

INTEGRITY
QUALITY
Accountability
PEOPLE



Dear Fellow Stockholders:

Thank you for your continued support and investment in RYAM.

Though 2023 presented RYAM with some very difficult challenges, I am pleased to report that our management team responded with resilience and determination while it continued to execute the strategies to realize RYAM's long term Biofuture vision.

We successfully navigated 2023's challenges and strengthened RYAM's financial position. Global economic challenges affected most of our business segments in 2023. For the High Purity Cellulose segment, destocking and demand weakness for certain cellulose specialty applications impacted our performance. We experienced \$60 million in operating income losses and high income volatility from our exposure to commodity viscose and paper pulp markets. Our Paperboard segment also experienced moderate destocking-driven demand weakness, while our High-Yield Pulp segment encountered precipitous cyclical pricing pressures.

In response, we acted quickly and resolutely to address these challenges. We maintained a firm stance on pricing for our cellulose specialty products, prioritizing value over volume for our bespoke offerings. As demand softened during the year, we sharpened our focus on cash flow generation. We implemented a cost savings program with nearly \$30 million realized and monetized \$93 million in working capital to help us realize \$53 million of free cash flow for the full year. Our focus on cash flow allowed us to reduce debt by \$76 million in 2023, bringing our total debt reduction to \$305 million during the last 5 years, and enabled us to refinance our 2024 senior notes through private-term debt. More recently, we took measures to amend this term debt, securing covenant relief to further enhance our access to liquidity.

We engaged closely with our stockholders and announced key strategic priorities. Engagement with our stockholders remains a critical part of our combined future success. This past year, in addition to our usual outreach initiatives, we formally commissioned an in-depth investor engagement survey. We incorporated the candid feedback received from this outreach into our strategy, and in response, we held an Investor Day in October to share our strategic vision and priorities. Highlights included our plans to shift commodity viscose production to our lowest-cost facility to improve our profitability and operational flexibility, and to explore the potential sale of our high-performing, but non-core, Paperboard and High-Yield Pulp businesses to reduce our debt and lower our leverage. These actions will go a long way in freeing RYAM to leverage its comparative advantages to unlock future growth in cellulose specialties and biomaterials.

We demonstrated our commitment to our core values and advanced our sustainability objectives. Our most important responsibility is to ensure that our employees return home injury free every day. Executing on our safety roadmap, we continued to enhance our safety culture at all our locations and achieved a 17% reduction in our safety incident rate versus last year. We also remained focused on our commitment to reducing our carbon footprint. As of 2023, we have already met half of our 10-year greenhouse gas reduction target in just 3 years, and we remain on track to meet our total reduction goal of 40 percent by 2030. We embrace our role as stewards of the environment and natural resources, and we continue to enhance our tracking and disclosure of key metrics. In our recently published Environmental Performance Update, we reported on Scope 3 greenhouse gas emissions for the first time, and we also enhanced our reporting metrics for hazardous waste volumes.

We invested in our Biomaterials business and expanded our product portfolio. For RYAM, Sustainability is about more than stewardship – it is central to the Company's growth strategy. As part of our strategy to unlock the potential of our Biomaterials business, we are set to commence operations at our Tartas bioethanol plant in early 2024. This is one of several planned Biomaterials projects aimed at diversifying our product offerings, capturing significant synergistic value, and driving growth. These projects have significant environmental benefits and will largely be funded with low-cost green project capital.

RYAM is poised for growth. We have emerged from 2023 as a leaner and more strategically focused company. We have made strategic investments in our core assets to lower costs and boost operational efficiencies that will allow us to more fully leverage our high-margin businesses. As demand in our key end markets stabilizes and as we begin to realize the full benefit of our cost-reduction initiatives, we are well-positioned to seize opportunities in our cellulose specialties business. Additionally, the completion of investments in our Biomaterials platform will further unlock our long-term growth potential.

In conclusion, as we enter 2024, we are confident that our strategies position RYAM for long-term success and value creation. We are excited about the opportunities ahead of us, especially in our Biomaterials business, where we are leveraging our expertise and innovation to develop new products and markets.

We are grateful for your continued trust and support as we work together to achieve our vision of becoming a leading provider of sustainable and high-performance solutions. Thank you for being a part of RYAM.



Lisa M. Palumbo

Independent Chair of the Board of Directors



De Lyle W. Bloomquist

President and Chief Executive Officer

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, 2023

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.

If securities are registered pursuant to Section 12(b) of the Act, indicate by check mark whether the financial statements of the registrant included in the filing reflect the correction of an error to previously issued financial statements.

Indicate by check mark whether any of those error corrections are restatements that required a recovery analysis of incentive-based compensation received by any of the registrant's executive officers during the relevant recovery period pursuant to §240.10D-1(b).

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 July 1, 2023: \$270,254,732.

Number of shares of the common stock of the registrant outstanding as of February 27, 2024: 65,398,056.

Portions of the registrant's definitive proxy statement for the 2024 annual meeting of the stockholders, which is expected to be filed with the Securities and Exchange Commission within 120 days after December 31, 2023, are incorporated by reference into Part III of this 2023 Form 10-K.

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Glossary

The following terms and abbreviations appearing in the text of this 2023 Form 10-K have the meanings indicated below.

2023 Form 10K	RYAM Annual Report on Form 10-K for the year ended December 31, 2023
2023 Plan	RYAM 2023 Incentive Stock Plan
2024 Notes	\$550 million original aggregate principal amount of 5.50 percent senior unsecured notes issued May 2014, due June 2024
2026 Notes	\$500 million original aggregate principal amount of 7.625 percent senior secured notes issued December 2020, due January 2026
2027 Term Loan	\$250 million original aggregate principal amount of variable rate term loan entered into July 2023, maturing July 2027
2G	Second generation
ABL Credit Facility	5-year senior secured asset-based revolving credit facility due December 2025
AICPA	American Institute of Certified Public Accountants
Anomera	Anomera, Inc.
AOCI	Accumulated other comprehensive income (loss)
ASU	Accounting Standards Update
ATI	Adjusted taxable income
BNP	BNP-Paribas Factor
bp	Basis point
CAD	Canadian dollar
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
DTA	Deferred tax asset
EBIT	Earnings before interest and taxes
EBITDA	Earnings before interest, taxes, depreciation and amortization
ECD	Early Career Development
ERP	Enterprise resource planning
Euribor	Euro Interbank Offered Rate
Exchange Act	Securities Exchange Act of 1934, as amended
FASB	Financial Accounting Standards Board
Financial Statements	Consolidated financial statements included in Part IV Item 15 of this 2023 Form 10-K
FTC	Foreign tax credit
GAAP	United States generally accepted accounting principles
Georgia EPD	Georgia Environmental Protection Division of the Natural Resources
GHG	Greenhouse gas
GILTI	Global intangible low-taxed income
GreenFirst	GreenFirst Forest Products, Inc.
ISCC EU	International Sustainability & Carbon Certification in the European Union
ISCC PLUS	International Sustainability & Carbon Certification covering the same certification requirements as ISCC EU but customizable by market or specific application
LTF	LignoTech Florida LLC
MT	Metric ton
NOL	Net operating loss
NOx	Nitrogen oxides
OPEB	Other post-employment benefits
Prior Incentive Stock Plans	Rayonier Advanced Materials Inc. Incentive Stock Plan, Rayonier Advanced Materials Inc. 2017 Incentive Stock Plan and Rayonier Advanced Materials Inc. 2021 Incentive Stock Plan

Proxy Statement	RYAM Proxy Statement to be filed with the SEC in connection with the solicitation of proxies for RYAM's 2024 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
ROU	Right-of-use
RYAM, the Company, our, we, us	Rayonier Advanced Materials Inc. and its consolidated subsidiaries
S&P	Standard & Poor's
SEC	United States Securities and Exchange Commission
Securities Act	Securities Act of 1933, as amended
SG&A	Selling, general and administrative expense
SOFR	Secured Overnight Financing Rate
SOx	Sulfur oxides
SR&ED	Scientific research and experimentation deductions
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
Washington Ecology	Washington State Department of Ecology
Washington MTCA	Washington Model Toxics Control Act

Forward-Looking Statements

Certain statements in this 2023 Form 10-K regarding anticipated financial, business, legal or other outcomes, including business and market conditions, outlook and other similar statements relating to 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,” “target,” “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.

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 2023 Form 10-K, among others, could cause actual results or events to differ materially from our historical experience and those expressed in forward-looking statements made in this 2023 Form 10-K.

Forward-looking statements are only as of the date of the filing of this 2023 Form 10-K and we undertake no duty to update its forward-looking statements except as required by law. You are advised to review any disclosures that we make on or after the date of this 2023 Form 10-K 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.

Strategic Growth Investments

We focus our strategic investments in projects that optimize and align our assets to meet the ever-growing demand for renewable products. Our portfolio is aligned with sustainability drivers, including the European Union Green Deal for the Renewable Energy Directive II. Our ongoing projects include:

- Our investment in Anomera, who manufactures CNC, a patented, biodegradable product used as an ingredient in cosmetics and various industrial materials, at our Temiscaming facility;
- Development of a prebiotic for enhanced gut health in poultry and swine at our Jesup facility, which is expected to support sustainable poultry and swine farming and provide a healthy alternative nutrient to enhance gut health;
- Production of 2G bioethanol fuel at our Tartas facility, intended to help meet the demand for Europe's fast-growing biofuels market and further improve the sustainability of our operating model. With production expected to begin in the first quarter of 2024, we will be among the first in France to produce wood-based 2G bioethanol fuel, a product that is noncompetitive to the human food supply and is expected to help petrochemical companies improve the climate profile of their energy offerings in the European market;
- Production of 2G bioethanol fuel at our Fernandina facility, a multi-year project expected to have similar carbon impacts as our Tartas bioethanol facility and may be used in additional market segments, including as a feedstock for sustainable aviation fuel; and
- Our involvement with Altamaha Green Energy, a start-up entity bidding on an annual contract with Georgia Power to sell green electricity from a new plant to be constructed adjacent to our Jesup facility. The multi-year project offers significant potential long-term benefits to RYAM.

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 operate four production facilities strategically located in the U.S., Canada and France. Our Fernandina Beach and Tartas facilities are ISCC PLUS and ISCC EU certified, respectively, underscoring our commitment to independently audited sustainability standards and processes within our supply chain. Moreover, all our production facilities hold certification in both the Forest Stewardship Council and Programme for the Endorsement of Forest Certification Chain of Custody standards. We believe this dual certification reinforces our dedication to responsible and sustainable forestry practices throughout our manufacturing processes.

Our fluff pulp, produced at our Jesup facility, carries the distinction of being certified as an "Inspected Raw Material" by Nordic Swan Ecolabeling. This label signifies adherence to rigorous environmental requirements at every stage of manufacturing, assuring consumers and commercial buyers of our product's sustainable and environmentally friendly nature.

In 2021, we set an ambitious goal of achieving at least a 40 percent reduction in overall Scope 1 and Scope 2 GHG emissions, on both an absolute and intensity basis, by 2030, using 2020 as a baseline. We are on track to meet this objective, with external verification confirming total reductions of 15 percent and 10 percent in absolute and intensity emissions, respectively, for 2021 and 2022. This translates to an aggregate goal achievement for absolute and intensity emissions of approximately 40 percent and 25 percent, respectively. We continue to actively monitor and pursue additional opportunities for sustainability. Our 2023 results are pending confirmation.

Energy

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.

Water

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 of every 100 gallons we use are treated and returned to natural water sources in keeping with stringent government-issued permit limitations. The remaining two gallons are either captured in the final product or evaporated during manufacturing.

Waste

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.

In October 2023, we announced that we engaged a financial advisor to explore the potential sale of our Paperboard and High-Yield Pulp assets located at our Temiscaming site. The process is ongoing for this strategic review, which is consistent with our commitment to align our portfolio with our long-term growth strategy and providing flexibility to pay down debt, reduce leverage and minimize earnings volatility.

High Purity Cellulose

Our 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. Our Tartas bioethanol facility is expected to be operational in the first quarter of 2024.

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, including lignosulfonates, biofuels, prebiotics, crude tall oil, turpentine and bioelectricity.

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. Our Tartas bioethanol facility is expected to be operational in the first quarter of 2024. When complete, this facility will produce 2G bioethanol, a non-food-based ethanol to be utilized as an environmentally-friendly fuel blend supporting transport decarbonization. Commercial sales of this 2G bioethanol are targeted to begin in the first quarter of 2024 under a long-term offtake agreement with a large international petrochemicals company.

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 Bracell and Borregaard. 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 April/Bracell, Sappi, Lenzing, Aditya Birla Group and Sun Paper.

For absorbent materials, our major competitors include International Paper, GP Cellulose, Paper Excellence Group, Klabin and Stora Enso.

Biomaterials

Competition in this space is limited, driven by capital investment, technical expertise and sustainable feedstock that are needed to produce these materials. Each biomaterial product has its own unique market drivers. 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. The 2G bioethanol that we expect to supply beginning in the first quarter of 2024 trades at a premium in Europe.

Our major biomaterials competitors in the lignosulfonates market include Borregaard and Domsjö Aditya Birla and in the bioethanol market include Borregaard and AustroCel Hallein.

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.

Our major paperboard competitors include WestRock, Graphic Packaging, Clearwater Paper, Sappi, Metsa Group and Billerud.

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.

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

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 price as a result of weather conditions, supply and demand. To control cost, we continually pursue reductions in usage and cost 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. The price for wood is 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 price for these chemicals is 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, which we deem vital to our operations, and also in the production of paperboard. 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

One customer in the High Purity Cellulose segment represented 10 percent of total sales for the year ended December 31, 2023. No single customer accounted for 10 percent or more of total sales during the years ended December 31, 2022 and 2021.

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 also focus our R&D activities on the development and marketing of new products and applications. During the years ended December 31, 2023, 2022 and 2021, our R&D spend totaled \$6 million, \$7 million and \$7 million, respectively.

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 and 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 2,800 employees, 61 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 8 percent, 5 percent and 17 percent in 2021, 2022 and 2023, respectively. 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 at the individual plant level, with each plant accountable for their respective metrics and reporting to the Safety Steering Committee 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 <http://www.sec.gov>. Our corporate governance guidelines, including the Standard of Ethics and Code of Corporate Conduct, and charters of all standing committees of our Board of Directors are also available on our website. Our website and the information posted thereon are not incorporated into this 2023 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 2023 Form 10-K and our other filings and submissions to the SEC. If any of the events described in the following risk factors 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 geopolitical conflicts and related impacts.

Geopolitical conflicts and related effects may negatively impact the global economy and our business. While historically we have not had direct operations in geographic areas under conflict, we have significant operations and customers in Europe and Asia and have experienced shortages in key input materials and increased costs for transportation, energy and raw materials as a result of various conflicts. Escalation of geopolitical tensions could result in, among other things, natural gas shortages, disruptions of operations for us, our customers and our suppliers, an increase in cyber intrusion attempts, lower consumer demand and changes to foreign currency exchange rates and financial markets, any of which would adversely affect our business. In addition, the effects of any geopolitical 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, which could 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, which may generate significant volatility, uncertainty and economic disruption in many markets in which we or our customers do business. Over the past several years, COVID-19 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 and the pandemic's adverse impact on our suppliers, vendors and other global supply chain partners, which impaired our ability to timely and efficiently move our products through the various steps in the global supply chain process to our end customers.

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 cyclical nature 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, can collectively contribute to lower cellulose specialties sales prices over periods of time. Likewise, certain cellulose specialty grade volumes have declined meaningfully in recent years due to these factors. Our high-purity commodity products for viscose and absorbent materials applications were also at extremely low pricing levels in 2019 and 2020 and later rebounded. There can be no assurance as to the duration and magnitude of a rebound or whether elevated levels during any one period can 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 destocking 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. 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 has generally been more stable than our high-yield pulp business due to strong ties to and steady demand of the lottery and packaging sectors.

Changes in the availability and price of raw materials and energy 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. that 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 weather and 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 inflation in the broader economy, we monitor the risk that inflation presents to our 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. For example, in 2022, we saw 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, Canada, South Korea and other international markets. Sales to customers outside of the U.S. made up 67 percent of our revenue in 2023. 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 operations 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 on our business in China and Canada are set forth below.

