7)
Difference in foreign statutory rates	(8.2)	1.0	1.8
U.S. tax on foreign earnings (GILTI and Subpart F, net of FTC)	(0.9)	(2.2)	—
Change in blended statutory rate ^(c)	—	23.2	0.2
Interest on tax payments/receipts	10.1	—	—
Other	(0.6)	1.2	(0.2)
Effective income tax rate on continuing operations	(3.8)%	41.9 %	62.0 %

^(a) As part of the CARES Act, the Company is able to carry 2019 and 2020 tax NOLs back to tax years when the U.S. federal statutory rate was 35 percent compared with the current 21 percent. The Company recognized a \$20 million tax benefit arising from the remeasured increased value of the tax NOLs in 2019 and 2020.

^(b) The tax benefit for the year ended December 31, 2020 includes an adjustment to reverse a valuation allowance, which was initially recorded for the year ended December 31, 2019, on a DTA generated from a disallowed interest deduction. Under the Internal Revenue Code Section 163(j), U.S. interest is only deductible up to 30 percent of ATI. The disallowed interest deduction can be carried forward indefinitely but will only be realized to the extent the Company has net U.S. interest expense below 30 percent of ATI in any given year after first utilizing its current year interest expense. Based on its projected interest expense and ATI, the Company does not believe it will be able to realize any of the existing suspended interest deductions and, as a result, recorded a full valuation allowance on these DTAs as of December 31, 2019. However, in December of 2019 the AICPA issued TQA 3300.01-02, which asserts that a valuation allowance should only be recognized to the extent that the reversal of existing deferred tax assets and liabilities is not sufficient to realize the disallowed interest carryforward, ignoring material evidence, including the expectation of future earnings or losses and future interest expense. In strict compliance with this TQA, in 2020, the Company reversed all of the valuation allowance on the DTAs generated from disallowed interest through December 31, 2020, resulting in a \$14 million increase in the tax benefit, of which \$9 million related to recognition of DTAs recorded on December 31, 2019. The continued application of this AICPA guidance is expected to result in future recognition of additional DTAs that the Company believes will not be realized.

^(c) In 2021, the Company recorded a tax benefit on the remeasurement of the Company's Canadian DTAs at a higher Canadian blended statutory tax rate. The Canadian statutory rate is higher as a result of changing the allocation of income between the Canadian provinces after the sale of the lumber and newsprint assets. Less significantly, France enacted scheduled decreases to the federal statutory tax rate between 2019 and 2022. The annual impact of remeasuring the French deferred tax liabilities to the scheduled statutory tax rates is also included here.

Rayonier Advanced Materials Inc.
Notes to Consolidated Financial Statements
(in thousands unless otherwise stated)

Deferred Taxes

Deferred income taxes result from recording revenues and expenses in different periods for financial reporting versus tax reporting. The nature of these temporary differences and the resulting net deferred tax balances follow:

	December 31,	
	2022	2021
Deferred tax assets:		
Canadian net operating losses ^(a)	\$ 117,939	\$ 115,436
Canadian pool of SR&ED ^(a)	95,483	94,705
Property, plant and equipment basis differences	110,092	103,877
Tax credit carryforwards ^(a)	72,238	72,881
Pension, postretirement and other employee benefits	26,533	37,753
Environmental liabilities	38,069	41,218
Deferred interest deductions ^(a)	25,731	11,388
Other compensation	5,206	4,330
State net operating losses ^(a)	3,431	4,987
Capitalized costs	9,677	2,259
Other deferred tax assets	21,047	22,641
Total gross deferred tax assets	525,446	511,475
Valuation allowance ^(a)	(71,353)	(67,644)
Total deferred tax assets, net of valuation allowance ^(b)	454,093	443,831
Deferred tax liabilities:		
Property, plant and equipment basis differences	(118,072)	(105,152)
Intangible assets	(7,069)	(9,245)
Prepaid expenses	(15,847)	(7,059)
Other deferred tax liabilities	(7,962)	(7,741)
Total deferred tax liabilities	(148,950)	(129,197)
Net deferred tax asset	\$ 305,143	\$ 314,634
Net deferred tax asset as reflected in consolidated balance sheets:		
Deferred tax assets	\$ 322,164	\$ 335,119
Deferred tax liabilities	(17,021)	(20,485)
	\$ 305,143	\$ 314,634