China

In 2023, we had product sales of \$474 million shipped to customers in China and, of this amount, \$352 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. For example, in 2018, in retaliation against U.S. tariffs, China imposed a tariff on certain U.S. product exports, including all wood pulp sold by us from the U.S. into China, a result of which was a significant decline in operating income for as long as the tariffs remained in place. 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 of the 2017, 2018, 2019, 2020 and 2021 periods and reduced rates applicable to us to a combined anti-dumping and countervailing duty rate of approximately 8 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 of softwood lumber duties between 2017 and the August 2021 sale of our lumber assets, including \$1 million of ancillary fees, which were recorded as expense in the periods incurred. As of December 31, 2023, we had a \$40 million long-term receivable associated with the USDOC's administrative reviews. This amount does not include interest, which will be due on any amounts refunded. We estimate that interest earned on the total amount of softwood lumber duties paid will exceed \$10 million. Cash is not expected to return to us until final resolution of the softwood lumber dispute, which remains subject to legal challenges. 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 2023 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 2023 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 of 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 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 manufacturing facilities, or a significant portion of any of our 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 significant 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 in 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 risk factors within 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 volume of 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 France 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 assignable 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 production 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 face substantial asset risk, including the potential for impairment related to our long-lived assets and the potential impact to the value of recorded deferred tax assets.

We have major manufacturing operations in the U.S., Canada and France that are conducted through four production facilities. Our ability to generate sufficient cash flows to fully recover the carrying value of our assets depends on the successful execution of our strategies and may be materially adversely impacted by a significant change in business climate, disruptions in the global economy, unanticipated competition or other causes of a material decline in demand, an adverse action or assessment by a regulator, significant disposal activity, by sale or otherwise, or a material change in how we manage our assets, among other things. If any such events or circumstances arise and it is determined that sufficient future cash flows do not exist to support the current carrying value, we will be required to record an impairment charge for our long-lived assets or write-off of recognized DTAs.

In the fourth quarter of 2023, in conjunction with the optimization and realignment of our High Purity Cellulose assets, we recorded a non-cash impairment of \$62 million related to certain assets at the Temiscaming and Jesup facilities. See Note 7—Property, Plant and Equipment, Net for further details of this impairment.

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, truck and 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, 2023, 61 percent of our global work force was unionized. 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 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 applications may not contain intellectual property that can be protected under intellectual property laws. In addition, artificial intelligence technologies have developed rapidly and our future success may depend on our ability to integrate the technology into our internal business processes and new products, services and technologies. 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 a cybersecurity incident could materially adversely impact our business.

Like most companies, we have been, and expect to continue to be, subject to attempted cyber intrusions. One form of intrusion that has become increasingly prevalent is the practice of cyber extortion, particularly through the use of ransomware. The sophistication of cyber intrusions continues to grow, and the use of emerging technologies, such as artificial intelligence and quantum computing, for nefarious purposes increases the risk of cyber security incidents. Cyber intrusions targeting our business systems, operational tools and external vendor software could compromise our intellectual property and confidential business data, cause a disruption to our operations or damage our reputation. Functions that serve an important role in the efficient operation of our business include purchasing and fulfillment, inventory and manufacturing process management, the reporting of financial results and various other business process support. We have established and maintain cybersecurity policies, programs, controls and systems. These measures are in place to safeguard against, detect and manage cybersecurity risks across our processes, including those associated with our third party service providers, on whom we rely to maintain security programs that align with their respective risks. While we have not experienced any material information security breaches within the periods being reported (or to the best of our knowledge, any material information security breach prior to that), there can be no assurance that our third party service providers' security efforts and programs will be successful and/or that a successful cybersecurity incident will not otherwise 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 expenditures 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 2023 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 Georgia EPD in opposition to the Georgia 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 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 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 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 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 2023. 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.

As regulators increasingly focus on climate change and other sustainability issues, we have and may become subject to new disclosure frameworks and regulations. In January 2023, the European Commission issued the Corporate Sustainability Reporting Directive, which we believe will apply to RYAM's business, that requires expansive disclosure on various sustainability topics, including climate change, biodiversity, workforce, supply chain and business ethics. The State of California has also recently issued new climate change disclosure requirements for certain entities conducting business in California and the SEC is expected to finalize its proposed rule on climate change disclosures in 2024. Our compliance with such rulemakings may require significant increased effort and costs. We are closely monitoring these rules and regulations and their potential impact on us.

Transition risks associated with climate change. 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, which may cause us to incur additional costs, invest more in R&D, implement emerging technologies or make other changes to our operations to respond to such demands, which could require additional material expenditures.

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 risks associated with climate change. 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 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, 2023, our total indebtedness was \$777 million. 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.

Covenants in our debt agreements may impair our ability to operate our business

Our debt agreements contain various covenants that limit our ability to take certain specified actions, including incurring debt or liens, making investments, entering into mergers, consolidations and acquisitions, paying dividends and making other restricted payments. Our Credit Facility and 2027 Term Loan are also subject to financial covenant requirements. If we anticipate non-compliance with these financial covenants, we may take actions to maintain compliance with them, including reductions in our general and administrative expenses and capital expenditures.

The breach of any of the covenants under any of our debt agreements could result in a default under the agreement, which could cause indebtedness under the agreement to become due and payable. If the repayment obligation under a debt agreement is accelerated, we may not be able to repay the debt or refinance the debt on acceptable terms and our financial position would be materially adversely affected.

In January 2024, we amended our 2027 Term Loan agreement to increase the maximum consolidated secured net leverage ratio that we must maintain through our 2024 fiscal year to address the risk of potential noncompliance with the covenant as of the end of the fourth quarter of 2023. Though we are in compliance with all covenants and other terms of the 2027 Term Loan, as amended, as of December 31, 2023, there can be no assurance given of future compliance or that additional amendments to the credit facilities will not be necessary.

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 and other issuances would 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

None.

Item 1C. Cybersecurity

Risk Management and Strategy

Our information technology systems serve an important role in the efficient operation of our business. Identifying, assessing and managing material risks from cybersecurity threats are activities integrated into our overall risk management system. Cybersecurity risks are identified and addressed through coordinated efforts of our internal information technology security audit teams, internal governance and compliance reviews. We also engage external consultants to assist us with the review of our assessment and risk mitigation strategies for cybersecurity threats and the development of new approaches as needed.

To protect our information technology systems from cyber threats, we use various tools that help us prevent, detect, investigate, resolve and recover from cybersecurity incidents, including proactive cybersecurity reviews of systems and applications, annual risk assessments that identify and evaluate new and recurring cyber threats, tabletop exercises and infiltration testing. Cybersecurity events, including those identified and communicated to us by our third-party service providers, are evaluated for severity and materiality to our business, based on both quantitative and qualitative factors, and prioritized accordingly for response and remediation.

Our information technology systems have been, and we expect will continue to be, subject to cyber intrusion attempts. We describe whether and how risks from cybersecurity threats have materially affected or are reasonably likely to materially affect our business, results of operations or financial condition under the risk factor “Loss of our intellectual property and sensitive data or disruption of our manufacturing operations due to a cybersecurity incident could materially adversely impact our business” found in Item 1A—Risk Factors.

Governance

Our Audit Committee is responsible for the oversight of risk from cybersecurity threats and includes one committee member with significant cybersecurity consulting experience. On a quarterly basis, the Audit Committee receives reports from senior management on our cybersecurity program covering our strategies and processes for the identification, assessment and mitigation of the material cybersecurity risks that we face, existing and emerging cybersecurity trends and threat landscapes and the status of projects in process that are intended to strengthen our information security systems and improve our cyber readiness.

Under the oversight of our Audit Committee, our CEO-chaired Enterprise Risk Management team and our Cybersecurity Governance Committee, each comprised of a cross-functional team of executives and key functional leads and subject matter experts, convene at least quarterly to assess the identification and mitigation of cybersecurity risks, ensure the effective execution of our cybersecurity strategy and verify that our cybersecurity processes are adequately strengthened. The Cybersecurity Governance Committee is also responsible for evaluating findings and proposals presented by external consultants and developing the appropriate remediation actions. These teams are informed of cybersecurity threats and incidents through their management of the cybersecurity risk management and strategy processes described above, and report any such items to the Audit Committee as deemed appropriate.

Item 2. Properties

The following table details the material properties we owned or leased at December 31, 2023:

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 the facility equipment operating under average production conditions. Actual production is impacted by overall equipment effectiveness and market circumstances.

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, 2023 are in good operating condition and in regular use.

We recently began efforts towards a realignment of our High Purity Cellulose assets to optimize production mix, including the consolidation of commodity viscose production into the Temiscaming plant and fluff production into the Jesup plant’s C Line. See Note 7—Property, Plant and Equipment, Net for further details of this realignment.

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, 2024 was 3,116.

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, 2023:

	Total Number of Shares Purchased ^(a)	Average Price Paid per Share	Total Number of Shares Purchased as Part of Publicly Announced Plans or Programs	Dollar Value of Shares That May Yet Be Purchased Under the Plans or Programs ^(b)
October 1 to November 4	—	\$ —	—	\$ 60,294,000
November 5 to December 2	—	\$ —	—	\$ 60,294,000
December 3 to December 31	15,964	\$ 3.48	—	\$ 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.

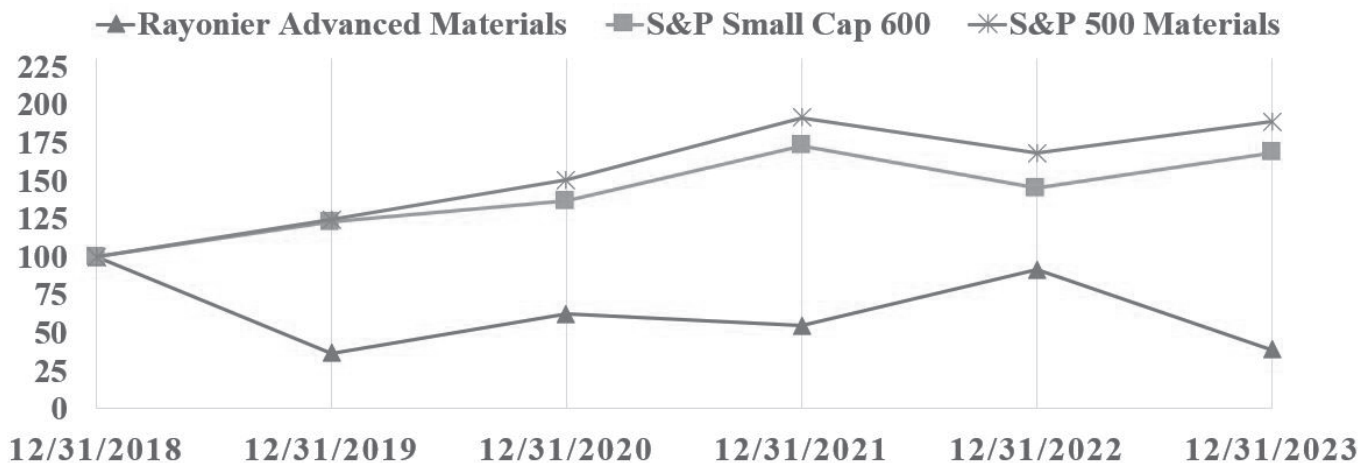
^(b) In January 2018, our Board of Directors authorized a share buyback program pursuant to which we may, from time to time, purchase shares of our common stock with an aggregate purchase price of up to \$100 million. As of December 31, 2023, the remaining unused authorization under the share buyback program was \$60 million. See Note 13—Stockholders’ Equity 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, 2018. The graph 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.



Recent Sales of Unregistered Securities

We did not issue or sell any unregistered equity securities in 2023.

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 financial information appearing elsewhere in this 2023 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 2023 Form 10-K.

This section primarily discusses 2023 and 2022 items and comparisons between these years. For a discussion of year-over-year comparisons between 2022 and 2021 and other financial information related to 2021 that is not included in this 2023 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, 2022 filed with the SEC on March 1, 2023.

Overview of Operations

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

- High Purity Cellulose
- Paperboard
- High-Yield Pulp

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 represent 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

- In January 2024, we amended our 2027 Term Loan agreement to increase the maximum consolidated secured net leverage ratio that we must maintain in the fourth quarter of 2023 and through fiscal year 2024. In addition, should we exceed the maximum ratio established by the original agreement during this period, we will incur a fee of 0.25% of the principal balance outstanding at the end of the applicable quarter.
- In the fourth quarter of 2023, we recorded a non-cash impairment of \$62 million related to certain assets at our Temiscaming and Jesup plants in conjunction with the optimization and realignment of our High Purity Cellulose assets. This realignment reflects a strategic decision expected to reduce commodity exposure and earnings volatility and allow us to better manage excess capacity of cellulose specialties by operating assets based on current demand for each end market. See Note 7—Property, Plant and Equipment, Net to our Financial Statements for further information.
- In July 2023, we secured term loan financing of \$250 million in aggregate principal amount, the proceeds of which were used, together with cash on hand, to redeem the \$318 million principal balance of the 2024 Notes in August 2023.
- In April 2023, we repurchased \$10 million of our 2026 Notes through open-market transactions and retired the notes for cash of \$9 million.
- In March 2023, we repurchased \$5 million of our 2024 Notes through open-market transactions and retired the notes for cash of \$5 million.

See Note 9—Debt and Finance Leases to our Financial Statements for further information on debt-related items.

2024 Outlook

In October 2023, we announced that we engaged a financial advisor to explore the potential sale of our Paperboard and High-Yield Pulp assets located at our Temiscaming site. The process is ongoing for this strategic review, which is consistent with our commitment to align our portfolio with our long-term growth strategy and provide flexibility to pay down debt, reduce leverage and minimize earnings volatility.

The following market assessment represents our current outlook of our business segments' future performance.

High Purity Cellulose

Average sales prices for cellulose specialties in 2024 are expected to increase by a low single-digit percentage as compared to average sales prices in 2023. Sales volumes for cellulose specialties are expected to remain flat compared to 2023 as increased volumes from the closure of a competitor's plant are offset by a favorable change in customer contract terms in the first quarter of 2023 that is not expected to repeat in 2024. Demand for RYAM cellulose specialties will be mixed. Acetate is expected to experience moderate destocking. Ethers volumes are anticipated to improve albeit at lower than historical levels. Other cellulose specialties volumes will benefit from the closure of a competitor's facility. Demand for RYAM commodity products remains resilient with fluff and viscose prices expected to improve from the fourth quarter of 2023, however not to the level of realized prices in early 2023. Commodity sales volumes are expected to increase in 2024 as we focus on improving productivity, with fluff volume expected to improve due to higher demand and both viscose and paper pulp sales volume expected to decrease. Raw material input and logistics costs are expected to be lower in 2024. Additionally, we expect to commission our bioethanol facility in Tartas in the first quarter of 2024. With a gradual ramp up, we expect to deliver \$4 million of EBITDA from bioethanol in 2024, growing to \$8 million to \$10 million beginning in 2025. Overall, EBITDA is expected to remain relatively flat in the first quarter of 2024 compared to the fourth quarter of 2023, with a strong finish in the back half of 2024.

Paperboard

Paperboard prices in 2024 are expected to decrease slightly as compared to the fourth quarter of 2023, while sales volumes are expected to improve as production is ramped up to meet improved customer demand. Raw material prices are expected to increase as purchased pulp prices are forecast to increase from fourth quarter 2023 levels. Overall, EBITDA is expected to remain flat sequentially.

High-Yield Pulp

High-yield pulp prices are expected to increase in the first quarter of 2024 as we capture the value of higher index pricing from the latter part of the fourth quarter of 2023. Sales volumes are also expected to increase in the first quarter as production is ramped up to meet customer demand. Overall, we expect to generate positive EBITDA from this segment in the coming quarter.

Corporate

Corporate costs are expected to be flat or increase slightly in 2024 as we complete the final year of our multi-year ERP implementation. The project will enhance our operating and reporting systems and is expected to drive additional improvements and efficiencies beginning in 2025.

Biomaterials Strategy

As previously announced at our Investor Day in October 2023, we are investing in new products to provide both increased end market diversity and incremental profitability. These new products will target the growing green energy and products markets. The commissioning of the bioethanol facility is a significant milestone towards our goal of generating \$42 million of annual EBITDA from these new products by 2027. We are progressing several other initiatives and expect to make announcements on the progress of these initiatives throughout the year.

Results of Operations: Year Ended December 31, 2023 versus December 31, 2022

(in millions, except percentages)	Year Ended December 31,	
	2023	2022
Net sales	\$ 1,643	\$ 1,717
Cost of sales	(1,555)	(1,594)
Gross margin	88	123
Selling, general and administrative expenses	(76)	(91)
Foreign exchange gain (loss)	(3)	4
Asset impairment	(62)	—
Other operating expense, net	(12)	(10)
Operating income (loss)	(65)	26
Interest expense	(74)	(66)
Components of pension and OPEB, excluding service costs	—	5
Gain on GreenFirst equity securities	—	5
Other income, net	7	6
Loss from continuing operations before income tax	(132)	(24)
Income tax (expense) benefit	32	(1)
Equity in loss of equity method investment	(2)	(2)
Loss from continuing operations	(102)	(27)
Income from discontinued operations, net of tax	—	12
Net loss	<u>\$ (102)</u>	<u>\$ (15)</u>
Gross margin %	5.4 %	7.2 %
Operating margin %	(4.0)%	1.5 %
Effective tax rate	24.4 %	(3.8)%

Net Sales

(in millions)	Year Ended December 31,	
	2023	2022
High Purity Cellulose	\$ 1,313	\$ 1,336
Paperboard	219	250
High-Yield Pulp	136	160
Eliminations	(25)	(29)
Net sales	<u>\$ 1,643</u>	<u>\$ 1,717</u>

Net sales decreased \$74 million in 2023 compared to 2022 driven by lower sales prices in commodity products and our High-Yield Pulp segment and lower sales volumes in cellulose specialties and our Paperboard and High-Yield Pulp segments, partially offset by higher sales prices in cellulose specialties and our Paperboard segment and higher commodity sales volumes. See *Operating Results by Segment* below for further discussion.

Operating Income (Loss)

(in millions)	Year Ended December 31,	
	2023	2022
High Purity Cellulose	\$ (42)	\$ 31
Paperboard	37	37
High-Yield Pulp	(3)	16
Corporate	(57)	(58)
Operating income (loss)	\$ (65)	\$ 26

Operating results for 2023 declined \$91 million compared to 2022 primarily driven by a \$62 million High Purity Cellulose non-cash asset impairment recorded in the fourth quarter of 2023 and the decrease in net sales across all segments due to the lower sales prices and sales volumes discussed above. Additionally, our High Purity Cellulose and High-Yield Pulp segments saw increases in labor and wood costs, respectively. These decreases were partially offset by lower key input and logistics costs in our High Purity Cellulose and Paperboard segments. See *Operating Results by Segment* below for further discussion.

Non-Operating Income & Expense

Interest expense increased \$8 million in 2023 compared to 2022 driven by an increase in the average effective interest rate on debt, partially offset by a decrease in the average outstanding balance of debt. Total debt decreased \$76 million from December 31, 2022 to December 31, 2023.

Interest income increased \$3 million in 2023 compared to 2022 primarily due to the timing of the receipt of the 2027 Term Loan proceeds and their subsequent use in the repayment of the 2024 Notes. See Note 9—Debt and Finance Leases to our Financial Statements for further information on these debt items.

Also included in non-operating other income in the year ended December 31, 2023 was a \$2 million gain on a passive land sale and a pension settlement loss of \$2 million.

Included in non-operating other income in the year ended December 31, 2022 was a \$5 million net gain associated with the monetization of the GreenFirst common shares received in connection with the sale of our lumber and newsprint assets in 2021. See Note 3—Discontinued Operations to our Financial Statements for further information.

Income Taxes

The effective tax rate on the loss from continuing operations for 2023 was a benefit of 24 percent. The 2023 effective tax rate differed from the federal statutory rate of 21 percent primarily due to different statutory tax rates in foreign jurisdictions, U.S. tax credits, return-to-accrual adjustments related to previously filed tax returns and changes in the valuation allowance on disallowed interest deductions.

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 interest deductions, nondeductible executive compensation, U.S. tax credits, tax return-to-accrual adjustments on filed returns and interest received from tax overpayments.

See Note 19—Income Taxes to our Financial Statements for further information.

Discontinued Operations

In 2023, we recorded a pre-tax gain of \$2 million related to a reduction in the rates applied to Canadian softwood lumber exports to the U.S. during 2021 and a \$2 million loss related to the settlement of a claim pursuant to the representations and warranties in the asset purchase agreement.

In 2022, we recorded a pre-tax gain of \$16 million related to a reduction in the rates applied to Canadian softwood lumber exports to the U.S. during 2020. Cumulative through December 31, 2023 we have recorded total gains of \$40 million related to USDOC administrative reviews, which are included as a long-term receivable within “other assets” in our consolidated balance sheets.

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

Operating Results by Segment

High Purity Cellulose

(in millions, unless otherwise stated)	Year Ended December 31,	
	2023	2022
Net sales	\$ 1,313	\$ 1,336
Operating income (loss)	\$ (42)	\$ 31
Average sales prices (\$ per MT)	\$ 1,273	\$ 1,330
Sales volumes (thousands of MTs)	955	918

Net Sales

(in millions)	Year Ended December 31, 2022	Changes Attributable to:		Year Ended December 31, 2023
		Price	Volume/Mix/Other	
Cellulose specialties	\$ 866	\$ 75	\$ (158)	\$ 783
Commodity products	355	(48)	125	432
Other sales ^(a)	115	—	(17)	98
Net sales	\$ 1,336	\$ 27	\$ (50)	\$ 1,313

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

Net sales of our High Purity Cellulose segment decreased \$23 million in 2023 compared to 2022. Despite an 11 percent increase in cellulose specialties prices, total sales prices decreased 4 percent during the current year due to a 13 percent decrease in commodity prices. Total sales volumes increased 4 percent during the current year driven by a 39 percent increase in commodity volumes, partially offset by an 18 percent decrease in cellulose specialties volumes. Despite a significant increase in volume in the first quarter of 2023 due to improved customer contract terms, overall sales volumes for cellulose specialties were negatively impacted by significant customer destocking and market-driven demand declines, particularly in construction markets. Included within net sales for 2023 and 2022 were \$98 million and \$115 million, respectively, of other sales primarily from bio-based energy and lignosulfonates.

Operating Income (Loss)

(in millions, except percentages)	Year Ended December 31, 2022	Gross Margin Changes Attributable to:				Year Ended December 31, 2023
		Sales Price	Sales Volume/ Mix/Other ^(a)	Cost	SG&A and other	
Operating income (loss)	\$ 31	\$ 27	\$ (31)	\$ (11)	\$ (58)	\$ (42)
Operating margin %	2.3 %	1.9 %	(2.2)%	(0.8)%	(4.4)%	(3.2)%

^(a) Computed based on contribution margin.

Operating results of our High Purity Cellulose segment declined \$73 million in 2023 compared to 2022 driven by a \$62 million non-cash impairment recorded in the fourth quarter of 2023 as a result of the optimization and realignment of our High Purity Cellulose assets. The higher cellulose specialties sales prices and commodity sales volumes and decreased key input and logistics costs were offset by the lower cellulose specialties sales volumes and commodity sales prices and higher labor costs due to inflation. Also contributing to the decline in operating results were \$8 million of energy cost offsets in 2022 from sales of energy savings certificates associated with our Tartas operations, compared to only \$1 million in 2023. In addition, we earned income on our investment in LTF in 2023 as compared to a loss in 2022.

Paperboard

(in millions, unless otherwise stated)	Year Ended December 31,	
	2023	2022
Net sales	\$ 219	\$ 250
Operating income	\$ 37	\$ 37
Average sales prices (\$ per MT)	\$ 1,491	\$ 1,478
Sales volumes (thousands of MTs)	147	169

Net Sales

(in millions)	Year Ended December 31, 2022	Changes Attributable to:		Year Ended December 31, 2023
		Price	Volume/Mix	
Net sales	\$ 250	\$ 2	\$ (33)	\$ 219

Net sales of our Paperboard segment decreased \$31 million in 2023 compared to 2022 driven by a 13 percent decrease in sales volumes due to customer destocking. Sales prices increased slightly year over year.

Operating Income

(in millions, except percentages)	Year Ended December 31, 2022	Gross Margin Changes Attributable to:				Year Ended December 31, 2023
		Sales Price	Sales Volume/ Mix ^(a)	Cost	SG&A and other	
Operating income	\$ 37	\$ 2	\$ (13)	\$ 11	\$ —	\$ 37
Operating margin %	14.8 %	0.7 %	(3.6)%	5.0 %	— %	16.9 %

^(a) Computed based on contribution margin.

Operating income of our Paperboard segment was flat in 2023 compared to 2022 as lower purchased pulp, maintenance and logistics costs and the impact of maintenance and market-driven shutdowns were offset by the lower sales volumes.

High-Yield Pulp

(in millions, unless otherwise stated)	Year Ended December 31,	
	2023	2022
Net sales	\$ 136	\$ 160
Operating income (loss)	\$ (3)	\$ 16
Average sales prices (\$ per MT) ^(a)	\$ 606	\$ 685
Sales volumes (thousands of MTs) ^(a)	182	191

^(a) Average sales prices and sales volumes for external sales only. During the years ended December 31, 2023 and 2022, the High-Yield Pulp segment sold 60,000 MTs and 66,000 MTs of high-yield pulp for \$25 million and \$29 million, respectively, to the Paperboard segment.

Net Sales

(in millions)	Year Ended December 31, 2022	Changes Attributable to:		Year Ended December 31, 2023
		Price	Volume/Mix	
Net sales	\$ 160	\$ (15)	\$ (9)	\$ 136

Net sales of our High-Yield Pulp segment decreased \$24 million in 2023 compared to 2022 driven by 12 percent and 5 percent decreases in sales prices and sales volumes, respectively, due to lower demand.

Operating Income (Loss)

(in millions, except percentages)	Year Ended December 31, 2022	Gross Margin Changes Attributable to:				SG&A and other	Year Ended December 31, 2023
		Sales Price	Sales Volume/ Mix ^(a)	Cost			
Operating income (loss)	\$ 16	\$ (15)	\$ (3)	\$ (1)	\$ —	\$ (3)	
Operating margin %	10.0 %	(9.3)%	(2.2)%	(0.7)%	— %	(2.2)%	

^(a) Computed based on contribution margin.

Operating results of our High-Yield Pulp segment declined \$19 million in 2023 compared to 2022 driven by the lower sales prices and sales volumes and increased wood costs.

Corporate

(in millions)	Year Ended December 31,	
	2023	2022
Operating loss	\$ (57)	\$ (58)

Our Corporate operating loss decreased \$1 million in 2023 compared to 2022 driven by lower variable compensation and other benefit costs and one-time severance costs incurred in 2022, largely offset by unfavorable foreign exchange rates in 2023 as compared to favorable rates in 2022. Additionally, higher costs were recognized related to ERP transformation project expenditures, discounting and financing fees incurred to facilitate working capital enhancements and advisory and professional expenses related to the refinancing of our 2024 Notes.

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 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, 2023, 2022 and 2021, and do not expect to utilize any of the remaining \$60 million in unused authorization in the future.

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.

In January 2024, we amended the 2027 Term Loan to increase the maximum consolidated secured net leverage ratio that we must maintain in the fourth quarter of 2023 and through our 2024 fiscal year. The amendment provides us with the operational flexibility to execute our strategic initiatives in 2024. In addition, should we exceed the maximum ratio established by the original agreement in any of these quarters, we will incur a fee of 0.25% of the principal balance outstanding at the end of the applicable quarter. As of December 31, 2023, we were in compliance with all financial and other customary covenants under our 2027 Term Loan and other credit arrangements.

Our non-guarantor subsidiaries had assets of \$470 million, liabilities of \$408 million, year-to-date revenue of \$164 million and a trailing twelve month ABL Credit Facility covenant EBITDA for continuing operations of \$17 million as of December 31, 2023.

Our liquidity and capital resources are summarized below:

(in millions, except ratios)	December 31,	
	2023	2022
Cash and cash equivalents ^(a)	\$ 76	\$ 152
Availability under the ABL Credit Facility ^{(b)(c)}	118	130
Total debt ^(c)	777	853
Stockholders' equity	747	829
Total capitalization (total debt plus stockholders' equity)	1,524	1,682
Debt to capital ratio	51 %	51 %

^(a) 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, 2023, we had \$151 million of gross availability and net available borrowings of \$118 million after taking into account outstanding letters of credit of \$33 million. In addition to the availability under the ABL Credit Facility, we have \$5 million available under our accounts receivable factoring line of credit in France.

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

Cash Requirements

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, 2023, our noncancellable unconditional purchase obligations totaled \$728 million. See Note 21—Commitments and Contingencies to our Financial Statements for further information.

Debt

In March 2023, we repurchased \$5 million of our 2024 Notes through open-market transactions and retired the notes for cash of \$5 million.

In April 2023, we repurchased \$10 million of our 2026 Notes through open-market transactions and retired the notes for cash of \$9 million.

In July 2023, we secured term loan financing of \$250 million in aggregate principal amount and received net proceeds of \$243 million after original issue discount, which was used, together with cash on hand of \$89 million, to redeem the remaining \$318 million in aggregate principal balance and accrued interest of \$4 million of the 2024 Notes and pay fees and expenses related to the transaction. The 2027 Term Loan matures in July 2027, bears interest at an annual rate equal to three-month Term SOFR (or, if greater, 3.00 percent) plus 8.00 percent and requires quarterly principal payments of \$1.25 million.

See Note 9—Debt and Finance Leases to our Financial Statements for further information.

Cash Flows

(in millions)	Year Ended December 31,	
	2023	2022
Cash flows provided by (used in):		
Operating activities	\$ 136	\$ 69
Investing activities-continuing operations	(128)	(138)
Investing activities-discontinued operations	1	44
Financing activities	(87)	(73)

Cash provided by operating activities increased \$67 million primarily due to increased cash inflows from working capital, partially offset by payments on deferred energy liabilities associated with our Tartas facility operations, net tax payments of \$7 million in 2023 and the receipt of net tax refunds of \$15 million in 2022.

Cash used in investing activities of continuing operations decreased \$10 million primarily due to lower capital spending.

Cash provided by investing activities of discontinued operations of \$44 million in 2022 related to the proceeds from the sale of GreenFirst equity securities.

Cash used in financing activities increased \$14 million primarily due to the redemption of the 2024 Notes and repayment of borrowings under the ABL Credit Facility and other long-term debt, the payment of issuance costs related to our 2027 Term Loan and higher repurchases of common stock to satisfy tax withholding requirements related to the issuance of stock under our incentive stock plans. These outflows were partially offset by the net proceeds received from the 2027 Term Loan issuance and borrowings under the ABL Credit Facility.

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 2023 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. 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 are not necessarily indicative of results that may be generated in future periods and 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. Adjusted EBITDA is defined as EBITDA adjusted for items that management believes are not representative of our core operations.

Loss from continuing operations is reconciled to EBITDA and adjusted EBITDA as follows:

(in millions)	Year Ended December 31,	
	2023	2022
Loss from continuing operations	\$ (102)	\$ (27)
Depreciation and amortization	140	135
Interest expense, net	69	64
Income tax expense (benefit)	(32)	1
EBITDA-continuing operations	75	173
Asset impairment	62	—
Pension settlement loss	2	1
Severance	—	4
Gain on debt extinguishment	—	(1)
Adjusted EBITDA-continuing operations	\$ 139	\$ 177

EBITDA from continuing operations decreased \$98 million, primarily driven by the \$62 million non-cash asset impairment recorded on certain High Purity Cellulose assets in the fourth quarter of 2023, the decrease in net sales across all segments and increased labor and wood costs in our High Purity Cellulose and High-Yield Pulp segments, respectively, partially offset by lower key input and logistics costs in our High Purity Cellulose and Paperboard segments. See **Results of Operations** above 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 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.

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

(in millions)	Year Ended December 31,	
	2023	2022
Cash provided by operating activities-continuing operations	\$ 136	\$ 69
Capital expenditures, net ^(a)	(83)	(104)
Adjusted free cash flows-continuing operations	<u>\$ 53</u>	<u>\$ (35)</u>

^(a) Net of proceeds from the sale of assets and excluding strategic capital expenditures. Strategic capital expenditures were \$45 million and \$34 million for the years ended December 31, 2023 and 2022, respectively.