^(a) Further detail of these items as of December 31, 2022 follows:

	Gross Amount	Tax Effected	Valuation Allowance	Expiration
Foreign R&D credit carryforwards	\$ 39,523	\$ 39,523	\$ (39,523)	2023-2041
U.S. tax credit carryforwards	32,715	32,715	(21,442)	2023-2032
State net operating losses	72,179	3,431	(1,798)	2023-2042
Canada non-capital losses	505,287	109,585	—	2025-2037
Canadian pool of SR&ED	414,293	95,483	—	None
Interest limitation carryforward	116,960	25,731	(8,590)	None
U.S. federal net operating losses	39,783	8,354	—	None

Rayonier Advanced Materials Inc.
Notes to Consolidated Financial Statements
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The Company's net DTAs include \$17 million of disallowed U.S. interest deductions that the Company does not believe will be realized. This asset increased \$6 million as a result of a tax benefit recognized in the year ended December 31, 2022. In strict compliance with the AICPA's TQA 3300.01-02, which asserts that certain material evidence regarding the realizability of disallowed U.S. interest deductions should be ignored when assessing the need for a valuation allowance, the Company has not recognized a valuation allowance on this portion of the DTAs generated from disallowed interest.

Unrecognized Tax Benefits

The Company recognizes the impact of a tax position if it is more likely than not to prevail, based on technical merit, in the case of an audit. As of December 31, 2022, there were several positions resulting in unrecognized tax benefits that, if recognized, would affect income tax expense. A reconciliation of beginning and ending unrecognized tax benefits balances follows:

	Year Ended December 31,		
	2022	2021	2020
Balance at beginning of period	\$ 12,073	\$ 11,438	\$ 10,555
Decreases related to prior year tax positions	(255)	(1,330)	(2,251)
Increases related to prior year tax positions	440	1,019	3,009
Decreases related to current year tax positions	(2,386)	—	—
Increases related to current year tax positions	1,143	946	125
Balance at end of period	<u>\$ 11,015</u>	<u>\$ 12,073</u>	<u>\$ 11,438</u>

For the year ended December 31, 2022, \$13 million of the Company's unrecognized tax benefits would impact the effective tax rate if recognized. There is a \$2 million reduction in unrecognized tax benefits that would impact only the timing of tax deductions and would not impact the tax rate. For the years ended December 31, 2021 and 2020, all unrecognized tax benefits would impact the effective tax rate if recognized. Total interest and penalties recorded in unrecognized tax benefits were \$1 million for each of the years presented.

As of December 31, 2022, it is reasonably possible that the Company's unrecognized tax position will change within a range of a decrease of \$3 million and an increase of \$5 million due to pending tax legislation, new tax regulations, conclusions of tax audits or the expiration of statute of limitations.

Tax Statutes

In the normal course of business, the Company is regularly audited by tax authorities and is currently under audit in the U.S. and Canada. The following table provides the tax years that remain open to examination by significant taxing jurisdictions:

	Open Tax Years
U.S.	2015-2022
France	2019-2022
Canada	2018-2022

Other Tax Items

In 2022, the Company received net cash refunds of \$15 million, including interest of \$2 million.

Several provisions passed in 2017 as part of the Tax Cuts and Jobs Act went into effect in 2022. Certain of these provisions will negatively impact the Company's U.S. cash taxes in future years. The most impactful of these provisions is the further limitation of U.S. interest deductibility under Internal Revenue Code §163(j). Under this section, Companies may only deduct U.S. interest expenses up to a portion of ATI. Beginning in 2022, ATI was reduced from a tax EBITDA measurement to tax EBIT, which resulted in a significant decrease in U.S. interest deductibility. Additional provisions that impact the Company's U.S. taxes include the requirement to capitalize and amortize research expenditures and the phase-out of immediate expensing of U.S. capital asset additions.

Rayonier Advanced Materials Inc.
Notes to Consolidated Financial Statements
(in thousands unless otherwise stated)

20. Segment and Geographical Information

After the 2021 sale of the lumber and newsprint assets, the Company operates in the following business segments: High Purity Cellulose, Paperboard and High-Yield Pulp. All prior period amounts presented herein have been reclassified to conform to this segment structure. See Note 3 — *Discontinued Operations* for further information on the sale of the Company’s lumber and newsprint assets. See also Note 1 — *Nature of Operations and Basis of Presentation* for a description of the operating businesses. Corporate consists primarily of senior management, accounting, information systems, human resources, treasury, tax and legal administrative functions that provide support services to the operating business units. The Company allocates a portion of the cost of maintaining these support functions to its operating units.