Adjusted free cash flows of continuing operations increased primarily due to changes in working capital and lower 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 when 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 primarily grouped for purposes of evaluating recoverability at the combined plant level, the lowest level for which independent cash flows are identifiable.

In the fourth quarter of 2023, we began efforts towards the optimization and realignment of our High Purity Cellulose assets that included the consolidation of commodity viscose production into our Temiscaming plant and fluff production into our Jesup plant's C Line. This realignment materially impacts the way we have managed and will manage the underlying assets and ultimately led to the recognition of a \$62 million impairment.

Our impairment analysis involved various assumptions and estimates in the determination of fair value, the most significant being our estimates of future cash flows, including key assumptions regarding production levels, price levels, profit margins, capital expenditures and discount rate. While the result of the impairment analysis is highly sensitive to these assumptions, we believe the assumptions are reasonable and appropriately supported; however, our operating results could be adversely affected if actual results are not consistent with our estimates and assumptions. See Note 7—Property, Plant and Equipment, Net to our Financial Statements for further information regarding this asset realignment and impairment.

Environmental Liabilities

At December 31, 2023, we had \$170 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 decreased from 4.95 percent at December 31, 2022 to 4.71 percent at December 31, 2023.

Our defined pension plans were underfunded by \$83 million at December 31, 2023. The underfunded status decreased by \$4 million in 2023, primarily due to actuarial losses as a result of decreased discount rates, offset by returns on plan assets. In 2024, pension expense is expected to be flat compared to 2023. 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 2023, we made mandatory contributions and benefit payments to plan participants of \$10 million. During 2024, we expect to make mandatory contributions and benefit payments to plan participants of \$10 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 2024 Pension Expense	Increase (Decrease) in December 31, 2023 Projected Benefit Obligation
Change in Assumption		
50 bp decrease in discount rate	\$(1)	\$33
50 bp increase in discount rate	\$—	\$(30)
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 \$477 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 deductible 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 recorded 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. 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, 2023, we had \$255 million of variable rate debt subject to interest rate risk. In the third quarter of 2023 we issued variable rate term loan financing of \$250 million, which was used with cash on hand to redeem the \$318 million outstanding principal balance of our fixed rate 2024 Notes. At this borrowing level, a hypothetical one percent change in interest rates would have resulted in a \$2 million annual change in interest expense. At December 31, 2022, we had \$4 million of variable rate debt subject to interest rate risk, for which a hypothetical one percent change in rates would have resulted in an immaterial change in interest expense for the period.

The fair market value of our long-term fixed interest rate debt is also subject to interest rate risk when the debt becomes due or if we do not hold the debt until maturity. The estimated fair value of our fixed-rate debt at December 31, 2023 and 2022 was \$498 million and \$839 million, respectively, compared to their respective \$540 million and \$854 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 2023 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

Our 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 2023 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 that 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 Form 10-K, our management, including the Chief Executive Officer and Chief Financial Officer, concluded that the design and operation of our disclosure controls and procedures were effective as of December 31, 2023.

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 beginning on page F-3, included in Item 8—Financial Statements and Supplementary Data of this 2023 Form 10-K, are incorporated by reference into this Item 9A.

For the quarter ended December 31, 2023, 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

During the quarter ended December 31, 2023, no director or officer of the Company adopted, modified or terminated a "Rule 10b5-1 trading arrangement" or "non-Rule 10b5-1 trading arrangement" as defined under Item 408(a) of Regulation S-K.

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 2024 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 2023 Form 10-K

1. Financial Statements

See page F-1 of this 2023 Form 10-K.

2. Financial Statement Schedules

See page F-1 of this 2023 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	Description of Common Stock	Incorporated herein by reference to Exhibit 4.2 to the Registrant's Form 10-K filed on March 2, 2020
4.2	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
4.3	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.	
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

Exhibit No.	Description	Location
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†	Rayonier Advanced Materials Inc. 2023 Incentive Stock Plan, effective May 17, 2023	Incorporated herein by reference to Appendix D to the Registrant's Definitive Proxy Statement on Schedule 14A filed on March 31, 2023
10.11†	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
10.12†	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
10.13†	Form of Rayonier Advanced Materials Inc. 2024 Restricted Stock Unit Award Agreement	Filed herewith
10.14†	Form of Rayonier Advanced Materials Inc. 2024 Restricted Stock Unit Award Agreement for De Lyle Bloomquist and James L. Posze, Jr	Filed herewith
10.15†	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
10.16†	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
10.17†	Form of Rayonier Advanced Materials Inc. 2023 Performance Share Unit Award Agreement	Incorporated herein by reference to Exhibit 10.14 to the Registrant's Form 10-K filed on March 1, 2023
10.18†	Form of Rayonier Advanced Materials Inc. 2024 Performance Share Unit Award Agreement	Filed herewith
10.19†	Form of Rayonier Advanced Materials Inc. 2024 Performance Share Unit Award Agreement for De Lyle Bloomquist and James L. Posze, Jr	Filed herewith
10.20†	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
10.21†	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
10.22†	Form of Rayonier Advanced Materials Inc. 2023 Performance Cash Unit Award Agreement	Incorporated herein by reference to Exhibit 10.17 to the Registrant's Form 10-K filed on March 1, 2023
10.23†	Form of Rayonier Advanced Materials Inc. 2024 Performance Cash Unit Award Agreement	Filed herewith
10.24†	Form of Rayonier Advanced Materials Inc. 2024 Performance Cash Unit Award Agreement for De Lyle Bloomquist and James L. Posze, Jr	Filed herewith
10.25†	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
10.26†	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

Exhibit No.	Description	Location
10.27†	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
10.28†	Form of Rayonier Advanced Materials Inc. Incentive Stock Plan Supplemental Terms Applicable to the 2023 Equity Award Grant	Incorporated herein by reference to Exhibit 10.21 to the Registrant's Form 10-K filed on March 1, 2023
10.29†	Form of Rayonier Advanced Materials Inc. Incentive Stock Plan Supplemental Terms Applicable to the 2024 Equity Award Grant	Filed herewith
10.30† #	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
10.31† #	Description of Rayonier Advanced Materials Inc. 2022 Senior Team Equity Incentive Program Structure	Incorporated herein by reference to Exhibit 10.23 to the Registrant's Form 10-K filed on March 1, 2023
10.32† #	Description of Rayonier Advanced Materials Inc. 2023 Equity Incentive Program Design	Incorporated herein by reference to Exhibit 10.24 to the Registrant's Form 10-K filed on March 1, 2023
10.33† #	Description of Rayonier Advanced Materials Inc. 2024 Equity Incentive Program Design	Filed herewith
10.34†	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
10.35†	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
10.36†	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
10.37†	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
10.38†	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
10.39†	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
10.40†	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
10.41†	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
10.42†	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
10.43†	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
10.44†	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
10.45†	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
10.46†	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
10.47†	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

Exhibit No.	Description	Location
10.48†	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
10.49†	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
10.50†	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
10.51†	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
10.52†	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
10.53	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
10.54	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
10.55	Amendment No. 2 to Revolving Credit Agreement, dated as of July 20, 2023, among Rayonier Advanced Materials Inc., Rayonier A.M. Products Inc., the lenders and issuing banks party thereto and Bank of America, N.A. as administrative agent and collateral agent	Incorporated herein by reference to Exhibit 10.3 to the Registrant's Form 8-K filed on July 20, 2023
10.56	Term Loan Credit Agreement, dated as of July 20, 2023, by and among RYAM Lux SARL, Rayonier Advanced Materials Inc., the other subsidiaries of Rayonier Advanced Materials Inc. party thereto, the lenders party thereto, Oaktree Fund Administration, LLC, as administrative agent, and Computershare Trust Company, N.A., as collateral agent	Incorporated herein by reference to Exhibit 10.1 to the Registrant's Form 8-K filed on July 20, 2023
10.57	Loan Agreement, dated as of July 20, 2023, by and among RYAM Lux SARL, Rayonier Advanced Materials Inc. and the other subsidiaries of Rayonier Advanced Materials Inc. party thereto	Incorporated herein by reference to Exhibit 10.2 to the Registrant's Form 8-K filed on July 20, 2023
10.58	Amendment No. 1 to Term Loan Credit Agreement, dated as of January 2, 2024, by and among RYAM Lux SARL, Rayonier Advanced Materials Inc., the other subsidiaries of Rayonier Advanced Materials Inc. party thereto, the lenders party thereto, and Oaktree Fund Administration, LLC, as administrative agent	Incorporated herein by reference to Exhibit 10.1 to the Registrant's Form 8-K filed on January 3, 2024
10.59#	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
10.60†	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

Exhibit No.	Description	Location
10.61†	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
24	Power of Attorney	Incorporated herein by reference to the signature page of this Annual Report on Form 10-K
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
97	Rayonier Advanced Materials Inc. Incentive Compensation Recovery Policy	Filed 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: February 29, 2024

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, President and Director	February 29, 2024
<u>/s/ MARCUS J. MOELTNER</u> Marcus J. Moeltner (Principal Financial Officer)	Chief Financial Officer and Senior Vice President, Finance	February 29, 2024
<u>/s/ GABRIELA GARCIA</u> Gabriela Garcia (Principal Accounting Officer)	Chief Accounting Officer and Vice President, Corporate Controller	February 29, 2024

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, 2023, 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 18, 2024
<u>/s/ CHARLES E. ADAIR</u> Charles E. Adair	Director	January 23, 2024
<u>/s/ JULIE A. DILL</u> Julie A. Dill	Director	January 15, 2024
<u>/s/ CHARLES R. EGGERT</u> Charles R. Eggert	Director	January 15, 2024
<u>/s/ JAMES F. KIRSCH</u> James F. Kirsch	Director	January 24, 2024
<u>/s/ DAVID C. MARIANO</u> David C. Mariano	Director	January 17, 2024
<u>/s/ IVONA SMITH</u> Ivona Smith	Director	January 19, 2024
<u>/s/ BRYAN YOKLEY</u> Bryan Yokley	Director	January 16, 2024

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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, 2023. 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, 2023.

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, 2023. The report appears on page F-5 of this 2023 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, 2023 and 2022, the related consolidated statements of operations, comprehensive income (loss), stockholders’ equity, and cash flows for each of the three years in the period ended December 31, 2023, and the related notes and financial statement schedule included under Item 15(a) (collectively referred to as the “consolidated financial statements”). In our opinion, the consolidated financial statements present fairly, in all material respects, the financial position of the Company as of December 31, 2023 and 2022, and the results of its operations and its cash flows for each of the three years in the period ended December 31, 2023, 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, 2023, based on the 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 February 29, 2024 expressed an unqualified opinion.

Basis for opinion

These consolidated financial statements are the responsibility of the Company’s management. Our responsibility is to express an opinion on the Company’s consolidated financial statements based on our audits. We are a public accounting firm registered with the Public Company Accounting Oversight Board (United States) (“PCAOB”) and are required to be independent with respect to the Company in accordance with the U.S. federal securities laws and the applicable rules and regulations of the Securities and Exchange Commission and the PCAOB.

We conducted our audits in accordance with the standards of the PCAOB. Those standards require that we plan and perform the audit to obtain reasonable assurance about whether the consolidated 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 consolidated financial statements, whether due to error or fraud, and performing procedures that respond to those risks. Such procedures included examining, on a test basis, evidence regarding the amounts and disclosures in the consolidated financial statements. Our audits also included evaluating the accounting principles used and significant estimates made by management, as well as evaluating the overall presentation of the consolidated financial statements. We believe that our audits provide a reasonable basis for our opinion.

Critical audit matters

The critical audit matters communicated below are matters arising from the current period audit of the consolidated financial statements that were communicated or required to be communicated to the audit committee and that: (1) relate to accounts or disclosures that are material to the consolidated 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 consolidated financial statements, taken as a whole, and we are not, by communicating the critical audit matters below, providing separate opinions on the critical audit matters or on the accounts or disclosures to which they relate.

Accruals for environmental liabilities

As described further in Note 10 to the consolidated 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, 2023. 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. We identified the accruals for environmental liabilities as a critical audit matter.

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 consolidated 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.

Impairment of long-lived assets

As described further in Note 7 and Note 12 to the consolidated financial statements, the Company reviews long-lived assets for impairment whenever events or changes in circumstances, known as triggering events, indicate that the carrying amount of a long-lived asset or asset group, may not be recoverable. Management considers various factors when determining if long-lived assets should be evaluated for impairment, including a significant adverse change in the business climate or industry conditions (such as sustained decreases in commodity prices, volatility in energy costs, and the global economy), a current period operating or cash flow loss combined with a history of losses, a significant adverse change in the extent or manner in which an asset is used, or a current expectation that the asset will be sold or otherwise disposed of before the end of its useful life. As a result of changes to the intended use of high purity cellulose assets located in Temiscaming, Canada, the Company completed an impairment analysis of this asset group in the fourth quarter of 2023 and recorded a charge of \$25 million in the accompanying Consolidated Statement of Operations. We identified the impairment of high purity cellulose assets located in Temiscaming, Canada as a critical audit matter.

The principal considerations for our determination that the impairment of high purity cellulose assets located in Temiscaming, Canada is a critical audit matter is the significant judgments made by management to estimate the impairment charge. This required a high degree of auditor judgment and an increased extent of effort when performing audit procedures to evaluate the reasonableness of management's estimates and assumptions related to the future production, pricing estimates, capital and operating costs, market-based weighted average cost of capital and risk adjustment factors.

Our audit procedures related to the impairment analysis included the following, among others. We evaluated the design and tested the operating effectiveness of the key controls over the Company's determination of triggering events and the key assumptions underlying the fair value determination and the completeness and accuracy of the data used in the determination of the fair value. We evaluated the reasonableness of the key assumptions used in management's cash flow forecast by comparing them to historical amounts and current industry and economic trends. We evaluated the reasonableness of management's assessment of future market prices of the revenue-generating commodity and cellulose specialties products and future input costs necessary for operations by comparing these amounts against available forward market pricing data and historical amounts. Additionally, we performed sensitivity analyses around certain cost of sales assumptions underlying management's fair value assessment. We assessed the qualifications and competence of management and its valuation professional primarily responsible with the determination of the fair value of the long-lived assets. We involved valuation professionals, with specialized skills and knowledge, to assist in our evaluation of the valuation methodologies applied and the significant assumptions used to determine the fair value of the asset group, including the weighted average cost of capital and risk adjustment factors.

/s/ GRANT THORNTON LLP

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

Jacksonville, Florida
February 29, 2024

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, 2023, 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, 2023, 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, 2023, and our report dated February 29, 2024 expressed an unqualified opinion on those consolidated 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 consolidated 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 consolidated 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 consolidated financial statements.

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

/s/ GRANT THORNTON LLP

Jacksonville, Florida
February 29, 2024

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

	Year Ended December 31,		
	2023	2022	2021
Net sales	\$ 1,643,330	\$ 1,717,267	\$ 1,407,558
Cost of sales	(1,555,176)	(1,594,184)	(1,332,836)
Gross margin	88,154	123,083	74,722
Selling, general and administrative expense	(75,712)	(91,475)	(75,789)
Foreign exchange gain (loss)	(2,999)	4,726	875
Asset impairment	(62,300)	—	—
Other operating expense, net (Note 18)	(12,407)	(10,199)	(10,253)
Operating income (loss)	(65,264)	26,135	(10,445)
Interest expense	(73,810)	(66,183)	(66,394)
Components of pension and OPEB, excluding service costs (Note 17)	98	4,960	(4,337)
Gain (loss) on GreenFirst equity securities (Note 3)	—	5,197	(3,597)
Other income, net	6,502	6,069	1,901
Loss from continuing operations before income tax	(132,474)	(23,822)	(82,872)
Income tax (expense) benefit (Note 19)	32,311	(902)	34,688
Equity in loss of equity method investment	(1,984)	(2,653)	(1,585)
Loss from continuing operations	(102,147)	(27,377)	(49,769)
Income from discontinued operations, net of tax (Note 3)	312	12,458	116,183
Net income (loss)	\$ (101,835)	\$ (14,919)	\$ 66,414
Basic and Diluted earnings per common share (Note 15)			
Loss from continuing operations	\$ (1.57)	\$ (0.42)	\$ (0.78)
Income from discontinued operations	—	0.19	1.83
Net income (loss)	\$ (1.57)	\$ (0.23)	\$ 1.05

See Notes to Consolidated Financial Statements.

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

	Year Ended December 31,		
	2023	2022	2021
Net income (loss)	\$ (101,835)	\$ (14,919)	\$ 66,414
Other comprehensive income (loss), net of tax (Note 14)			
Foreign currency translation adjustment	7,530	(12,763)	(17,919)
Unrealized gain (loss) on derivative instruments	194	280	(2,681)
Net gain on employee benefit plans	10,157	33,155	69,765
Total other comprehensive income (loss)	17,881	20,672	49,165
Comprehensive income (loss)	\$ (83,954)	\$ 5,753	\$ 115,579

See Notes to Consolidated Financial Statements.

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

	December 31,	
	2023	2022
Assets		
Current assets		
Cash and cash equivalents	\$ 75,768	\$ 151,803
Accounts receivable, net (Note 5)	197,457	211,526
Inventory (Note 6)	207,474	265,334
Income tax receivable (Note 19)	19,455	1,196
Prepaid and other current assets	74,904	59,671
Total current assets	<u>575,058</u>	<u>689,530</u>
Property, plant and equipment, net (Note 7)	1,075,105	1,151,268
Deferred tax assets (Note 19)	345,181	322,164
Intangible assets, net (Note 2)	17,414	24,423
Other assets	169,942	160,143
Total assets	<u>\$ 2,182,700</u>	<u>\$ 2,347,528</u>
Liabilities and Stockholders' Equity		
Current liabilities		
Accounts payable	\$ 186,226	\$ 163,962
Accrued and other current liabilities (Note 8)	154,488	164,369
Debt due within one year (Note 9)	25,283	14,617
Current environmental liabilities (Note 10)	9,833	10,732
Total current liabilities	<u>375,830</u>	<u>353,680</u>
Long-term debt (Note 9)	752,174	838,508
Non-current environmental liabilities (Note 10)	160,458	159,949
Pension and other postretirement benefits (Note 17)	101,493	119,571
Deferred tax liabilities (Note 19)	15,190	17,021
Other liabilities	31,108	29,486
Commitments and contingencies (Note 21)		
Stockholders' equity (Note 13)		
Common stock: 140,000,000 shares authorized at \$0.01 par value, 65,393,014 and 64,020,761 issued and outstanding, respectively	654	640
Additional paid-in capital	419,122	418,048
Retained earnings	372,588	474,423
Accumulated other comprehensive loss (Note 14)	(45,917)	(63,798)
Total stockholders' equity	<u>746,447</u>	<u>829,313</u>
Total liabilities and stockholders' equity	<u>\$ 2,182,700</u>	<u>\$ 2,347,528</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, 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 loss	—	—	—	(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
Net loss	—	—	—	(101,835)	—	(101,835)
Other comprehensive income, net of tax	—	—	—	—	17,881	17,881
Issuance of common stock under incentive stock plans	2,032,375	20	(20)	—	—	—
Stock-based compensation	—	—	6,507	—	—	6,507
Repurchase of common stock ^(a)	(660,122)	(6)	(5,413)	—	—	(5,419)
Balance at December 31, 2023	65,393,014	\$ 654	\$ 419,122	\$ 372,588	\$ (45,917)	\$ 746,447

^(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,		
	2023	2022	2021
Operating activities			
Net income (loss)	\$ (101,835)	\$ (14,919)	\$ 66,414
Adjustments to reconcile net income (loss) to cash provided by operating activities:			
Income from discontinued operations	(312)	(12,458)	(116,183)
Depreciation and amortization	139,983	134,576	138,299
Asset impairment	62,300	—	—
Stock-based compensation expense	6,507	9,650	5,099
Amortization of debt discount and issuance costs	6,050	4,033	3,802
Deferred income tax benefit	(27,713)	(3,948)	(37,094)
Increase in environmental liabilities	4,764	4,595	6,099
(Gain) loss on GreenFirst equity securities	—	(5,197)	3,597
Net periodic benefit cost of pension and postretirement plans	3,578	5,290	16,095
Unrealized (gain) loss on foreign currency	1,900	(5,666)	3,978
Loss on disposal of property, plant and equipment	731	3,742	1,010
Other	(361)	(651)	(5,556)
Changes in operating assets and liabilities:			
Accounts receivable	19,979	(33,824)	(11,518)
Inventories	58,949	(35,113)	(58,310)
Income tax receivable	(7,137)	19,795	32,915
Accounts payable	13,757	(8,266)	7,376
Accrued liabilities	(12,219)	27,909	23,900
Other	(15,729)	(8,359)	8,871
Contributions to pension and other postretirement plans	(11,533)	(7,915)	(8,552)
Expenditures for environmental liabilities	(5,385)	(4,461)	(6,556)
Cash provided by operating activities-continuing operations	136,274	68,813	73,686
Cash provided by operating activities-discontinued operations	—	—	159,538
Cash provided by operating activities	136,274	68,813	233,224
Investing activities			
Capital expenditures, net of proceeds	(127,670)	(138,223)	(93,217)
Investment in equity method investment	(780)	(379)	(4,142)
Cash used in investing activities-continuing operations	(128,450)	(138,602)	(97,359)
Cash provided by investing activities-discontinued operations	1,169	44,428	182,750
Cash provided by (used in) investing activities	(127,281)	(94,174)	85,391
Financing activities			
Borrowings of long-term debt	465,030	5,721	4,393
Repayments of long-term debt	(537,845)	(75,250)	(161,025)
Short-term financing, net	1,369	(3,153)	2,028
Debt issuance costs	(10,082)	—	(636)
Repurchase of common stock	(5,419)	(433)	(1,422)
Cash used in financing activities	(86,947)	(73,115)	(156,662)
Net increase (decrease) in cash and cash equivalents	(77,954)	(98,476)	161,953
Net effect of foreign exchange on cash and cash equivalents	1,919	(3,028)	(2,299)
Balance, beginning of period	151,803	253,307	93,653
Balance, end of period	\$ 75,768	\$ 151,803	\$ 253,307

Year Ended December 31,

	2023		2022		2021
Supplemental cash flow information:					
Interest paid	\$	(51,017)	\$	(58,053)	\$ (46,770)
Income taxes refunded (paid), net		(7,239)		15,200	34,715
Capital assets purchased on account		37,363		29,726	25,580

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 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 in August 2021, the Company presents the results for those operations and any associated impacts as discontinued operations. Unless otherwise stated, information in these notes to consolidated financial statements relates to continuing operations. See Note 3—Discontinued Operations for further information.

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

Subsequent Events

Term Loan Amendment

In January 2024, the Company amended the 2027 Term Loan to increase the maximum consolidated secured net leverage ratio that it must maintain in the fourth quarter of 2023 and through its 2024 fiscal year. See Note 9—Debt and Finance Leases 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.

Accounts Receivable and Allowance for Credit Loss

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, and 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.

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

Impairment

Long-lived assets are reviewed for impairment when events or changes in circumstances indicate the carrying amount of an asset may not be recoverable. Property, plant and equipment are primarily grouped at the combined plant level, the lowest level for which independent cash flows are identifiable. 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.

In the fourth quarter of 2023, in conjunction with the optimization and realignment of High Purity Cellulose assets, the Company recorded a non-cash impairment of \$62 million related to certain assets at the Temiscaming and Jesup facilities. See Note 7—Property, Plant and Equipment, Net for further details of this impairment.

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, 2023 and 2022, the Company had accrued \$12 million and \$11 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 2023, no obligations were incurred or settled; the change in balance was due to \$1 million of accretion. Accretion expense during the years ended December 31, 2022 and 2021 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. As of December 31, 2023 and 2022, the Company had \$40 million and \$22 million, respectively, of capitalized software included in "other assets" in the consolidated balance sheets. Accumulated amortization was \$23 million and \$16 million at December 31, 2023 and 2022, respectively. Amortization expense for capitalized software is recorded in "cost of sales" and "selling, general and administrative expense" in the consolidated statements of operations and totaled \$4 million, \$4 million and \$7 million for the years ended December 31, 2023, 2022 and 2021, respectively.

Maintenance Costs

The Company performs scheduled inspections and major repairs and maintenance of plant machinery and equipment at the Company's 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. Major maintenance shutdown costs are accounted for by the deferral method, under which expenditures related to shutdown are capitalized when incurred and amortized to production cost on a straight-line basis over the period benefited or the period of time until the next scheduled major maintenance 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, 2023 and 2022, the Company had \$34 million and \$23 million, respectively, in deferred major maintenance shutdown costs recorded 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 in 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, 2023, 2022 and 2021, the Company recorded \$11 million, \$12 million and \$12 million, respectively, of sales of excess emission allowances associated with its Tartas, France operations.

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Research and Development Expense

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 expense was \$6 million, \$7 million and \$7 million for the years ended December 31, 2023, 2022 and 2021, respectively.

Intangible Assets

The Company has definite-life intangible assets that 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 for periods generally ranging from 8 to 15 years. The Company evaluates the recoverability 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, 2023			
	Gross Carrying Amount	Accumulated Amortization	Net Carrying Amount	Weighted Average Remaining Life
Customer lists	\$ 51,680	\$ (39,348)	\$ 12,332	1.9 years
Trade names	8,604	(3,522)	5,082	8.9 years
Total definite-lived intangibles	\$ 60,284	\$ (42,870)	\$ 17,414	4.0 years

	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	\$ 60,284	\$ (35,861)	\$ 24,423	4.5 years

Total amortization expense related to definite-lived intangible assets was \$7 million for each of the years ended December 31, 2023, 2022 and 2021.

Estimated future amortization expense related to intangible assets held as of December 31, 2023 was as follows:

2024	\$ 7,009
2025	6,473
2026	575
2027	575
2028	575
Thereafter	2,207
Total	\$ 17,414

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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, 2023. The Company and Anomera have entered into various service, leasing and supply agreements to support Anomera's operations at the production facility. There are no financing agreements at Anomera for which the Company is liable.

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, 2023, 2022 and 2021, the Company recorded losses of \$2 million, \$3 million and \$2 million, respectively, on its equity investment in Anomera.

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 \$14 million, \$20 million and \$14 million of lignin sales to the LTF joint venture during the years ended December 31, 2023, 2022 and 2021, 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. The Company recorded immaterial income on its equity investment in LTF during the year ended December 31, 2023. During the years ended December 31, 2022 and 2021, the Company recorded losses of \$3 million and \$2 million, respectively. 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

Revenue is recognized when the performance obligations under a customer contract are satisfied. The Company's customer 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.

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The Company has certain contracts that contain performance obligations that are not significant in the context of the customer contract and has 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, 2023 or 2022.

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 2024 through 2044, 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 environmental liabilities” and “non-current environmental liabilities” 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 and service lives of employees.

The components of periodic pension and postretirement costs, other than service costs, are presented separately, outside of operating income, in “components of pension and OPEB, excluding service costs” in 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.

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 net of taxes in stockholders’ equity. If actuarial gains and losses exceed ten percent of the greater of plan assets or plan liabilities, the Company amortizes them over the average future service period.

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 asset and liability carrying amounts 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 its 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 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

In August 2023, the FASB issued ASU 2023-05 “Business Combinations—Joint Venture Formations (Subtopic 805-60): Recognition and Initial Measurement,” which provides specific guidance on how a joint venture, upon formation, should recognize and initially measure assets contributed and liabilities assumed. This ASU should be applied on a prospective basis to all joint ventures with a formation date on or after January 1, 2025. Early adoption is permitted and joint ventures formed prior to adoption date may elect to apply the new guidance retrospectively back to their original formation date. The Company is currently evaluating the impact of this standard on its consolidated financial statements and related disclosures.

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In November 2023, the FASB issued ASU 2023-07 “Segment Reporting (Topic 280): Improvements to Reportable Segment Disclosures,” which requires disclosures about significant segment expenses and other segment items on an interim and annual basis. ASU 2023-07 should be applied retrospective to all prior periods presented in the financial statements and is effective for annual periods beginning after December 15, 2023 and interim periods beginning after December 15, 2024. Early adoption is permitted. The Company is currently evaluating the impact of this standard on its disclosures, with no impact expected to its consolidated financial statements.

In December 2023, the FASB issued ASU 2023-09 “Income Taxes (Topic 740): Improvements to Income Tax Disclosures,” which requires enhanced income tax disclosures, primarily through changes to the rate reconciliation and income taxes paid information. ASU 2023-09 should be applied on a prospective basis and is effective for annual periods beginning after December 15, 2024. Early adoption and retrospective application are permitted. The Company is currently evaluating the impact of this standard on its disclosures, with no impact expected to its consolidated financial statements.

3. Discontinued Operations

In August 2021, the Company completed the sale of its lumber and newsprint facilities and certain related assets located in 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 (USD \$5 million after present value discount), which may be offset equally over the next 5 years against future amounts owed by the Company to GreenFirst for wood chip purchases. The Company recorded a net-of-tax gain on the sale of \$4 million.

In the second quarter of 2022, the Company sold the GreenFirst common shares for \$43 million. Prior to the sale of shares, the GreenFirst common shares were accounted for at fair value, with changes in fair value recorded in the consolidated statements of operations.

In connection with the sale, GreenFirst and the Company entered into a 20-year assignable 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.

As part of the sale of the lumber assets, the Company retained all rights and obligations to softwood duties generated or incurred through the closing date of the sale. In total, the Company paid \$112 million in softwood lumber duties from 2017 through August 2021, and expects to receive the vast majority of these duties upon final resolution of the dispute between the USDOC and Canada. During the third quarter of 2023, the USDOC completed its fourth administrative review of duties applied to Canadian softwood lumber exports to the U.S. during 2021 and reduced rates applicable to the Company to a combined 8.05 percent. In connection with this development, the Company recorded a pre-tax gain of \$2 million in “income from discontinued operations, net of taxes.” During the third quarter of 2022, the USDOC completed its third administrative review of duties applied to Canadian softwood lumber exports during 2020 and reduced applicable rates to a combined 8.6 percent, for which the Company recorded a pre-tax gain of \$16 million. As of December 31, 2023, the Company had a \$40 million long-term receivable associated with the USDOC’s determinations of revised rates for the 2017, 2018, 2019, 2020 and 2021 periods.

During the second quarter of 2023, the Company incurred a \$2 million loss related to the settlement of a claim pursuant to the representations and warranties in the asset purchase agreement.

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

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Income from discontinued operations was comprised of the following:

	Year Ended December 31,		
	2023	2022	2021
Net sales ^(a)	\$ —	\$ —	\$ 442,583
Cost of sales	—	155	(236,670)
Gross margin	—	155	205,913
Selling, general and administrative expense and other operating income, net	424	16,808	(27,119)
Operating income	424	16,963	178,794
Interest expense ^(b)	—	(13)	(7,294)
Other non-operating income	—	—	967
Income from discontinued operations before income tax	424	16,950	172,467
Income tax expense	(112)	(4,492)	(60,400)
Income from discontinued operations, net of tax	312	12,458	112,067
Gain on sale of discontinued operations	—	—	8,751
Income tax expense on gain on sale of discontinued operations	—	—	(4,635)
Gain on sale of discontinued operations, net of tax	—	—	4,116
Income from discontinued operations, net of tax	<u>\$ 312</u>	<u>\$ 12,458</u>	<u>\$ 116,183</u>

^(a) Net of intercompany sales of \$31 million in 2021.

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

Other discontinued operations information included the following:

	Year Ended December 31,		
	2023	2022	2021
Depreciation and amortization	\$ —	\$ —	\$ 3,172
Capital expenditures	—	—	9,607

4. Leases

The Company's operating and finance leases are primarily for corporate offices, warehouse space, rail cars and equipment. As of December 31, 2023, the Company's leases have remaining lease terms of less than one year to 12.8 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.