The Company evaluates the performance of its segments based on operating income. Intersegment sales consist primarily of High-Yield Pulp sales to Paperboard. Intersegment sales prices are at rates that approximate market for the respective operating area.

No single customer accounted for 10 percent or more of total sales for the years ended December 31, 2022 and 2021. One customer in the High Purity Cellulose segment represented 10 percent of total sales for the year ended December 31, 2020.

Net sales, disaggregated by product line, was comprised of the following:

	Year Ended December 31,		
	2022	2021	2020
High Purity Cellulose			
Cellulose Specialties	\$ 866,225	\$ 711,574	\$ 685,177
Commodity Products	354,612	279,307	282,663
Other sales ^(a)	115,009	100,268	83,463
Total High Purity Cellulose	1,335,846	1,091,149	1,051,303
Paperboard	250,167	208,332	189,882
High-Yield Pulp	159,704	135,676	125,417
Eliminations	(28,450)	(27,599)	(22,768)
Net sales	<u>\$ 1,717,267</u>	<u>\$ 1,407,558</u>	<u>\$ 1,343,834</u>

^(a) Other sales include sales of bioelectricity, lignin and other by-products to third parties.

Operating results by segment were comprised of the following:

	Year Ended December 31,		
	2022	2021	2020
High Purity Cellulose	\$ 31,498	\$ 19,738	\$ 6,994
Paperboard	37,158	13,379	17,862
High-Yield Pulp	16,199	6,686	(225)
Corporate	(58,720)	(50,248)	(54,996)
Operating income (loss)	<u>\$ 26,135</u>	<u>\$ (10,445)</u>	<u>\$ (30,365)</u>

Identifiable assets by segment were as follows:

	December 31,	
	2022	2021
High Purity Cellulose	\$ 1,654,214	\$ 1,579,300
Paperboard	112,757	114,391
High-Yield Pulp	50,947	38,147
Corporate	529,610	713,186
Total assets	<u>\$ 2,347,528</u>	<u>\$ 2,445,024</u>

Rayonier Advanced Materials Inc.
Notes to Consolidated Financial Statements
(in thousands unless otherwise stated)

Long-life assets by country were as follows:

	December 31,	
	2022	2021
United States	\$ 747,110	\$ 737,710
Canada	723,133	723,662
France	187,645	207,407
Other	110	125
Total long-life assets	<u>\$ 1,657,998</u>	<u>\$ 1,668,904</u>

Depreciation and amortization and capital expenditures by segment were as follows:

	Year Ended December 31,		
	2022	2021	2020
Depreciation and amortization:			
High Purity Cellulose	\$ 117,017	\$ 116,757	\$ 116,080
Paperboard	13,130	14,320	15,420
High-Yield Pulp	2,364	2,544	2,528
Corporate	2,065	4,678	4,343
Total depreciation and amortization	<u>\$ 134,576</u>	<u>\$ 138,299</u>	<u>\$ 138,371</u>
Capital expenditures:^(a)			
High Purity Cellulose	\$ 136,866	\$ 110,092	\$ 67,906
Paperboard	3,413	2,160	1,838
High-Yield Pulp	2,210	2,215	2,127
Corporate	3,790	205	1,621
Total capital expenditures	<u>\$ 146,279</u>	<u>\$ 114,672</u>	<u>\$ 73,492</u>

^(a) Amounts exclude the impact of changes in capital assets purchased on account and government grants.

Net sales' geographical distribution was as follows:

	Year Ended December 31,					
	2022	%	2021	%	2020	%
United States	\$ 569,265	33	\$ 472,440	34	\$ 458,749	34
China	346,026	20	295,515	21	357,091	27
Canada	72,510	4	72,490	5	71,817	5
Japan	149,373	9	118,443	9	119,178	9
Europe	343,058	20	283,685	20	233,535	17
Latin America	23,886	1	18,880	1	12,688	1
Other Asia	181,952	11	130,189	9	73,452	6
All other	31,197	2	15,916	1	17,324	1
Net sales	<u>\$ 1,717,267</u>	<u>100</u>	<u>\$ 1,407,558</u>	<u>100</u>	<u>\$ 1,343,834</u>	<u>100</u>

21. Commitments and Contingencies

Commitments

The Company leases certain buildings, machinery and equipment under various operating and finance leases. Total rental expense for operating and finance leases amounted to \$8 million, \$7 million, and \$7 million in 2022, 2021 and 2020, respectively. See Note 4 - *Leases* and Note 9 — *Debt and Finance Leases* for further information.

Rayonier Advanced Materials Inc.
Notes to Consolidated Financial Statements
(in thousands unless otherwise stated)

At December 31, 2022, future minimum payments under purchase obligations were as follows:

2023	\$	142,967
2024		65,867
2025		56,978
2026		55,439
2027		53,583
Thereafter		519,169
Total ^(a)	\$	<u>894,003</u>

^(a) Primarily consist of payments expected to be made on natural gas, steam energy and wood chips purchase contracts. These obligations are estimates and may vary based on changes in actual price and volume terms. Remaining purchase obligations under the 20-year wood chip and residual fiber supply agreement with GreenFirst total \$367 million, or annual payments of \$17 million, through the duration of the agreement.

Litigation and Contingencies

Final Settlement Reached in Dispute with IESO Relating to Investigation of the Kapuskasing Newsprint Facility

From the period from 2014 to early 2021, the MACD branch of the IESO, the governmental agency responsible for operating the wholesale electricity market and directing the operation of the bulk electrical system in the province of Ontario, Canada, had been engaged in reviewing the Company's compliance with the published rules that govern the operation of the wholesale electricity market in Ontario, Canada. The inquiry was focused primarily on payments made by IESO to the Company between 2010 and 2019 under market rules in connection with multiple planned, extended and unplanned forced outages that caused extensive downtime, in full or in part, of the Company's former Kapuskasing, Ontario newsprint facility.

In April 2021, the Company and IESO entered into a MOS pursuant to which the parties agreed to fully and finally settle all claims relating to all four of its investigations (whether completed or not) and related orders, judicial review proceedings and underlying disputes. As part of the settlement, the Company agreed to pay a fixed sum of CAD \$12 million over a period of 5 years, comprised of an immediate CAD \$4.5 million payment and a CAD \$7.5 million payment to be spread, on a front-weighted basis, over the next five anniversaries of the MOS, without interest. In addition, the MOS provided that a sum of CAD \$10.4 million would become due and payable in the event the Company fails to comply with any of the terms and conditions of the MOS or commits an event of default, as defined under the applicable market rules, unless such breach or event of default is remedied on a timely basis. This contingent sum decreases annually as the scheduled fixed non-contingent payments are made under the MOS. Assuming no uncured event of default or breach occurs during the repayment period, upon full payment of the CAD \$12 million, the entire contingent sum shall be extinguished and the Company shall be released from any further payment obligation. Given the parties' entry into the MOS, the Company considers this matter concluded, subject only to the parties' obligations yet to be performed under the MOS.

Duties on Canadian softwood lumber sold to the U.S.

The Company previously operated six softwood lumber mills in Ontario and Quebec, Canada, and exported softwood lumber into the U.S. from Canada. In connection with these exports, the Company paid approximately \$112 million in softwood lumber duties through August 28, 2021, recorded as expense in the periods incurred. As of December 31, 2022, the Company had a \$38 million long-term receivable associated with the USDOC's December 2020, December 2021 and August 2022 determinations of the revised rates for the 2017, 2018, 2019 and 2020 periods. Preliminary results of the USDOC's fourth administrative review were released in January 2023, with final results expected later in 2023. Cash is not expected to return to the Company until final resolution of the softwood lumber dispute, which remains subject to legal challenges and to USDOC administrative review of the remaining 2021 period. As part of the sale of its lumber assets, the Company retained all rights and obligations to softwood duties, generated or incurred through the closing date of the transaction.

Rayonier Advanced Materials Inc.
Notes to Consolidated Financial Statements
(in thousands unless otherwise stated)

Other

In addition to the above, the Company is engaged in various legal and regulatory actions and proceedings and has been named as a defendant in various lawsuits and claims arising in the ordinary course of its business. While the Company has procured reasonable and customary insurance covering risks normally occurring in connection with its businesses, the Company has in certain cases retained some risk through the operation of self-insurance, primarily in the areas of workers' compensation, property insurance and general liability. These other lawsuits and claims, either individually or in the aggregate, are not expected to have a material adverse effect on the Company's financial position, results of operations or cash flows.