Financial and other information related to the Company's operating and finance leases follow:

	Year Ended December 31,		
	2023	2022	2021
Operating lease cost	\$ 7,441	\$ 7,751	\$ 6,049
Finance lease cost			
Amortization of ROU assets	405	377	352
Interest	110	138	163
Total lease cost	<u>\$ 7,956</u>	<u>\$ 8,266</u>	<u>\$ 6,564</u>

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	Balance Sheet Location	December 31,	
		2023	2022
Operating leases			
ROU assets	Other assets	\$ 17,475	\$ 15,623
Lease liabilities, current	Accrued and other current liabilities	4,499	4,741
Lease liabilities, non-current	Other liabilities	14,666	11,399
Finance leases			
ROU assets	Property, plant and equipment, net	1,078	1,448
Lease liabilities	Long-term debt	1,355	1,760

	Year Ended December 31,		
	2023	2022	2021
Operating cash flows - cash paid for amounts included in the measurement of operating lease liabilities	\$ 6,996	\$ 7,694	\$ 6,391
Operating lease ROU assets obtained in exchange for lease liabilities	7,676	2,975	6,774

Finance lease cash flows were immaterial during the years ended December 31, 2023, 2022 and 2021.

	December 31,	
	2023	2022
Operating leases		
Weighted average remaining lease term (in years)	5.5	5.8
Weighted average discount rate	8.3 %	8.9 %
Finance leases		
Weighted average remaining lease term (in years)	2.8	3.8
Weighted average discount rate	7.0 %	7.0 %

Operating lease maturities as of December 31, 2023 were as follows:

2024	\$ 5,828
2025	5,109
2026	4,289
2027	3,192
2028	1,947
Thereafter	4,133
Total minimum lease payments	24,498
Less: imputed interest	(5,333)
Present value of future minimum lease payments	<u>\$ 19,165</u>

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5. Accounts Receivable, Net

Accounts receivable, net included the following:

	December 31,	
	2023	2022
Accounts receivable, trade	\$ 166,137	\$ 171,144
Accounts receivable, other ^(a)	31,973	41,446
Allowance for credit loss	(653)	(1,064)
Accounts receivable, net	<u>\$ 197,457</u>	<u>\$ 211,526</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,	
	2023	2022
Finished goods	\$ 147,930	\$ 198,931
Work-in-progress	6,987	5,230
Raw materials	46,120	52,967
Manufacturing and maintenance supplies	6,437	8,206
Inventory	<u>\$ 207,474</u>	<u>\$ 265,334</u>

7. Property, Plant and Equipment, Net

Property, plant and equipment, net included the following:

	December 31,	
	2023	2022
Land and land improvements	\$ 35,837	\$ 37,346
Buildings	251,196	257,592
Machinery and equipment	2,501,882	2,515,827
Other	4,929	5,265
Construction in progress	78,790	57,136
Property, plant and equipment	2,872,634	2,873,166
Accumulated depreciation	(1,797,529)	(1,721,898)
Property, plant and equipment, net	<u>\$ 1,075,105</u>	<u>\$ 1,151,268</u>

Depreciation expense recorded in the consolidated statements of operations was \$129 million, \$124 million and \$125 million for the years ended December 31, 2023, 2022 and 2021, respectively.

The Company received proceeds from the sale of assets of \$3 million, \$0 million and \$2 million during the years ended December 31, 2023, 2022 and 2021, respectively.

Asset Impairment

In the fourth quarter of 2023, the Company began efforts towards the optimization and realignment of its High Purity Cellulose assets that included the consolidation of commodity viscose production into the Temiscaming plant and fluff production into the Jesup plant's C Line. This realignment reflects a strategic decision expected to reduce commodity exposure and earnings volatility and allow the Company to better manage excess capacity of cellulose specialties by operating assets based on current demand for each end market.

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The realignment materially impacts the way the assets have been and will be managed, which resulted in the need for an impairment analysis and, ultimately, the recognition of a non-cash impairment of \$62 million. The impairment was recorded to “asset impairment” in the consolidated statements of operations and was comprised of the amount by which the Temiscaming plant’s net carrying value exceeded its estimated fair value and the write-off of certain assets at the Jesup plant that are no longer expected to be used.

Determining the fair value of an asset group is judgmental in nature and involves the use of significant estimates and assumptions. The Company determined the fair value of the Temiscaming plant asset group using discounted cash flows under the income approach, which required the use of key assumptions and significant estimates. See Note 12—Fair Value Measurements for further information on the fair value measurement of the Temiscaming plant asset group.

8. Accrued and Other Current Liabilities

Accrued and other current liabilities included the following:

	December 31,	
	2023	2022
Accrued customer incentives	\$ 30,036	\$ 28,702
Accrued payroll and benefits	13,552	13,763
Accrued interest	32,256	18,877
Accrued income taxes	4,605	9,321
Accrued property and other taxes	2,547	3,065
Deferred revenue ^(a)	24,061	21,645
Other current liabilities ^(b)	47,431	68,996
Accrued and other current liabilities	<u>\$ 154,488</u>	<u>\$ 164,369</u>

^(a) Included at both December 31, 2023 and 2022 was CAD \$25 million (USD \$19 million) 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, 2023 and 2022 was \$13 million and \$30 million, respectively, of energy-related payables associated with Tartas facility operations.

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9. Debt and Finance Leases

Debt and finance leases included the following:

	December 31,	
	2023	2022
ABL Credit Facility due December 2025: \$118 million net availability, bearing interest of 7.45% (5.45% adjusted SOFR plus 2.00% margin) at December 31, 2023	\$ —	\$ —
Term Loan due July 2027: bearing interest of 13.33% (5.33% three-month Term SOFR plus 8.00% margin) at December 31, 2023	250,000	—
7.625% Senior Secured Notes due January 2026	464,640	475,000
5.50% Senior Unsecured Notes due June 2024	—	322,675
5.50% CAD-based term loan due April 2028	30,479	36,585
Other loans ^(a)	44,754	19,598
Short-term factoring facility	5,292	3,773
Finance lease obligations	1,355	1,760
Total principal payments due	796,520	859,391
Less: unamortized premium, discount and issuance costs	(19,063)	(6,266)
Total debt	777,457	853,125
Less: debt due within one year	(25,283)	(14,617)
Long-term debt	\$ 752,174	\$ 838,508

^(a) Consist of loans for energy and other loans intended for use in biomaterials projects in France.

Future debt and finance lease payments as of December 31, 2023 included:

	Finance Lease			Debt Principal Payments
	Minimum Lease Payments	Interest	Net Present Value	
2024	\$ 515	\$ 81	\$ 434	\$ 24,849
2025	515	50	465	17,394
2026	472	16	456	482,658
2027	—	—	—	244,584
2028	—	—	—	9,410
Thereafter	—	—	—	16,270
Total debt and finance lease payments due	\$ 1,502	\$ 147	\$ 1,355	\$ 795,165

ABL Credit Facility

The Company's \$200 million ABL Credit Facility matures in December 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 2026 Notes.

Availability under the ABL Credit Facility fluctuates based on eligible accounts receivable and inventory levels. As of December 31, 2023, the Company had \$151 million of gross availability under the ABL Credit Facility and net available borrowings of \$118 million after taking into account \$33 million outstanding letters of credit. Additionally, the Company is subject to cash dominion if net availability falls below a certain threshold, currently \$25 million.

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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, 2023, the Company was in compliance with all covenants under the ABL Credit Facility.

2027 Term Loan

In July 2023, the Company secured term loan financing of \$250 million in aggregate principal amount and received net proceeds of \$243 million after a non-cash original issue discount of \$7 million. In addition, the Company incurred issuance costs of \$10 million, which, together with the original issue discount, were recorded in “long-term debt” in the consolidated balance sheets and will be amortized to “interest expense” in the consolidated statements of operations over the term of the loan. The net proceeds, together with cash on hand, were used to redeem the 2024 Notes and pay transaction costs.

The 2027 Term Loan matures in July 2027, requires quarterly principal payments of \$1.25 million, bears interest at an annual rate equal to three-month Term SOFR (or, if greater, 3.00 percent) plus 8.00 percent and had an effective interest rate of 14.4 percent at December 31, 2023. The Company may voluntarily make prepayments at any time, subject to customary breakage costs and, if within the first three anniversaries of closing, an additional make-whole premium.

The agreement governing the 2027 Term Loan contains various customary covenants that limit the ability of the Company and its restricted subsidiaries, as defined by the term loan agreement and in particular the Company’s French subsidiaries, to take certain specified actions, subject to stated exceptions, including: incurring debt or liens, making investments, entering into mergers, consolidations, and acquisitions, paying dividends and making other restricted payments. Additionally, the 2027 Term Loan 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.

In January 2024, the Company amended the 2027 Term Loan to increase the maximum consolidated secured net leverage ratio that it must maintain in the fourth quarter of 2023 and through its 2024 fiscal year (see below). In addition, should the Company exceed the 4.50 to 1.00 maximum ratio established by the original agreement in any of these quarters, it will incur a fee of 0.25% of the principal balance outstanding at the end of the applicable quarter. The Company incurred total fees of \$3 million related to this amendment, including \$1 million in legal and advisory fees recorded to “selling, general and administrative expense” in the consolidated statements of operations in the fourth quarter of 2023, and \$2 million in lender fees that will be recorded as deferred financing costs in the first quarter of 2024 and amortized to “interest expense” over the remaining term of the loan.

The Company is required to maintain various financial covenants, including a consolidated secured net leverage ratio, based on covenant EBITDA, as follows:

- 5.25 to 1.00 for the fourth quarter of 2023 through the second quarter of 2024;
- 5.00 to 1.00 for the third fiscal quarter of 2024;
- 4.75 to 1.00 for the fourth fiscal quarter of 2024; and
- 4.50 to 1.00 for each fiscal quarter thereafter.

At December 31, 2023, the Company was in compliance with all covenants under the 2027 Term Loan Agreement.

Senior Notes

2026 Notes

In December 2020, the Company issued \$500 million aggregate principal amount of 7.625 percent senior secured notes due January 2026, at an offering price of 100 percent. The notes had an effective interest rate of 8.3 percent at December 31, 2023.

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The 2026 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 2026 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 2026 Notes have a second priority lien on certain of the assets securing the ABL Credit Facility.

In April 2023, the Company repurchased \$10 million of the 2026 Notes through open-market transactions and retired the notes for cash of \$9 million. A gain on extinguishment of \$1 million for the repurchase was recorded to "other income, net" in the consolidated statements of operations.

During the third quarter of 2021, the Company repurchased \$25 million of the 2026 Notes at a redemption price of 103 percent and recorded a loss on extinguishment of \$1 million to "other income, net" in the consolidated statements of operations.

The indenture governing the 2026 Notes contains various customary covenants that limit the ability of the Company and its restricted subsidiaries, as defined by the 2026 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 2026 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, 2023, the Company was in compliance with all covenants under the 2026 Notes.

2024 Notes

In May 2014, the Company issued \$550 million aggregate principal amount of 5.50 percent senior unsecured notes due June 2024. The 2024 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.

In August 2023, the Company redeemed the \$318 million outstanding principal balance and accrued interest of \$4 million of the 2024 Notes. A loss on extinguishment of \$1 million related to the redemption was recorded to "other income, net" in the consolidated statements of operations. At the time of the full redemption, the Company was in compliance with all covenants under the 2024 Notes.

Prior to the full redemption of its 2024 Notes, in March 2023, the Company repurchased \$5 million of the 2024 Notes through open-market transactions and retired the notes for cash of \$5 million. An immaterial gain on extinguishment for the repurchase was recorded to "other income, net."

During 2022, the Company repurchased a total \$47 million of the 2024 Notes through open-market transactions and recorded a net gain on extinguishment of \$1 million to "other income, net" for the repurchases.

During 2021, the Company repurchased a total \$127 million of the 2024 Notes through open-market transactions and recorded a net gain on extinguishment of \$2 million to "other income, net" for the repurchases.

Short-term Factoring Facility

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, 2023 and 2022 was 4.2 percent and 0.9 percent, respectively.

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, 2023 and 2022 was 2.6 percent and 0.8 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 related 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, 2023, 2022 or 2021:

	December 31, 2021 Liability	Payments	Increase (Decrease) to Liability ^(a)	December 31, 2022 Liability	Payments	Increase (Decrease) to Liability ^(a)	December 31, 2023 Liability
Port Angeles, Washington	\$ 52,564	\$ (558)	\$ 648	\$ 52,654	\$ (484)	\$ 498	\$ 52,668
Augusta, Georgia	21,120	(1,069)	1,051	21,102	(777)	2,330	22,655
Baldwin, Florida	16,362	(431)	256	16,187	(733)	437	15,891
East Point, Georgia	17,259	(889)	1,699	18,069	(1,168)	2,811	19,712
All other sites	63,917	(1,514)	266	62,669	(2,223)	(1,081)	59,365
Total environmental liabilities	171,222	\$ (4,461)	\$ 3,920	170,681	\$ (5,385)	\$ 4,995	170,291
Current environmental liabilities	(11,303)			(10,732)			(9,833)
Non-current environmental liabilities	\$ 159,919			\$ 159,949			\$ 160,458

^(a) Included in the increase (decrease) to liability during the year ended December 31, 2022 was an increase of \$1 million due to foreign currency fluctuations. The liability as of December 31, 2023 was not materially 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 Washington 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 Washington Ecology, the remainder of the Washington MTCA regulatory process will be completed on a set timetable, subject to approval of all reports and studies by Washington 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 2023 and 2022, the estimated liability was relatively unchanged.

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, the estimated liability was relatively unchanged as payments approximated the increase in estimated costs related to the site's operation and maintenance. During 2023, the estimated liability increased primarily due to changes in estimates related to site operations 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 2023 and 2022, the estimated liability was relatively unchanged.

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 primarily due to an increase in cost estimates related to the remediation activities. During 2023, the reserve increased primarily due to increases in financial assurance rates and estimates related to site operations and maintenance.

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 environmental liability sites; 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, 2023, 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 that 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 assurance is given that these estimates 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.

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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	December 31, 2021		
	Gain (Loss) Recognized in OCI	Gain (Loss) Reclassified from AOCI into Income	Location on Statements of Operations
Foreign currency contracts	\$ —	\$ —	Other operating expense, net
Foreign currency contracts	—	4,088	Cost of sales
Foreign currency contracts	—	(397)	Other income, net

Losses reclassified from AOCI into income were immaterial during the years ended December 31, 2023 and 2022.

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

	December 31,	
	2023	2022
Foreign exchange cash flow hedges, net of tax	\$ 373	\$ 567

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.

Assets Measured at Fair Value on a Nonrecurring Basis

Asset Impairment

In the fourth quarter of 2023, the Company recorded a \$25 million non-cash impairment related to the Temiscaming plant asset group. The fair value of the Temiscaming plant assets was determined using discounted cash flows under the income approach from the perspective of a market participant assuming the highest and best use of the asset group. Discounted cash flows were estimated using key assumptions regarding production levels, price levels, profit margins, capital expenditures and discount rate, which are Level 3 measurements. See Note 7—Property, Plant and Equipment, Net for further information on this impairment.

Financial Instruments

The carrying amounts of the Company's cash, receivables and payables approximate fair value due to the short-term nature of those instruments. The carrying amount of borrowings outstanding under the ABL Credit Facility, 2027 Term Loan and short-term factoring facility approximate fair value due to their variable interest rates.

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The fair value of the Company's fixed rate debt is estimated using quoted market prices for debt with similar terms and maturities, which are Level 2 inputs, and was as follows:

	December 31,	
	2023	2022
Carrying amount of fixed rate debt ^(a)	\$ 536,393	\$ 847,591
Fair value of fixed rate debt	497,563	838,502

^(a) Excludes finance lease obligations.

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, 2023, 2022 and 2021. The Company does not expect to utilize any further authorization in the near future.

Stockholder Rights Plan

In March 2022, the Company adopted a stockholder rights plan 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. On the same 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, which was paid to Company stockholders of record as of March 31, 2022. On March 20, 2023, the Purchase Rights expired.