Guarantees and Other

The Company provides financial guarantees as required by creditors, insurance programs and various governmental agencies. As of December 31, 2022, the Company had net exposure of \$36 million from various standby letters of credit, primarily for financial assurance relating to environmental remediation, credit support for natural gas and electricity purchases, and guarantees related to foreign retirement plan obligations. These standby letters of credit represent a contingent liability. The Company would only be liable upon its default on the related payment obligations. The letters of credit have various expiration dates and are expected to be renewed as required.

The Company had surety bonds of \$88 million as of December 31, 2022, primarily to comply with financial assurance requirements relating to environmental remediation and post closure care, to provide collateral for the Company's workers' compensation program and to guarantee taxes and duties for products shipped internationally. These surety bonds expire at various dates and are expected to be renewed annually as required.

LTF is a venture in which the Company owns 45 percent and its partner, Borregaard ASA, owns 55 percent. The Company is a guarantor of LTF's financing agreements and, in the event of default, expects it would only be liable for its proportional share of any repayment under the agreements. The Company proportion of the LTF financing agreement guarantee was \$33 million at December 31, 2022.

The Company has not recorded any liabilities for these financial guarantees in its consolidated balance sheets, either because the Company has recorded the underlying liability associated with the guarantee or the guarantee is dependent on the Company's own performance and, therefore, is not subject to the measurement requirements or because the Company has calculated the estimated fair value of the guarantee and determined it to be immaterial based upon the current facts and circumstances that would trigger a payment obligation.

It is not possible to determine the maximum potential amount of the liability under these potential obligations due to the unique set of facts and circumstances likely to be involved with each provision.

The Company currently employs just over 2,500 people in the U.S., Canada and France. As of December 31, 2022, 71 percent of the work force is unionized. As a result, the Company is required to negotiate wages, benefits and other terms with unionized employees collectively. As of December 31, 2022, a collective bargaining agreement covering approximately 660 unionized employees was expired. The employees have continued to work under the terms of the expired contract while negotiations continue. While there can be no assurances, the Company expects to reach agreements with the union. However, a work stoppage could have a material adverse effect on the Company's business, financial condition and results of operations.

Rayonier Advanced Materials Inc.
Schedule II—Valuation and Qualifying Accounts
(in thousands)

	Balance at Beginning of Period	Additions		Deductions	Balance at End of Period
		Charged to Cost and Expenses	Charged to Other Accounts		
Allowance for credit losses					
December 31, 2022	\$ 774	\$ 747	\$ 27	\$ (484)	\$ 1,064
December 31, 2021	\$ 487	\$ 346	\$ 2	\$ (61)	\$ 774
December 31, 2020	\$ 606	\$ 108	\$ 4	\$ (231)	\$ 487
Allowance for sales returns					
December 31, 2022	\$ 737	\$ —	\$ 45	\$ —	\$ 782
December 31, 2021	\$ 759	\$ (15)	\$ —	\$ (7)	\$ 737
December 31, 2020	\$ 730	\$ 156	\$ —	\$ (127)	\$ 759
Deferred tax asset valuation allowance					
December 31, 2022	\$ 67,644	\$ 3,709	\$ —	\$ —	\$ 71,353
December 31, 2021	\$ 81,133	\$ (13,489)	\$ —	\$ —	\$ 67,644
December 31, 2020	\$ 94,660	\$ (13,527)	\$ —	\$ —	\$ 81,133
Self-insurance liabilities					
December 31, 2022	\$ 982	\$ (168)	\$ —	\$ (336)	\$ 478
December 31, 2021	\$ 1,028	\$ 273	\$ —	\$ (319)	\$ 982
December 31, 2020	\$ 1,357	\$ 425	\$ —	\$ (754)	\$ 1,028

**Subsidiaries of Rayonier Advanced Materials Inc.
As of 12/31/2022**

<u>Name of Subsidiary</u>	<u>Place of Incorporation</u>
Rayonier A.M. Canada Energy LP	Canada
Rayonier A.M. Canada G.P.	Canada
Rayonier A.M. Canada Industries Inc.	Canada
Rayonier A.M. France SAS	France
Rayonier A.M. Products Inc.	Delaware
Rayonier A.M. Tartas SAS	France
Rayonier A.M. Avebene SAS	France
Rayonier Performance Fibers, LLC	Delaware
Southern Wood Piedmont Company	Delaware
Rayonier A.M. Finance LLC	Delaware
Rayonier A.M. Paperboard Sales Inc.	Delaware

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We have issued our reports dated March 1, 2023, with respect to the consolidated financial statements and internal control over financial reporting included in the Annual Report of Rayonier Advanced Materials Inc. on Form 10-K for the year ended December 31, 2022. We consent to the incorporation by reference of said reports in the Registration Statements of Rayonier Advanced Materials Inc. on Forms S-3 (File No. 333-209747 and File No. 333-212068) and on Forms S-8 (File No. 333-265015, File No. 333-218975 and File No. 333-197093).

/s/ Grant Thornton LLP

Jacksonville, Florida

March 1, 2023

Certification

I, De Lyle W. Bloomquist, certify that:

1. I have reviewed this annual report on Form 10-K of Rayonier Advanced Materials Inc.;
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 Rule 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rule 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 our 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.

Date: March 1, 2023

/s/ DE LYLE W. BLOOMQUIST

De Lyle W. Bloomquist
President and Chief Executive Officer
Rayonier Advanced Materials Inc.

Certification

I, Marcus J. Moeltner, certify that:

1. I have reviewed this annual report on Form 10-K of Rayonier Advanced Materials Inc.;
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 Rule 13a-15(e) and 15d-15(e)) and internal control over financial reporting (as defined in Exchange Act Rule 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 our 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.

Date: March 1, 2023

/s/ MARCUS J. MOELTNER

Marcus J. Moeltner
*Chief Financial Officer and
Senior Vice President, Finance
Rayonier Advanced Materials Inc.*

Certification

The undersigned hereby certify, pursuant to Section 906 of the Sarbanes-Oxley Act of 2002, 18 U.S.C. Section 1350, that to our knowledge:

1. The annual report on Form 10-K of Rayonier Advanced Materials Inc. (the "Company") for the period ended December 31, 2022 (the "Report") fully complies with the requirements of Section 13(a) or 15(d) of the Securities Exchange Act of 1934; and
2. The information in the Report fairly presents, in all material respects, the financial condition and results of operations of the Company.

March 1, 2023

/s/ DE LYLE W. BLOOMQUIST

De Lyle W. Bloomquist

*President and Chief Executive Officer
Rayonier Advanced Materials Inc.*

/s/ MARCUS J. MOELTNER

Marcus J. Moeltner

*Chief Financial Officer and
Senior Vice President, Finance
Rayonier Advanced Materials Inc.*



BOARD OF DIRECTORS

Lisa M. Palumbo
Chair of the Board

Charles E. Adair
Director

De Lyle W. Bloomquist
Director

Julie A. Dill
Director

Charles R. Eggert
Director

James F. Kirsch
Director

David C. Mariano
Director

Thomas I. Morgan
Director

Ivona Smith
Director

SENIOR LEADERSHIP

De Lyle W. Bloomquist
President and Chief Executive Officer

Kenneth J. Duffy
Vice President Commercial

Gabriela Garcia
Chief Accounting Officer and Vice President Controller

Joshua C. Hicks
Senior Vice President High Purity Cellulose

William R. Manzer
Executive Vice President Manufacturing Operations

Anthony R. Matthews
Vice President Supply Chain

Marcus J. Moeltner
Chief Financial Officer
and Senior Vice President Finance

James L. Posze, Jr.
Chief Administrative Officer
and Senior Vice President Human Resources

Christian Ribeyrolle
President, France Business
and Vice President Biomaterials

R. Colby Slaughter
Senior Vice President, General Counsel
and Corporate Secretary

ANNUAL MEETING OF STOCKHOLDERS

May 17, 2023
5:30 p.m.

DoubleTree Hotel
1201 Riverplace Boulevard Jacksonville, Florida 32207

TRANSFER AGENT AND REGISTRAR

Please contact Computershare for all essential stockholder services, including:

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c/o Computershare
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Providence, RI 02940-3078

Overnight correspondence should be sent to:
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Canton, MA 02021

Online Inquiries:

<https://www-us.computershare.com/investor/contact>

Stockholder website:

<https://www.computershare.com/investor>

INVESTOR RELATIONS

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Treasurer and Vice President, Investor Relations
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