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14. Accumulated Other Comprehensive Loss

	Year Ended December 31,		
	2023	2022	2021
Unrecognized components of employee benefit plans, net of tax			
Balance, beginning of year	\$ (43,694)	\$ (76,849)	\$ (146,614)
Other comprehensive gain before reclassifications	12,859	38,105	63,147
Income tax on other comprehensive gain	(2,283)	(9,229)	(13,365)
Reclassifications to earnings ^(a)			
Pension settlement loss ^(b)	—	—	7,618
Amortization of (gain) loss	(705)	5,534	15,491
Amortization of prior service cost	196	25	550
Income tax on reclassifications ^(c)	90	(1,280)	(6,649)
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 on employee benefit plans, net of tax	10,157	33,155	69,765
Balance, end of year	(33,537)	(43,694)	(76,849)
Unrealized gain (loss) on derivative instruments, net of tax			
Balance, beginning of year	(567)	(847)	1,834
Reclassifications to earnings - foreign currency exchange contracts ^(c)	224	323	(3,691)
Income tax on reclassifications ^(c)	(30)	(43)	1,010
Net comprehensive gain (loss) on derivative instruments, net of tax	194	280	(2,681)
Balance, end of year ^(c)	(373)	(567)	(847)
Foreign currency translation			
Balance, beginning of year	(19,537)	(6,774)	11,145
Foreign currency translation adjustment, net of tax ^(d)	7,530	(12,763)	(17,919)
Balance, end of year	(12,007)	(19,537)	(6,774)
Accumulated other comprehensive loss, end of year	\$ (45,917)	\$ (63,798)	\$ (84,470)

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

^(c) Reclassifications of foreign currency exchange contracts are recorded in “cost of sales,” “other operating expense, net” or “other income, net,” as appropriate. See Note 11—Derivative Instruments for further information.

^(d) Foreign currency translation is net of tax effects of \$0 for all periods presented, as the French operations are taxed on the foreign functional currency, not the translated reporting currency.

^(e) Income tax effects are released from AOCI in the period in which the underlying item is realized in earnings.

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 by the potentially dilutive effect of outstanding stock options, performance-based stock and restricted stock.

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

	Year Ended December 31,		
	2023	2022	2021
Loss from continuing operations	\$ (102,147)	\$ (27,377)	\$ (49,769)
Income from discontinued operations, net of tax	312	12,458	116,183
Net income (loss) available for common stockholders	<u>\$ (101,835)</u>	<u>\$ (14,919)</u>	<u>\$ 66,414</u>
Shares used in determining basic earnings per common share	65,108,397	63,910,010	63,645,245
Dilutive effect of:			
Stock options	—	—	—
Performance and restricted stock	—	—	—
Shares used in determining diluted earnings per common share	<u>65,108,397</u>	<u>63,910,010</u>	<u>63,645,245</u>

Anti-dilutive instruments excluded from the computation of diluted earnings per share included (not in thousands):

	Year Ended December 31,		
	2023	2022	2021
Stock options	46,798	77,767	111,124
Performance and restricted stock	3,257,295	3,654,506	2,387,272
Total anti-dilutive instruments	<u>3,304,093</u>	<u>3,732,273</u>	<u>2,498,396</u>

16. Incentive Stock Plans

As of December 31, 2023, the Company had four stock-based incentive plans. The Prior Incentive Stock Plans provided for the grant of incentive stock options, non-qualified stock options, stock appreciation rights, performance stock, restricted stock and restricted stock units, subject to certain limitations. The Company no longer issues shares under the Prior Incentive Stock Plans. The 2023 Plan provides for up to 3.9 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 2023 Plan, shares available for issuance may be increased by any shares of common stock subject to awards under the Prior Incentive Stock Plans 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, 2023, approximately 3 million shares were available for future grants under the 2023 Plan.

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 reduce stock-based compensation expense during the period in which they occur. Stock-based compensation expense was as follows:

	Year Ended December 31,		
	2023	2022	2021
Stock-based compensation expense	\$ 6,507	\$ 9,650	\$ 5,099

Non-Qualified Employee Stock Option Awards

Stock option awards include RYAM awards held by employees of its former parent Rayonier Inc. 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 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.

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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. The fair value of options vested at December 31, 2023, 2022 and 2021 was zero. No options were granted or exercised during the years ended December 31, 2023, 2022 and 2021. The outstanding options at December 31, 2023 expired in January 2024.

A summary of the Company's stock option activity follows:

(not in thousands)	Stock Options	Weighted Average Exercise Price	Weighted Average Remaining Contractual Term (in years)	Aggregate Intrinsic Value
Outstanding at December 31, 2022	77,767	\$ 39.98		
Forfeited	—	—		
Exercised	—	—		
Expired	(30,969)	43.32		
Outstanding at December 31, 2023	46,798	\$ 37.77	—	\$ —
Options vested and expected to vest	46,798	\$ 37.77	—	\$ —
Options exercisable at December 31, 2023	46,798	\$ 37.77	—	\$ —

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 2023 restricted stock unit awards cliff vest after three years. The fair value of each share granted is equal to the share price of the underlying stock on the date of grant.

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

	Year Ended December 31,		
	2023	2022	2021
Restricted stock and stock units granted (not in thousands)	992,830	1,328,931	561,025
Weighted average price of restricted stock or stock units granted (not in thousands)	\$ 5.27	\$ 5.50	\$ 9.71
Intrinsic value of restricted stock and stock units outstanding	\$ 7,641	\$ 16,297	\$ 5,296
Fair value of restricted stock and stock units vested	\$ 4,264	\$ 3,772	\$ 4,412

The following table summarizes the 2023 restricted stock and stock units activity:

(not in thousands)	Restricted Stock and Stock Unit Awards	Weighted Average Grant Date Fair Value
Outstanding at December 31, 2022	1,697,587	\$ 6.21
Granted	992,830	5.27
Forfeited	(28,363)	5.95
Vested	(775,360)	5.50
Outstanding at December 31, 2023	1,886,694	\$ 6.01

As of December 31, 2023, there was \$5 million of unrecognized compensation cost related to the Company's outstanding restricted stock that is expected to be recognized over a weighted average period of 1.6 years.

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Performance-Based Stock Unit and Cash Awards

The Company's performance-based 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. Performance-based cash awards are measured using the same objectives as the performance-based stock unit awards but are classified as a liability and remeasured to fair value at the end of each reporting period until settlement.

The 2021, 2022 and 2023 performance-based awards cliff vest after three years and are based equally on TSR relative to peers and adjusted EBITDA. Participants of the 2021 and 2023 awards can earn between 0 and 200 percent of the target award. Participants of the 2022 award can earn between 0 and 250 percent of the target award. Performance below the threshold for the TSR would result in zero payout for the TSR metric for all years' awards.

The performance-based stock unit awards that 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.

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 table provides a tabular overview of the weighted average assumptions used in calculating the fair value of the awards granted:

	Year Ended December 31,		
	2023	2022	2021
Expected volatility	77.6 %	75.0 %	93.0 %
Risk-free rate	4.1 %	4.3 %	0.3 %

The following table summarizes the details of the performance-based stock units awarded to employees:

	Year Ended December 31,		
	2023	2022	2021
Common shares of stock reserved for performance-based stock units (not in thousands)	611,528	2,861,963	534,172
Weighted average fair value of performance-based stock units granted (not in thousands)	\$ 9.09	\$ 6.21	\$ 12.29
Intrinsic value of outstanding performance-based stock units	\$ 5,551	\$ 18,786	\$ 8,335

The following table summarizes the 2023 performance-based stock unit award activity:

(not in thousands)	Performance-Based Stock Unit Awards	Weighted Average Grant Date Fair Value
Outstanding at December 31, 2022	1,956,919	\$ 6.79
Granted	305,764	9.09
Forfeited	(5,433)	4.73
Vested	(886,649)	5.95
Outstanding at December 31, 2023	1,370,601	\$ 7.83

In March 2023, the performance-based stock units granted in 2020 were settled with the issuance of 1,257,015 shares of common stock, including incremental shares of 370,366, based on performance results.

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

In March 2021, the performance-based stock 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.

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As of December 31, 2023, there was \$4 million of unrecognized compensation cost related to the Company's performance-based stock unit awards that is expected to be recognized over a weighted average period of 1.7 years.

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 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 2022, the Company recorded a \$1 million loss related to the final asset surplus distribution to the plan participants of the wound-up Canadian pension plans mentioned above. In addition, 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.

During the first quarter of 2023, the Company recorded a \$2 million loss related to the final asset surplus distribution to the plan participants of certain other wound-up Canadian pension plans.

These settlements were recognized in "components of pension and OPEB, excluding service costs" in the consolidated statements of operations for the years ended December 31, 2023, 2022 and 2021.

Defined benefit pension and other postretirement plan liabilities are calculated using actuarial estimates and management assumptions. These estimates are based on historical information and certain assumptions about future events.

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

	Pension		Postretirement	
	2023	2022	2023	2022
Projected benefit obligation at beginning of year	\$ 594,455	\$ 784,426	\$ 29,944	\$ 36,525
Service cost	4,877	7,906	1,116	1,516
Interest cost	28,724	21,028	1,351	818
Actuarial (gain) loss	21,015	(157,828)	(7,198)	(7,617)
Participant contributions	700	723	115	133
Benefits paid	(41,059)	(40,220)	(1,559)	(1,334)
Settlement	2,982	—	—	—
Curtailement	—	(8,000)	—	—
Effects of foreign currency exchange rates	4,424	(13,580)	95	(97)
Projected benefit obligation at end of year	\$ 616,118	\$ 594,455	\$ 23,864	\$ 29,944
Fair value of plan assets at beginning of year	\$ 507,270	\$ 658,177	\$ —	\$ —
Actual return on plan assets	63,682	(101,914)	—	—
Employer contributions ^(a)	1,923	3,811	1,430	1,201
Participant contributions	700	723	115	133
Benefits paid	(41,059)	(40,152)	(1,545)	(1,334)
Settlement	(2,317)	(964)	—	—
Effects of foreign currency exchange rates	2,444	(12,411)	—	—
Fair value of plan assets at end of year	\$ 532,643	\$ 507,270	\$ —	\$ —
Funded Status at end of year	\$ (83,475)	\$ (87,185)	\$ (23,864)	\$ (29,944)

^(a) The Company received cash of \$6 million and \$3 million in 2023 and 2022, respectively, related to surplus assets of unwound pension plans.

	Pension		Postretirement	
	2023	2022	2023	2022
Non-current assets	\$ —	\$ 8,742	\$ —	\$ —
Current liabilities	(4,474)	(4,513)	(1,372)	(1,787)
Non-current liabilities	(79,001)	(91,414)	(22,492)	(28,157)
Net amount recognized	\$ (83,475)	\$ (87,185)	\$ (23,864)	\$ (29,944)

The projected benefit obligation increased during the year ended December 31, 2023 primarily due to the settlements of certain Canadian pension plans, actuarial losses resulting from a decrease in the discount rate assumed and foreign currency exchange rates.

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

	Pension			Postretirement		
	2023	2022	2021	2023	2022	2021
Net gain (loss)	\$ 9,202	\$ 30,531	\$ 64,173	\$ 6,639	\$ 7,574	\$ (1,025)
Prior service costs	\$ (2,982)	\$ —	\$ —	\$ —	\$ —	\$ —

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Net gain (loss) and prior service cost (credit) 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		
	2023	2022	2021	2023	2022	2021
Pension settlement loss ^(a)	\$ —	\$ —	\$ 7,618	\$ —	\$ —	\$ —
Amortization of (gain) loss	(490)	5,462	15,471	(215)	72	20
Amortization of prior service cost (credit)	294	147	703	(98)	(122)	(153)

^(a) 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. Also 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 derecognition of the projected benefit obligation.

Net gain (loss), prior service cost (credit) 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		
	2023	2022	2021	2023	2022	2021
Prior service cost (credit)	\$ (3,852)	\$ (1,204)	\$ (1,455)	\$ 659	\$ 757	\$ 879
Net gain (loss)	(50,796)	(67,770)	(95,470)	10,343	3,920	(3,547)
Curtailment	—	8,000	—	—	—	—
Deferred income tax (expense) benefit	12,630	13,750	22,243	(2,521)	(1,147)	501
Accumulated other comprehensive income (loss)	<u>\$ (42,018)</u>	<u>\$ (47,224)</u>	<u>\$ (74,682)</u>	<u>\$ 8,481</u>	<u>\$ 3,530</u>	<u>\$ (2,167)</u>

For defined benefit pension plans, the projected and accumulated benefit obligations and the fair value of plan assets were as follows:

	December 31,	
	2023	2022
Projected benefit obligation	\$ 616,118	\$ 594,455
Accumulated benefit obligation	606,072	585,404
Fair value of plan assets	532,643	507,270

For pension plans with a projected benefit obligation exceeding plan assets, the projected benefit obligation and fair value of plan assets were \$587 million and \$502 million, respectively, at December 31, 2023, and \$566 million and \$467 million, respectively, at December 31, 2022.

For pension plans with an accumulated benefit obligation exceeding plan assets, the accumulated benefit obligation and fair value of plan assets were \$577 million and \$502 million, respectively, at December 31, 2023 and \$557 million and \$467 million, respectively, at December 31, 2022.

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The following table presents the components of net periodic benefit cost of the plans:

	Pension			Postretirement		
	2023	2022	2021	2023	2022	2021
Service cost	\$ 4,877	\$ 7,906	\$ 10,322	\$ 1,116	\$ 1,516	\$ 1,437
Interest cost	28,724	21,028	17,331	1,351	818	650
Expected return on plan assets	(31,425)	(32,419)	(37,255)	—	—	—
Amortization of prior service cost (credit)	294	147	703	(98)	(122)	(153)
Amortization of (gain) loss	(490)	5,553	15,471	(215)	72	20
Pension settlement loss	2,317	964	7,618	—	—	—
Other	—	—	—	(556)	(173)	(49)
Net periodic benefit cost ^(a)	\$ 4,297	\$ 3,179	\$ 14,190	\$ 1,598	\$ 2,111	\$ 1,905

^(a) Service cost is included in “cost of sales” or “selling, general and administrative expense” in the consolidated statements of operations, as appropriate. Interest cost, expected return on plan assets, amortization of prior service cost (credit) and amortization of (gain) loss are included in “components of pension and OPEB, excluding service costs” 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 plans:

	Pension			Postretirement		
	2023	2022	2021	2023	2022	2021
Assumptions used to determine benefit obligations at December 31:						
Discount rate	4.71 %	4.95 %	2.82 %	4.72 %	4.93 %	2.77 %
Rate of compensation increase	2.50 %	2.66 %	2.65 %	3.11 %	3.53 %	3.90 %
Assumptions used to determine net periodic benefit cost for years ended December 31:						
Discount rate	4.97 %	4.21 %	2.57 %	4.94 %	4.94 %	2.42 %
Expected long-term return on plan assets	5.92 %	5.88 %	5.93 %	N/A	N/A	N/A
Rate of compensation increase	2.50 %	2.66 %	2.65 %	3.11 %	3.53 %	3.90 %

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			
	2023		2022	
	U.S.	Canada	U.S.	Canada
Health care cost trend rate assumed for next year	6.80 %	5.93 %	6.60 %	6.00 %
Rate to which cost trend is assumed to decline (ultimate trend rate)	4.00 %	5.00 %	3.70 %	5.00 %
Year that ultimate trend rate is reached	2031	2037	2074	2037

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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 at December 31, 2023. The Company's weighted average defined benefit pension plan asset allocations at December 31, by asset category, were as follows:

	Percentage of Plan Assets	
	2023	2022
U.S. equity securities	23 %	21 %
International equity securities	22 %	24 %
U.S. fixed income securities	32 %	26 %
International fixed income securities	18 %	18 %
Other ^(a)	5 %	11 %
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, 2023 or 2022.

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, 2023			
	Level 1	Level 2	Level 3	Total
Mutual funds and collective trusts	\$ 141,043	\$ —	\$ —	\$ 141,043
Corporate bonds	—	96,069	—	96,069
U.S. government securities	—	78,652	—	78,652
Derivative instruments	—	421	—	421
Investments at net asset value:				
Common collective trust funds				216,458
Total assets at fair value				\$ 532,643

	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

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The valuation methodologies used for measuring the fair value of these asset categories were as follows:

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

Corporate bonds — Valued using pricing models that maximize the use of observable inputs for similar securities, including basing value on yields currently available on comparable securities of issuers with similar credit ratings.

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

Common collective trust funds — Measured at net asset value per share, as a practical expedient for fair value, as provided by the Plan trustee. The net asset value 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, 2023 and 2022.

Cash Flows

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

	Pension	Postretirement
2024	\$ 39,581	\$ 1,563
2025	40,167	1,628
2026	40,765	1,799
2027	41,227	1,782
2028	41,485	1,829
2029 — 2033	206,156	8,804

The Company has mandatory pension contribution requirements of \$3 million in 2024 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 \$6 million, \$7 million and \$8 million for the years ended December 31, 2023, 2022 and 2021, respectively.

18. Other Operating Expense, Net

Other operating expense, net was comprised of the following:

	Year Ended December 31,		
	2023	2022	2021
Environmental liability expense ^(a)	\$ (5,784)	\$ (4,903)	\$ (6,709)
Loss on disposal of property, plant and equipment	(2,872)	(3,742)	(1,010)
Equity in income (loss) of joint venture	204	(2,737)	(2,048)
Miscellaneous income (expense)	(3,955)	1,183	(486)
Other operating expense, net	<u>\$ (12,407)</u>	<u>\$ (10,199)</u>	<u>\$ (10,253)</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.

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19. Income Taxes

Loss from continuing operations before income tax consisted of the following:

	Year Ended December 31,		
	2023	2022	2021
United States	\$ (65,413)	\$ (53,012)	\$ (64,645)
Foreign	(67,061)	29,190	(18,227)
Loss from continuing operations before income tax	<u>\$ (132,474)</u>	<u>\$ (23,822)</u>	<u>\$ (82,872)</u>

Income Tax (Expense) Benefit from Continuing Operations

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

	Year Ended December 31,		
	2023	2022	2021
Current tax (expense) benefit:			
Federal	\$ 1,623	\$ 2,815	\$ 2,676
Foreign	3,119	(7,511)	(4,924)
State and other	(144)	(154)	(158)
Total current	<u>4,598</u>	<u>(4,850)</u>	<u>(2,406)</u>
Deferred tax (expense) benefit:			
Federal	15,542	6,635	(5,241)
Foreign	12,028	(2,842)	41,962
State and other	143	155	373
Total deferred	<u>27,713</u>	<u>3,948</u>	<u>37,094</u>
Income tax (expense) benefit	<u>\$ 32,311</u>	<u>\$ (902)</u>	<u>\$ 34,688</u>

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

	Year Ended December 31,		
	2023	2022	2021
U.S. federal statutory income tax rate	21.0 %	21.0 %	21.0 %
Change in valuation allowance	(7.7)	(38.2)	(3.6)
Adjustment to previously filed tax returns	2.0	11.3	5.2
Tax credits (excluding foreign tax credit)	5.4	17.8	2.1
Nondeductible compensation for executives and share-based awards	0.5	(10.5)	(3.0)
Net changes in uncertain tax positions	(0.1)	(5.6)	(2.2)
Difference in foreign statutory rates	2.1	(8.2)	1.0
U.S. tax on foreign earnings (GILTI and Subpart F, net of FTC)	(0.1)	(0.9)	(2.2)
Change in blended statutory rate ^(a)	—	—	23.2
Interest on tax payments/receipts	0.6	10.1	—
Other	0.7	(0.6)	0.4
Effective income tax rate on continuing operations	<u>24.4 %</u>	<u>(3.8)%</u>	<u>41.9 %</u>

^(a) 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 2021 and 2022. The annual impact of remeasuring the French deferred tax liabilities to the scheduled statutory tax rates is also included here.

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Deferred Taxes

Deferred income taxes result from recording revenue and expense 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,	
	2023	2022
Deferred tax assets:		
Net operating losses ^(a)	\$ 116,353	\$ 117,939
Canadian pool of SR&ED ^(a)	96,113	95,483
Property, plant and equipment basis differences	123,521	110,092
Tax credit carryforwards ^(a)	71,741	72,238
Pension, postretirement and other employee benefits	25,114	26,533
Environmental liabilities	39,258	38,069
Deferred U.S. interest deductions ^(a)	33,188	25,731
Deferred foreign interest deductions ^(a)	3,290	—
Other compensation	5,412	5,206
State net operating losses ^(a)	3,536	3,431
Capitalized costs	19,868	9,677
Other deferred tax assets	21,003	21,047
Total gross deferred tax assets	558,397	525,446
Valuation allowance ^(a)	(78,858)	(71,353)
Total deferred tax assets, net of valuation allowance ^(b)	479,539	454,093
Deferred tax liabilities:		
Property, plant and equipment basis differences	(115,315)	(118,072)
Intangible assets	(4,377)	(7,069)
Prepaid expenses	(19,253)	(15,847)
Other deferred tax liabilities	(10,603)	(7,962)
Total deferred tax liabilities	(149,548)	(148,950)
Net deferred tax asset	\$ 329,991	\$ 305,143
Net deferred tax asset as reflected in consolidated balance sheets:		
Deferred tax assets	\$ 345,181	\$ 322,164
Deferred tax liabilities	(15,190)	(17,021)
	\$ 329,991	\$ 305,143

^(a) Further detail of these items as of December 31, 2023 follows:

	Gross Amount	Tax Effected	Valuation Allowance	Expiration
Foreign R&D credit carryforwards	\$ 35,842	\$ 35,842	\$ (35,842)	2024-2042
U.S. tax credit carryforwards	41,017	35,899	(19,256)	2024-2033
State net operating losses	74,832	3,536	(1,790)	2024-2043
Canada non-capital losses	476,808	102,039	—	2025-2037
Canada pool of SR&ED	416,679	96,113	—	None
U.S. interest limitation carryforward	150,854	33,188	(18,680)	None
U.S. federal net operating losses	50,104	10,522	—	None
Foreign interest limitation carryforward	13,192	3,290	(3,290)	None
France net operating losses	13,285	3,792	—	None

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At December 31, 2023 and 2022, the Company's net DTA included \$15 million and \$17 million, respectively, of disallowed U.S. interest deductions that the Company does not believe will be realized. In strict compliance with the AICPA's Technical Questions and Answers 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 DTA 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, 2023, 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,		
	2023	2022	2021
Balance at beginning of period	\$ 11,015	\$ 12,073	\$ 11,438
Decreases related to prior year tax positions	(1,612)	(255)	(1,330)
Increases related to prior year tax positions	2,804	440	1,019
Decreases related to current year tax positions	—	(2,386)	—
Increases related to current year tax positions	1,373	1,143	946
Balance at end of period	<u>\$ 13,580</u>	<u>\$ 11,015</u>	<u>\$ 12,073</u>

For the year ended December 31, 2023, all unrecognized tax benefits would impact the effective tax rate if recognized. For the year ended December 31, 2022, \$13 million of the Company's unrecognized tax benefits would impact the effective tax rate if recognized as a result of a \$2 million reduction in unrecognized tax benefits that would impact only the timing of tax deductions and would not impact the tax rate. Total interest and penalties recorded in unrecognized tax benefits were \$1 million for each of the years presented.

As of December 31, 2023, it is reasonably possible that the Company's unrecognized tax position will change within a range of a decrease of \$7 million and an increase of \$3 million due to 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.	2015-2023
France	2020-2023
Canada	2019-2023

Other Tax Items

Several provisions passed in 2017 as part of the Tax Cuts and Jobs Act went into effect in 2022. Certain of these provisions negatively impact the Company's U.S. cash taxes in present and 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.

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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 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 (loss). Intersegment sales consist primarily of High-Yield Pulp sales to Paperboard and are eliminated in consolidation. Intersegment sales prices are at rates that approximate market for the respective operating area.

One customer in the High Purity Cellulose segment represented 10 percent of total sales for the year ended December 31, 2023. No single customer accounted for 10 percent or more of total sales during the years ended December 31, 2022 and 2021.

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

	Year Ended December 31,		
	2023	2022	2021
High Purity Cellulose			
Cellulose Specialties	\$ 783,424	\$ 866,225	\$ 711,574
Commodity Products	431,902	354,612	279,307
Other sales ^(a)	97,438	115,009	100,268
Total High Purity Cellulose	1,312,764	1,335,846	1,091,149
Paperboard	219,408	250,167	208,332
High-Yield Pulp	135,954	159,704	135,676
Eliminations	(24,796)	(28,450)	(27,599)
Net sales	<u>\$ 1,643,330</u>	<u>\$ 1,717,267</u>	<u>\$ 1,407,558</u>

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

Operating income (loss) by segment was comprised of the following:

	Year Ended December 31,		
	2023	2022	2021
High Purity Cellulose ^(a)	\$ (41,567)	\$ 31,498	\$ 19,738
Paperboard	37,160	37,158	13,379
High-Yield Pulp	(3,155)	16,199	6,686
Corporate	(57,702)	(58,720)	(50,248)
Operating income (loss)	<u>\$ (65,264)</u>	<u>\$ 26,135</u>	<u>\$ (10,445)</u>

^(a) In 2023, included a \$62 million non-cash impairment recorded during the fourth quarter related to an asset realignment. See Note 7—Property, Plant and Equipment, Net for further details.

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Identifiable assets by segment were as follows:

	December 31,	
	2023	2022
High Purity Cellulose ^(a)	\$ 1,510,076	\$ 1,654,214
Paperboard	105,804	112,757
High-Yield Pulp	43,811	50,947
Corporate	523,009	529,610
Total assets	\$ 2,182,700	\$ 2,347,528

^(a) In 2023, included a \$62 million non-cash impairment recorded during the fourth quarter related to an asset realignment. See Note 7—Property, Plant and Equipment, Net for further details.

Long-life assets by country were as follows:

	December 31,	
	2023	2022
United States	\$ 710,896	\$ 747,110
Canada	683,468	723,133
France	213,180	187,645
Other	98	110
Total long-life assets	\$ 1,607,642	\$ 1,657,998

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

	Year Ended December 31,		
	2023	2022	2021
Depreciation and amortization:			
High Purity Cellulose	\$ 122,925	\$ 117,017	\$ 116,757
Paperboard	12,933	13,130	14,320
High-Yield Pulp	2,025	2,364	2,544
Corporate	2,100	2,065	4,678
Total depreciation and amortization	\$ 139,983	\$ 134,576	\$ 138,299
Capital expenditures:^(a)			
High Purity Cellulose	\$ 118,665	\$ 136,866	\$ 110,092
Paperboard	776	3,413	2,160
High-Yield Pulp	1,421	2,210	2,215
Corporate ^(b)	12,281	3,790	205
Total capital expenditures	\$ 133,143	\$ 146,279	\$ 114,672

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

^(b) Reflects expenditures associated with the Company's ERP transformation project. The project is expected to be completed at the end of 2024.

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

Net sales geographical distribution was as follows:

	Year Ended December 31,					
	2023	%	2022	%	2021	%
United States	\$ 544,864	33	\$ 569,265	33	\$ 472,440	34
China	473,778	29	346,026	20	295,515	21
Europe	222,778	13	343,058	20	283,685	20
Japan	158,106	10	149,373	9	118,443	9
Other Asia	126,072	8	181,952	11	130,189	9
Canada	62,657	4	72,510	4	72,490	5
All other	44,002	3	31,197	2	15,916	1
Latin America	11,073	—	23,886	1	18,880	1
Net sales	<u>\$ 1,643,330</u>	<u>100</u>	<u>\$ 1,717,267</u>	<u>100</u>	<u>\$ 1,407,558</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, \$8 million, and \$7 million in 2023, 2022 and 2021, respectively. See Note 4—Leases and Note 9—Debt and Finance Leases for further information.

At December 31, 2023, future minimum payments under purchase obligations were as follows:

2024	\$	112,007
2025		81,975
2026		72,636
2027		67,156
2028		63,348
Thereafter		331,284
Total ^(a)	<u>\$</u>	<u>728,406</u>

^(a) Primarily consist of commitments for the purchase of natural gas, steam energy and wood chips. 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 approximately \$333 million, or annual payments of approximately \$19 million through the duration of the agreement to 2041. Total required purchase volumes of wood chips and residual fiber are dependent on sawmill production.

Litigation and Contingencies

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 of softwood lumber duties between 2017 and August 2021, including \$1 million of ancillary fees, which were recorded as expense in the periods incurred. As part of the sale, the Company retained all rights and obligations to softwood duties generated or incurred through the closing date of the sale. As of December 31, 2023, the Company had a \$40 million long-term receivable associated with the USDOC's determinations of the revised rates for the 2017, 2018, 2019, 2020 and 2021 periods. This amount does not include interest, which will be due on any amounts refunded. The Company estimates that interest earned on the total amount of softwood lumber duties paid will exceed \$10 million.

Cash is not expected to return to the Company until final resolution of the softwood lumber dispute, which remains subject to legal challenges.

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 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, business interruption 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, 2023, the Company had net exposure of \$35 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 standby letters of credit have various expiration dates and are expected to be renewed as required.

The Company had surety bonds of \$90 million as of December 31, 2023, 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's proportion of the LTF financing agreement guarantee was \$28 million at December 31, 2023.

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 liability under these potential obligations due to the unique set of facts and circumstances likely to be involved with each provision.

As of December 31, 2023, the Company employed approximately 2,800 people in the U.S., Canada and France, of which 61 percent were unionized. The Company is required to negotiate wages, benefits and other terms with unionized employees collectively. At December 31, 2022, a collective bargaining agreement covering approximately 575 unionized employees was expired. The employees continued to work under the terms of the expired contract until negotiations concluded in the second quarter of 2023 and final agreement with the union was reached. As of December 31, 2023, all of the Company's collective bargaining agreements covering its unionized employees were current.

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 Costs and Expenses	Charged to Other Accounts		
Allowance for credit losses					
December 31, 2023	\$ 1,064	\$ 105	\$ —	\$ (516)	\$ 653
December 31, 2022	\$ 774	\$ 747	\$ 27	\$ (484)	\$ 1,064
December 31, 2021	\$ 487	\$ 346	\$ 2	\$ (61)	\$ 774
Allowance for sales returns					
December 31, 2023	\$ 782	\$ —	\$ (191)	\$ —	\$ 591
December 31, 2022	\$ 737	\$ —	\$ 45	\$ —	\$ 782
December 31, 2021	\$ 759	\$ (15)	\$ —	\$ (7)	\$ 737
Deferred tax asset valuation allowance					
December 31, 2023	\$ 71,353	\$ 7,505	\$ —	\$ —	\$ 78,858
December 31, 2022	\$ 67,644	\$ 3,709	\$ —	\$ —	\$ 71,353
December 31, 2021	\$ 81,133	\$ (13,489)	\$ —	\$ —	\$ 67,644
Self-insurance liabilities					
December 31, 2023	\$ 478	\$ 448	\$ —	\$ (377)	\$ 549
December 31, 2022	\$ 982	\$ (168)	\$ —	\$ (336)	\$ 478
December 31, 2021	\$ 1,028	\$ 273	\$ —	\$ (319)	\$ 982

**Subsidiaries of Rayonier Advanced Materials Inc.
As of December 31, 2023**

<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. Paperboard Sales Inc.	Delaware
RYAM Lux SARL	Luxembourg

CONSENT OF INDEPENDENT REGISTERED PUBLIC ACCOUNTING FIRM

We have issued our reports dated February 29, 2024, 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, 2023. We consent to the incorporation by reference of said reports in the Registration Statements of Rayonier Advanced Materials Inc. on Forms S-8 (File No. 333-272061, File No. 333-265015, File No. 333-218975 and File No. 333-197093).

/s/ Grant Thornton LLP

Jacksonville, Florida

February 29, 2024

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: February 29, 2024

/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: February 29, 2024

/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, 2023 (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.

Date: February 29, 2024

/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

Ivona Smith

Director

Bryan D. Yokley

Director

SENIOR LEADERSHIP

De Lyle W. Bloomquist

President and Chief Executive Officer

Kenneth J. Duffy

Senior Vice President Paperboard/High-Yield Pulp

Gabriela Garcia

Chief Accounting Officer and Vice President Controller

Joshua C. Hicks

Senior Vice President High Purity Cellulose

Marcus J. Moeltner

Chief Financial Officer
and Senior Vice President Finance

Michael D. Osborne

Vice President Manufacturing

James L. Posze, Jr.

Chief Administrative Officer
and Senior Vice President Human Resources

Christian Ribeyrolle

President, France Business
and Senior Vice President Biomaterials

Christopher W. Sittard

Vice President Sourcing

R. Colby Slaughter

Senior Vice President, General Counsel
and Corporate Secretary

ANNUAL MEETING OF STOCKHOLDERS

May 15, 2024

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

Stockholder website:

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

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